kwantitatieve risicoanalyse

Recreatiepark De Zilverden

De oliepot 9

RUCPHEN

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INHOUD

Inleiding

In de omgeving van Rucphen ligt het Recreatiepark De Zilverden. In dit recreatiepark wordt aan chalets gas geleverd afkomstig van een propaantank. Voor deze tankt moet een risico-analyse worden gemaakt.

Op 1 januari 2008 is het Besluit algemene regels voor inrichtingen milieubeheer (Activiteitenbesluit) in werking getreden. Dit besluit maakt onderscheid tussen type A-, B- en C-inrichtingen. Type A-inrichtingen hoeven geen melding voor hun activiteiten te doen en geen vergunning aan te vragen, type B-inrichtingen moeten een melding doen en type C-inrichtingen moeten een vergunning aanvragen. Type C-inrichtingen zijn aangewezen in bijlage I van het Activiteitenbesluit. Als type C-inrichtingen zijn onder andere aangewezen bedrijven waar propaan in een opslagtank met een inhoud van meer dan 13.000 liter aanwezig is (bijlage I onder j, Activiteitenbesluit). Omdat in het bedrijf een propaantank wordt gebruik met een inhoud van 18.000 liter, moet dit bedrijf worden aangemerkt als een type C-inrichting, dat wil zeggen dat de vergunningplicht blijft bestaan.

Op de propaangastank is het Besluit externe veiligheid inrichtingen (BEVI) van toepassing. Omdat de gastank groter is dan 13 m^3 is voor deze tanks een kwantitatieve risicoanalyse opgesteld. Een kwantitatieve risicoanalyse heeft als doel inzicht te geven in de gevaren van de propaangastank en de risico-contouren die hierbij horen.

1. Beschrijving van het recreatiepark

1.1. Omgeving

Het recreatiepark ligt aan de Oliepot te Rucphen. Het park ligt in een bosrijke omgeving. Hieronder is een overzicht te zien van de omgeving van het recreatiepark.

Figuur 1: ligging van het recreatiepark De Zilverden

Op het recreatiepark zijn chalets aanwezig. Hiervan worden er een aantal bijgebouwd. Deze chalets worden van gas voorzien door een bovengrondse propaantank van 18 m³. Voor het maken van een risico-analyse is de ligging van de propaantank en op opstelplaats van de tankauto van belang. Het vulpunt van de propaantank ligt op de tank, dit is dus ook de locatie van de tankauto.

De propaangastank wordt gemiddeld twee maal per maand gevuld met behulp van een tankauto.

2. Besluit Externe Veiligheid Inrichtingen/Regeling Externe Veiligheid Inrichtingen

Op 27 oktober 2004 is het "Besluit externe veiligheid inrichtingen" (Bevi) en de bijbehorende Regeling externe veiligheid inrichtingen (Revi) in werking getreden. Hiermee zijn de risiconormen voor bedrijven met de opslag van gevaarlijke stoffen wettelijk vastgelegd. Het besluit heeft tot doel de risico's voor burgers door activiteiten met gevaarlijke stoffen in inrichtingen tot een aanvaardbaar minimum te beperken. Om dit doel te bereiken is de verplichting opgenomen om afstand te houden tussen gevoelige objecten en risicovolle bedrijven.

In artikel 2 van het Besluit Externe Veiligheid Inrichtingen zijn bedrijven aangewezen waar het Besluit op van toepassing is. Het Besluit is onder andere van toepassing op inrichtingen waar meer dan 13 m^3 propaan in een insluitsysteem aanwezig is.

In het Bevi wordt onderscheid gemaakt tussen het plaatsgebonden risico en het groepsrisico. Het plaatsgebonden risico wordt uitgedrukt als een kans per jaar en geeft het risico dat een persoon die onafgebroken en onbeschermd op één plaats verblijft, overlijdt als rechtstreeks gevolg van een calamiteit binnen het bedrijf waarbij de propaangastank, vulstation of gasleiding is betrokken. De kans op overlijden is onder andere afhankelijk van de afstand tot de tank. Het risico wordt daarom uitgedrukt in contouren. Als grenswaarde voor het plaatsgebonden risico geldt een contour van 10^{-6}. Dit is de contour waarbinnen de kans op overlijden groter is dan 10^{-6} per jaar.

Het groepsrisico betreft cumulatieve kansen per jaar dat ten minste 10, 100 of 1000 personen overlijden binnen het invloedsgebied van het bedrijf als gevolg van een calamiteit met de gastank, vulstation of vulleiding.

In het 'Besluit externe veiligheid inrichtingen' wordt gesproken van invloedsgebieden. Een invloedsgebied wordt begrensd door de 1%-letaliteitsgrens, ofwel de afstand waarop nog 1% van de blootgestelde mensen in de omgeving komt te overlijden.

Bij het uitvoeren van deze QRA is de rekenmethodiek Bevi toegepast. Deze methodiek is voorgeschreven in de Handleiding risicoberekening versie 3.2. De rekenmethodiek is in beginsel toepasbaar op alle situaties die zich binnen de werkingssfeer van het Bevi kunnen voordoen. Bij de ontwikkeling van de rekenmethodiek Bevi is een aantal keuzes gemaakt. Hierbij heeft telkens een afweging plaatsgevonden tussen het zo eenduidig mogelijk maken van de rekenmethode, waarvoor parameters vastgelegd dienen te worden, en het mogelijk maken van locatiespecifieke modellering, waarvoor enige keuzevrijheid aan de gebruiker geboden moet worden. Het resultaat van deze afweging is dat, binnen het geboden kader van de rekenmethodiek, de gebruiker nog altijd de mogelijkheid heeft specifieke gegevens te wijzigen. Daarbij geldt wel de randvoorwaarde dat alle QRA-berekeningen te herleiden moeten zijn tot goed onderbouwde en volledige gedocumenteerde afwegingen en keuzes.

3. Uitgangspunten

3.1. Risicobronnen

Voor de bepaling van het plaatsgebonden risico is de aanwezigheid van de propaangastank en woningen in de omgeving van belang. Bij de berekening van het plaatsgebonden risico is uitgegaan van een bovengrondse propaangastank van 18 m³. De gegevens over de tank zijn afkomstig van de vergunninghouder en Primagaz Nederland. In de zomer heeft de tank een werkdruk van 10 bar en in de winter van 7 bar. In deze berekening is uitgegaan van een gemiddelde werkdruk van 8,5 bar. De tank is voorzien van een sprinkler-installatie.

Figuur 3: tank op het recreatieterrein

De tank is beveiligd met een overdrukventiel dat is afgeregeld op een druk van 13,8 bar. De tank wordt gevuld door tankwagens van diverse grootte De grootste tankwagen waarmee de tank wordt gevuld, heeft een inhoud van 27 m³.

Als uitgangspunt is een reservoir met een maximaal toegestane vullingsgraad van 85% gehanteerd. Gas wordt vanuit de gasfase aan het reservoir onttrokken. Deze gasleiding ligt ondergronds.

Het pompdebiet van de tankauto is 200 liter per minuut. Verder is voor de tanktauto gerekend met een toeslag voor het aan- en afkoppelen en administratieve handelingen van 10 minuten. De tankauto wordt gelost via een slang met een diameter van 1,25 inch (32 mm).

3.2. Propaan

De tank is gevuld met propaan. Propaan is een Liquefied Petroleum Gas (LPG), ook wel aangeduid als vloeibaar petroleumgas of een koolwaterstofgas. Propaan wordt rechtstreeks

gewonnen uit olie- en gasbronnen, maar komt ook als nevenproduct vrij bij het raffineren van aardolie.

Propaan heeft nagenoeg dezelfde eigenschappen als butaan, maar propaan kent een lager kookpunt. Propaan wordt dan ook al bij een zeer lage temperatuur omgezet van een vloeistof in een gas. Hierdoor is propaan bijzonder geschikt voor zowel huishoudelijk als industrieel gebruik. Het wordt toegepast voor verwarming, voor heetwatervoorziening en koken, maar ook voor een groot aantal mogelijkheden in de landbouw en de industrie

Bij een propaangastank dienen de volgende voorzorgsmaatregelen getroffen te worden:

- Voorkom open vuur of andere ontstekingsbronnen in de buurt van de propaaninstallatie. Dit geldt ook voor het gebruik van mobiele telefoons, piepers of radio's. Er mag ook niet gerookt worden.
- Negeer geen waarschuwingstekens en verwijder deze ook niet (of breng een pictogram aan).
- Het gebied moet vrijgehouden worden van lang gras, onkruid, afval en andere gemakkelijk ontvlambare of gevaarlijke materialen.
- Parkeer geen voertuigen in de buurt van de installatie.

3.3. PGS 19

Voor de opslag van propaan in tanks zijn regels vastgelegd in PGS 19. Een bovengronds reservoir moet worden ondersteund door middel van een constructie van beton of metselwerk die geschikt is om het reservoir te dragen. Het reservoir moet zijn voorzien van een aangelaste stalen ondersteuningsconstructie en zijn opgesteld op een horizontale vlakke harde ondergrond. Het reservoir moet goed bereikbaar zijn voor de tankwagen. De tankwagen moet onbelemmerd de losplaats kunnen bereiken en verlaten. De opstelplaats van de tankwagen moet zich bevinden op een afstand van ten minste 5 meter van het reservoir bevinden.

De watersproei-installatie moet gelijkmatig over het oppervlak van het reservoir ten minste 8 liter water per minuut per m^2 reservoir oppervlakte kunnen sproeien. De watersproei-installatie moet dan ook voortdurend zijn aangesloten op de watervoorziening zodat de installatie op ieder moment in bedrijf kan worden gesteld. Het niet vorstvrije gedeelte van de watersproei-installatie moet droog worden gehouden. Indien de watersproei-installatie is aangesloten op de openbare waterleiding of op een andere voorziening die onder druk water suppleert moet de toevoerafsluiting op een vorstvrije plaats zijn opgesteld op een afstand van ten minste 15 m van brandgevaarlijke objecten en van het reservoir zelf.

4. Scenario's

Vrijkomend vloeibaar butaan en propaan en mengsels hiervan gaan zeer snel over in gasvorm. Door dispersie van het gas kunnen zich grote hoeveelheden koude nevels en explosieve propaan/butaan/lucht-mengsels vormen. Deze kunnen zich over een grote afstand verspreiden. De volumevergroting van 1 liter vloeistof naar damp bij 100 kPa (1 bar) en 273 K (0°C) is voor propaan ca. 260-voudig. Omdat het gas zwaarder is dan lucht, verspreidt het zich op bodemhoogte. Het explosieve mengsel kan daarom ook op afstand van de bron ontstoken worden, bijvoorbeeld door hete oppervlakken, vonken of open vuur. Ook ten gevolge van elektrostatische ontladingen (vonkjes) kunnen deze explosieve mengsels ontstoken worden.

Om het risico in te schatten en de contouren te kunnen berekenen wordt gebruik gemaakt van de Handleiding risicoberekening versie 3.2 Bevi van 1 juli 2009. In deze handleiding zijn vaste scenario's gegeven die gebruikt moeten worden voor de berekening.

Bij de berekening van de risicocontouren wordt ervan uitgegaan dan bij een ondergrondse propaangastank altijd de volgende elementen aanwezig zijn.

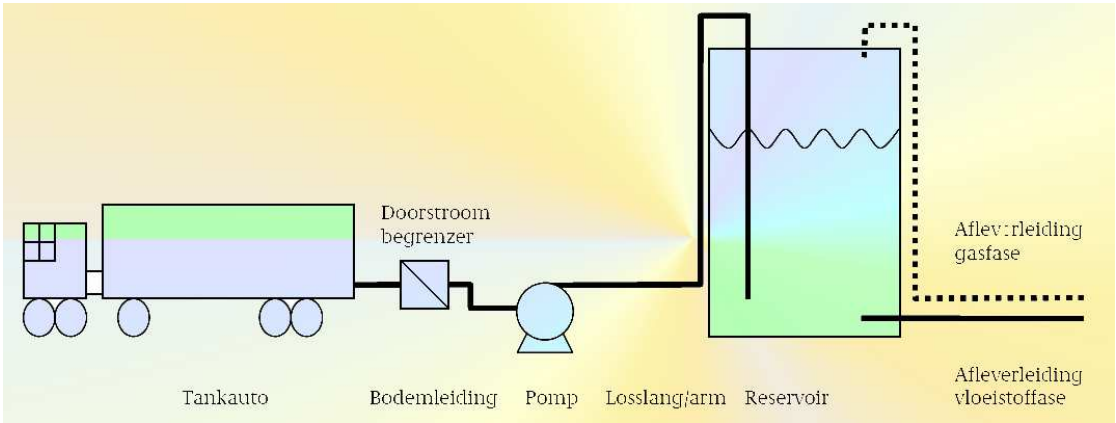
- Een of meerdere transportleidingen
- Dampretourleiding, aangesloten op de dampfase
- Snelafsluiters (aanwezig in de vloeistofleidingen, mogelijk ook in dampretourleiding)
- Een drukveiligheid in de dampfase
- Een drainleiding met afsluiters
- Instrumentatie voor niveau, druk (temperatuur)

4.1. Bepaling van het risico

Door het RIVM is op 28 maart 2010 een rekenmethodiek gepubliceerd voor het berekenen van het risico van propaantanks. De risico's worden bepaald door zowel de opslag als de verlading van propaan. Hierbij spelen de volgende activiteiten een rol.

- de tankauto
- verlading van tankauto (laden en lossen)
- het reservoir
- de afleverleiding

In de volgende figuur is de keten van het propaansysteem te zien die van belang is voor het bepalen van de risico's.



Figuur 4: keten van propaansysteem

In ieder onderdeel van het systeem kan iets fout gaan, waardoor risico's voor de omgeving ontstaan. In eerste instantie worden de faalfrequenties berekend. Een faalfrequentie geeft de kans aan op een bepaalde gebeurtenis waarbij het onderdeel faalt. Faalfrequenties zijn gegroepeerd in een gebeurtenissenboom. Een gebeurtenissenboom geeft een keten van gebeurtenissen met ieder een eigen kans op falen. Het uiteindelijke risico wordt gevormd door een sommatie van deze faalfrequenties.

4.2. Faalfrequenties

De faalfrequenties zijn gegeven voor de verschillende onderdelen van de installatie. In de rekenmethode van 28 maart 2010 zijn voor deze verschillende onderdelen scenario's gegeven. Deze scenario's worden hieronder behandeld.

4.2.1 Tankwagen

Voor het falen van de tankauto zijn twee scenario's gedefinieerd. Deze zijn te zien in de onderstaande tabel. De bijbehorende faalfrequenties gelden voor een tankauto die gedurende het hele jaar aanwezig is. Voor het uitvoeren van de berekening moet daarom de faalfrequentie worden gecorrigeerd voor de tijd dat de tankauto werkelijk aanwezig is. Het vullen van de tank duurt 1,3 uur. Voor het aan en afkoppelen van de tankauto en administratieve handelingen wordt gerekend met 10 minuten per keer. De tank wordt gemiddeld 24 maal per jaar gevuld. Dit komt overeen met een verladingsduur van 34,6 uur per jaar. De faalfrequentie van de tankauto wordt gecorrigeerd voor de tijdsduur dat de auto aanwezig is. In dit rapport is daarom gerekend met de volgende faalfrequenties voor de tankauto.

	faalfrequentie	
	per jaar	**gecorrigeerd**
T.1 instantaan vrijkomen van de gehele inhoud	5×10^{-7}	$2{,}0 \times 10^{-9}$
T.2 vrijkomen van de gehele inhoud uit de grootste aansluiting	5×10^{-7}	$2{,}0 \times 10^{-9}$

Tabel 1: scenario's voor het falen van de tankauto

4.2.2 Verlading tankwagen

Hiernaast geldt het verladen van het gas ook als risicobron. Verlading vindt plaats van een opslagreservoir naar een transporteenheid (tankauto, ketelwagen of schip) of van een transporteenheid naar een opslagreservoir. De volgende elementen zijn standaard aanwezig bij een verlading.

- Beveiligingen tegen aanrijden en verplaatsen van de transporteenheid
- Slang of ladingsarm voor de verlading van het materiaal in de vloeistoffase
- Snelafsluiters in de vloeistofleidingen met noodstopknoppen
- Pomp voor het verladen van stof
- Dampretourleiding, aangesloten op de dampfase
- Instrumentatie voor niveau, druk (temperatuur)

Tijdens het vullen van de tank kunnen de pomp en de laad- en losslang falen. In eerste instantie wordt het falen van de pomp behandeld. De faalfrequentie is berekent voor de periode dat werkelijk verlading plaatsvindt, dus zonder toeslag voor aan en afkoppelen en administratieve handelingen. Dit is 1,3 uur per levering en 30,6 uur per jaar. Als faalkans

voor de doorstroombegrenzer is 0,12 ingevoerd. De faalfrequenties zijn gecorrigeerd voor de tijd dat de pomp op het bedrijf aanwezig is. Deze zijn gegeven in de volgende tabel

	faalfrequentie	
	per uur verlading	per jaar
P.1 breuk pomp – doorstroombegrenzer sluit	$1{,}0 \times 10^{-4}$	$1{,}0 \times 10^{-4}$
P.2 breuk pomp – doorstroombegrenzer sluit niet	$1{,}0 \times 10^{-4}$	$1{,}0 \times 10^{-5}$
P.3 lekkage pomp	$4{,}4 \times 10^{-3}$	$4{,}4 \times 10^{-3}$

Tabel 2: scenario's voor het falen van de pomp

Ook de laad/losslang kan breken of lek raken. Verladingen vinden voor de tank gedurende 30,6 uur per jaar plaats. Als faalkans voor de doorstroombegrenzer is 0,12 ingevoerd. Indien de doorstroombegrenzer sluit is de uitstroomduur 5 seconde. In deze periode komt In de volgende tabel zijn deze frequenties gecorrigeerd voor de tijd dat verladen wordt.

	faalfrequentie laad-/losslang	
	per uur verlading	per jaar
L.1 Breuk van de laad-/losslang doorstroombegrenzer sluit	$4{,}0 \times 10^{-6}$	$1{,}1 \times 10^{-4}$
L.2 Breuk van de laad-/losslang doorstroombegrenzer sluit niet	$4{,}0 \times 10^{-6}$	$1{,}5 \times 10^{-5}$
L.3 Lek van de laad-/losslang met een effectieve diameter van 10% van de nominale diameter, maximaal 50 mm	$4{,}00 \times 10^{-5}$	$1{,}2 \times 10^{-3}$

Tabel 3: berekende faalfrequenties falen losslang

Daarnaast moet voor verladen van brandbare stoffen rekening worden gehouden met het falen van de tankauto als gevolg van een domino-effect. Hierbij is ervan uitgegaan dat dit falen een BLEVE (zie verder) tot gevolg heeft. Ook dit scenario is gecorrigeerd voor de aanwezigheid van de tankwagen. De waarde waarmee de berekening heeft plaatsgevonden is in de volgende tabel gegeven.

Scenario type tankauto	faalfrequentie	
	per uur verlading	per jaar
B.1 BLEVE door brand tijdens verlading – vulgraad 100%	$5{,}8 \times 10^{-10}$	$2{,}0 \times 10^{-8}$

Tabel 4: berekende faalfrequentie voor een BLEVE als gevolg van domino-effecten

Hiernaast noemt de rekenmethode van 28 maart 2010 nog de volgende scenario's:

- B.2 BLEVE door brand in de omgeving vulgraad 100 %
- B.3 BLEVE door brand in de omgeving vulgraad 67 %
- B.4 BLEVE door brand in de omgeving vulgraad 33 %
- B.5 BLEVE door externe beschadigingen in de omgeving vulgraad 100 %
- B.6 BLEVE door externe beschadigingen in de omgeving vulgraad 67 %
- B.7 BLEVE door externe beschadigingen in de omgeving vulgraad 33 %

De scenario's B.2 t/m B.4 mogen buiten beschouwing worden gelaten indien het om een vergunningsplichtige inrichting gaat en de afstanden vanaf de opstelplaats van de tankauto

tot brandbare objecten en gebouwen voldoen aan de afstanden uit de PGS 19 (ongeacht het aantal verladingen). Aan deze afstanden wordt voldaan.

Scenario's B.5, B.6 en B.7 betreffen een koude BLEVE, waarbij de barstdruk gelijk is aan de verzadigingsdruk bij omgevingstemperatuur. Deze scenario's mogen buiten beschouwing worden gelaten indien de tankauto op een geïsoleerde niet voor een ieder toegankelijke losplaats binnen een vergunningsplichtige inrichting staat opgesteld en er maatregelen zijn getroffen om externe beschadiging tegen te gaan. Het verladen vindt plaats op het bedrijfsterrein. Het terrein is door een hek van de openbare weg afgeschermd. Ook is rondom de locatie waar de tank ligt een hek geplaatst. Verder zijn de gebruikelijke maatregelen getroffen om externe beschadiging tegen te gaan. Deze scenario's zijn daarom buiten beschouwing gelaten.

4.2.3 Reservoir

De scenario's en faalfrequenties voor een bovengrondse opslagtank onder druk gelden voor de opslagtank inclusief de gelaste stompen, montageplaten, leidingaansluitingen tot aan de eerste flens en instrumentatieleidingen. In de volgende tabel is aangegeven welke scenario's moeten worden beoordeeld.

	faalfrequentie per jaar
R.1 instantaan vrijkomen van de gehele inhoud	5×10^{-7}
R.2 vrijkomen van de gehele inhoud in tien minuten in een continue en constante stroom	5×10^{-7}
R.3 continu vrijkomen van de inhoud uit een gat met een effectieve diameter van 10 mm	1×10^{-5}

Tabel 5: scenario's voor het falen van een ondergrondse tank onder druk

4.3. Gebeurtenissenbomen

Deze scenario's worden betrokken bij zowel het plaatsgebonden als het groepsrisico. Voor ieder scenario is in de Handleiding een gebeurtenissenboom gedefinieerd. In de Handleiding risicoberekening zijn per scenario gebeurtenissenbomen uitgewerkt. In een gebeurtenissenboom zijn de vervolgeffecten van het 'scenario' vermeld. De gebeurtenissenbomen voor het instantaan vrijkomen van de gehele inhoud en het continu vrijkomen van de gehele inhoud zijn hieronder uitgewerkt.

4.3.1 Instantaan vrijkomen van de gehele inhoud

Als de inhoud van een tank of tankauto in één keer geheel vrijkomt kan bij een directe ontsteking het gas direct in brand vliegen. Dit kan een BLEVE tot gevolg hebben. BLEVE staat voor Boiling Liquid Expanding Vapour Explosion. Dit is een soort explosie die kan voorkomen als een houder (tank) met een vloeistof onder druk openscheurt. Een BLEVE kan voorkomen bij een houder die gevuld is met een stof die onder atmosferische omstandigheden gasvorming is, maar onder druk een vloeistof zoals propaan. De houder bevat dan een laag vloeistof met een laag gas erboven.

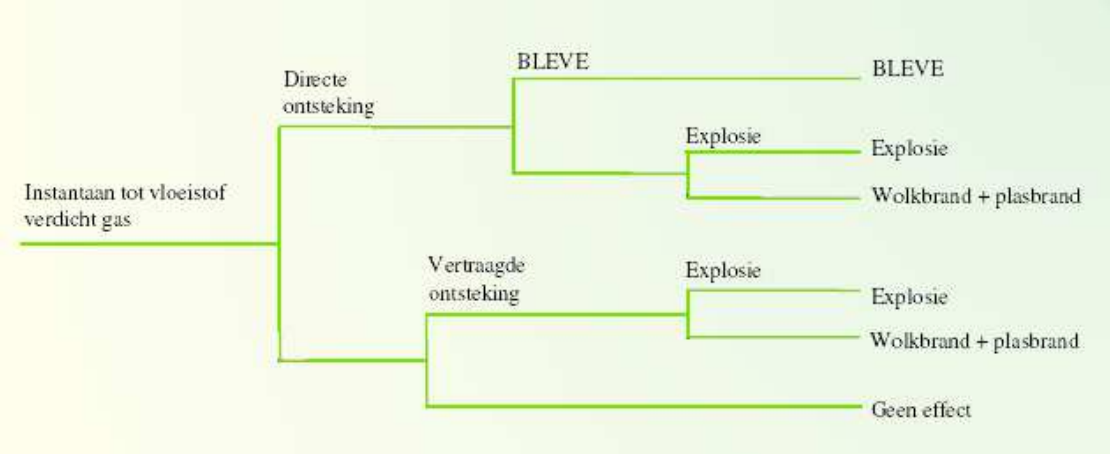
Een houder kan openscheuren door bijvoorbeeld corrosie, metaalmoeheid of een andere invloed van buitenaf. Ook verhitting van de vloeistof door zowel straling van buitenaf als

door een exotherme reactie kan de druk doen stijgen, waardoor de houder het begeeft, ondanks veiligheidsmaatregelen zoals een overdrukventiel. Door de opening in de houder kan een deel van het gas relatief snel ontsnappen. Door de snelle decompressie zal de vloeistof onmiddellijk en zeer heftig gaan koken waardoor grote hoeveelheden gas vrijkomen. Hierdoor stijgt de druk in de houder zeer snel tot een extreem hoog niveau.

Door deze hoge druk zal een tweede drukgolf de houder verlaten, maar kan de houder het ook onder explosieve omstandigheden begeven. Hierbij kunnen delen van de houder of zelfs de hele houder over een grote afstand weggeslingerd worden.

Blijft een BLEVE uit, dan kan een explosie (drukgolf) plaatsvinden. In de gaswolk kunnen druppels gevormd worden die uitregent en een plas met vloeibaar propaan op de grond vormen. Indien het gas in de brand vliegt, kan zowel de gaswolk als de plas worden aangestoken. Het gevolg is zowel een wolkbrand als een plasbrand.

Indien geen directe ontsteking plaatsvindt, ontstaat een gaswolk. Deze gaswolk kan worden aangestoken door een andere ontstekingsbron (vertraagde ontsteking) met een explosie tot gevolg. Ook hiervan kan de gaswolk uitregenen, wat bij ontsteking zowel een wolkbrand als een plasbrand tot gevolg kan hebben. In de onderstaande figuur is deze gebeurtenissenboom gegeven.



Figuur 5: gebeurtenissenboom bij instantaan vrijkomen van een tot vloeistof verdicht brandbaar gas

Een BLEVE kan plaatsvinden als gevolg van het falen van de tankauto. De condities waarbij de BLEVE optreedt, zijn in dat geval anders dan de opslagcondities. Daarom biedt het rekenpakket de mogelijkheid de faaldruk en faaltemperatuur van de BLEVE apart voor een scenario in te voeren. Voor LPG-tankauto's wordt uitgegaan van een faaldruk van 27 bar absoluut.

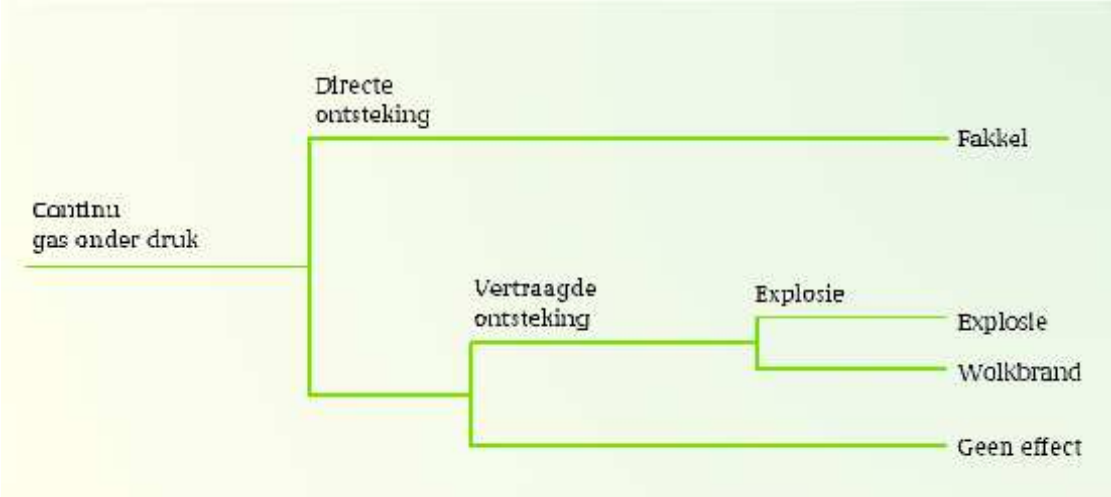
De fractie die gemodelleerd wordt als een BLEVE (+ vuurbal), geven directe ontsteking, F_{BLEVE} ($F_{vuurbal}$), is voor transporteenheden in een inrichting F_{BLEVE} ($F_{vuurbal}$) = 1,0

4.3.2 *Vrijkomen van de gehele inhoud in een continue en constante stroom*

Als gas uit de tank vrijkomt als een continue stroom zijn er weer twee mogelijkheden. Er volgt een directe ontsteking van het gas of er ontstaat een gaswolk. Als het gas direct in brand vliegt ontstaat een fakkel op de tank of de tankauto.

Als er een gaswolk ontstaat kan deze door een andere ontstekingsbron alsnog ontstoken worden. Er volgt dan een explosie of een wolkbrand.

In het model wordt ervan uitgegaan dat uitstroming plaatsvindt aan de onderkant van de tank op een hoogte van minimaal één meter. In het model wordt gerekend met een maximum uitstroomduur van 1800 seconden. Na 1800 seconden wordt aangenomen dat ingrijpen succesvol is. De blootstellingsduur is voor warmtestraling maximaal 20 seconden. In de volgende figuur is de gebeurtenissenboom gegeven.



Figuur 6: gebeurtenissenboom bij continu vrijkomen van tot vloeistof verdicht brandbaar gas

4.4. Kans op overlijden

De sterftekans (P_{letaal}) voor de blootstelling aan warmtestraling (plasbrand, fakkel, vuurbal) is gegeven in de volgende tabel.

gebied	plaatsgebonden risico	groepsrisico	
		binnen	buiten
vlamgebied	100 %	100 %	100 %
warmtestraling groter dan 35 kW/m^2	100 %	100 %	100 %
warmtestraling kleiner dan 35 kW/m^2	P_{letaal}	0 %	0,14 x P_{letaal}

Tabel 6: kans op overlijden als gevolg van blootstelling aan warmtestraling.

5. Personen op het recreatiepark

Voor het bepalen van het groepsrisico is het aantal personen in de omgeving van het recreatiepark van belang. Volgens de handleiding verantwoording groepsrisico moet worden gerekend met een bezettingsgraad per woning van 2,4 personen. Voor de berekening worden deze aantallen gemodelleerd door twee rijen, namelijk:.

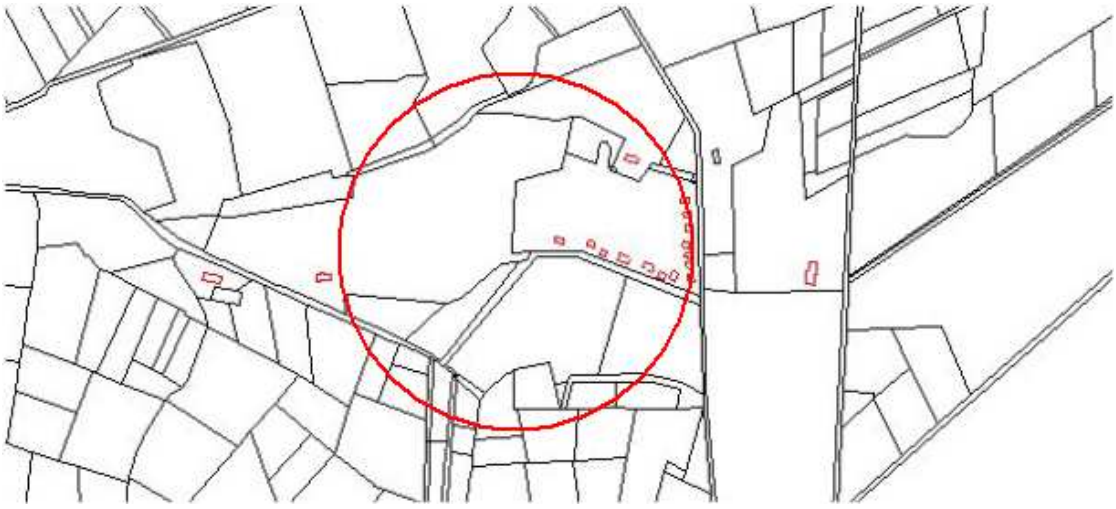
- Eén dagrij voor de bewoners met een factor 0,44;
- Eén nachtrij voor de bewoners met een factor 0,56.

In het model wordt standaard gerekend met een vaste verdeling van de bevolking binnen (in de woning aanwezig) en buiten. Deze verdeling is in onderstaande tabel gemeld.

	binnen	**buiten**
dag	0,93	0,07
nacht	0,99	0,01

Tabel 7: verdelen van bewoners binnen en buiten

Het groepsrisico moet worden bepaald in het invloedsgebied van de risicobronnen. Dit invloedsgebied wordt bepaald door de 1%-letaliteitscontour. Dit is het gebied waarin 1% van de aanwezige bevolking komt te overlijden bij een calamiteit met de tankauto of tank. De 1%-letaliteitscontour is berekend met het programma Safeti.nl versie 6.54. De tankauto is het meest bepalend voor het risico. De 1%-letaliteitscontour van de tankauto is 235 m. Op de volgende figuur is deze contour ruimtelijk weergegeven.



Figuur 7: 1%-letaliteiscontour van de tankwagen

Binnen dit invloedsgebied liggen geen woningen van derden. Wel liggen hierbinnen een aantal chalets. De berekening van het groepsrisico heeft daarom uitsluitend betrekking op vakantiewoningen die deel uitmaken van de inrichting. Na de uitbreiding van het recreatiepark liggen er 93 chalets binnen dit invloedsgebied. Als op deze chalets een gemiddelde bezettingsgraad van 2,4 personen wordt toegepast komt die overeen met 223 personen gemiddeld binnen het invloedsgebied.

De aanwezige personen moeten worden verdeeld over de dag en nacht. Safeti.nl rekent met een dagperiode van 8:00 tot 18:30 uur en een nachtperiode van 18:30 tot 8:00 uur. Deze hebben respectievelijk fracties van 0,44 en 0,56 van het etmaal. De handreiking verantwoordingsplicht groepsrisico geeft ook kentallen over de verdeling van het aantal aanwezige personen gedurende de dag- en nachtperiode. Deze zijn genoemd in de volgende tabel

Object	dag	nacht
woningen	0,5	1

Tabel 8: kentallen voor de verdelen van het aantal aanwezige personen over de dag en nacht

Met behulp van deze gegevens is het groepsrisico berekend voor chalets op het recreatiepark

6. Ontstekingsbronnen

Ontstekingsbronnen in de omgeving van de gastank kunnen bij het ontsnappen van gas voor een explosie zorgen. Ook als een explosie in eerste niet optreedt. Daarom moeten procesinstallaties, fakkels, wegen en bevolkingscentra in de omgeving van de risicobronnen bij de berekening van het risico worden betrokken.

Voor de berekening van het plaatsgebonden risico moeten de ontstekingsbronnen op het terrein van de inrichting ingevoerd worden, terwijl voor de berekening van het groepsrisico zowel de ontstekingsbronnen binnen als buiten de inrichting ingevoerd moeten worden. In dit hoofdstuk zijn de ontstekingsbronnen voor plaatsgebonden risico en het groepsrisico nader uitgewerkt.

6.1. Plaatsgebonden risico, ontstekingsbronnen op het bedrijfsterrein

Behalve de tank zijn op het bedrijfsterrein geen andere industriële ontstekingsbronnen aanwezig. De enige ontstekingsbron wordt veroorzaakt door mensen op het recreatiepark. Deze mensen kunnen worden gemodelleerd als een bevolkingsbron met een ontstekingskans van 0,01 per persoon. Omdat het hier een gemiddelde aanwezigheid van 223 personen betreft is de ontstekingskans 1 (100%).

6.2. Groepsrisico, ontstekingsbronnen in de omgeving van het bedrijf

In de berekening van het groepsrisico wordt de vertraagde ontsteking veroorzaakt door de aanwezigheid van een ontstekingsbron bijvoorbeeld puntbronnen (fakkels, procesinstallaties), lijnbron (hoogspanningskabels, spoorlijnen, wegen) en bevolkingsbronnen. In het invloedsgebied zijn verder geen bevolkingbronnen en lijnbronnen aanwezig.

7. Resultaten

In dit hoofdstuk worden de resultaten van de berekening gepresenteerd. In eerste instantie worden de gevolgen van falen beschreven. Om te bepalen in hoeverre wordt voldaan aan de grenswaarden van het Besluit externe veiligheid inrichtingen is het plaatsgebonden risico en het groepsrisico van belang. Het plaatsgebonden risico en het groepsrisico zijn berekend met het programma SAFETI.nl versie 6.54 van het DNV. Nadat de gevolgen van het falen van de tank en de tankauto in beeld is gebracht, wordt het plaatsgebonden risico en het groepsrisico verder toegelicht.

7.1. Gevolgen van falen

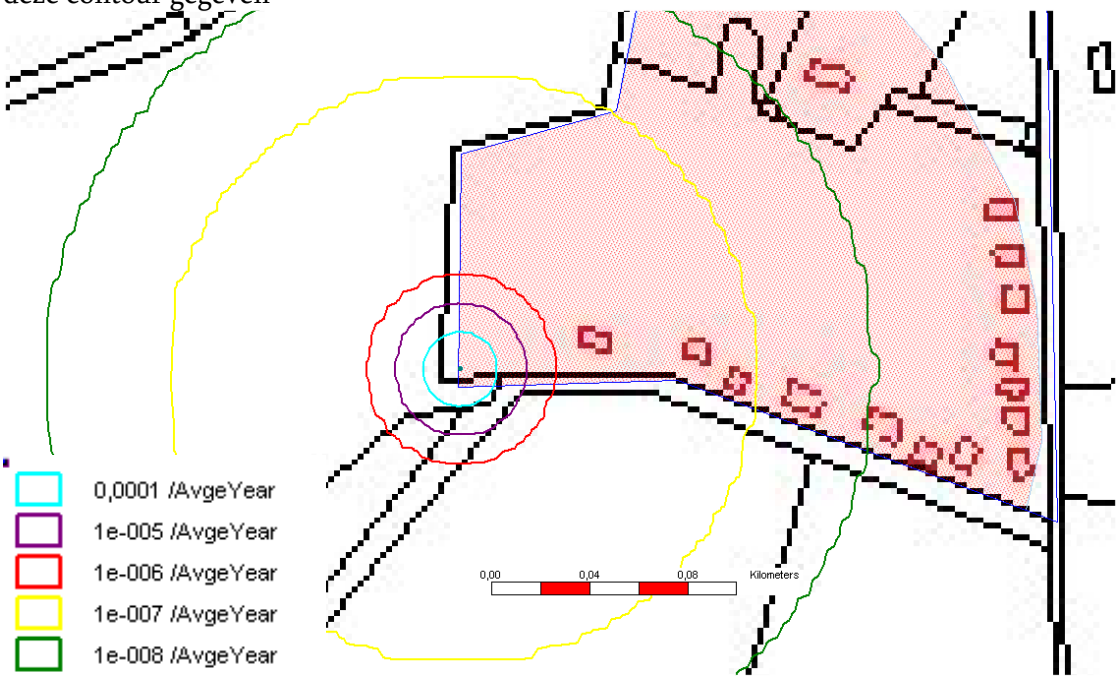
Bij het falen van een gastank kan een gaswolk ontsnappen. De wolk heeft het vlampunt bereikt op 4,7 m afstand na 3,7 seconde. Het expanderen van de gaswolk stopt na 13,6 seconde. In de gaswolk worden druppels gevormd die gaan uitregenen. Hierdoor wordt een plas van vloeibaar gas gevormd. Deze plas verdampt weer. Indien de gaswolk wordt ontstoken, heeft eerste explosie een straal van 62 m. De vuurbal stijgt op en legt in de lucht een afstand af van 124 m.

7.2. Falen van de tankauto

Bij instantaan falen van de tankauto komt een gaswolk vrij. De gaswolk bereikt het vlampunt op 7,4 meter na 5,7 seconden. De gaswolk zet na 13,5 seconde niet meer uit. Indien een BLEVE ontstaat heeft de vuurbal een straal van 72 m. De vuurbal kan opstijgen en in de lucht 144 meter afleggen.

7.3. Plaatsgebonden risico

De grenswaarde voor het plaatsgebonden risico wordt gevormd door de 10^{-6}-contour. De 10^{-6}-contour geeft een aanvaardbaar risico. Dit betekent dan het falen van de tank en tankwagen eens in de 1.000.000 jaar een aanvaardbaar risico is. In de volgende figuur is deze contour gegeven

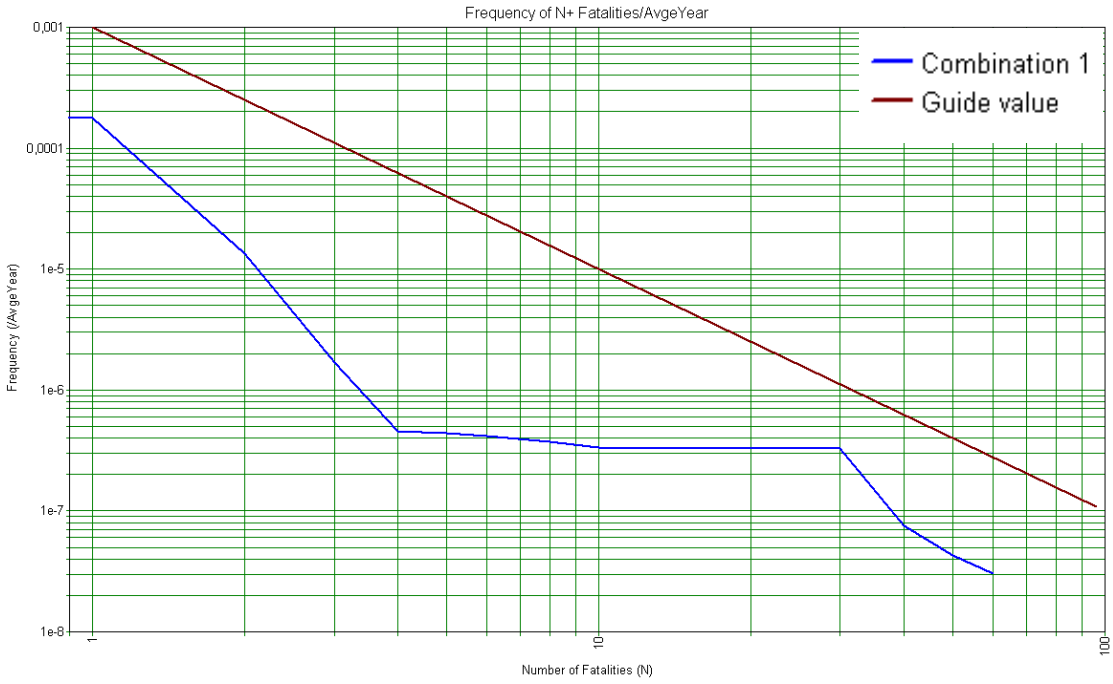


Figuur 8: ligging van de contouren van het plaatsgebonden risico

De10^{-6}-contour wordt gevormd door de rode cirkel. Binnen de rode contour bevinden zich geen woningen. Hiermee is voldaan en de grenswaarde voor het plaatsgebonden risico.

7.4. Groepsrisico

Het groepsrisico heeft uitsluitend betrekking op mensen die aanwezig zijn op het recreatiepark. De grenswaarde voor het groepsrisico wordt gevormd door een grafische lijn waar op de ene as de kans op overlijden is uitgezet en op de andere as het aantal personen waarvan het overlijden een aanvaardbaar risico is. Het betreft de kans dat 10, 100 of 1000 personen overlijden. Voor de bepaling van het groepsrisico wordt een gebied beschouwd dat binnen de 1%-letaliteitscontour ligt. Binnen de 1%-letaliteitscontour is het groepsrisico berekend. Het groepsrisico is te zien in de volgende grafiek.



Figuur 9: resultaat berekening groepsrisico

In de vorige figuur wordt de waarde waaraan voldaan moet worden aangegeven door de rode lijn. Het berekende groepsrisico wordt aangegeven door de blauwe lijn. Omdat de blauwe lijn beneden de rode lijn blijft wordt de oriëntatiewaarde voor het groepsrisico wordt niet overschreden.

7.5. Samenvatting

In dit rapport is gerekend met een propaangastank van19 m^3. Gerekend is volgens de Handleiding Risicoberekening Bevi. Vervolgens heeft toetsing plaatsgevonden aan het Besluit Externe Veiligheid Inrichtingen. Berekend is het plaatsgebonden risico en het groepsrisico. Uit de berekening blijkt dat de normstelling van het Besluit Externe Veiligheid Inrichtingen niet wordt overschreden. Dat wil zeggen dat toetsing aan externe veiligheid vergunningverlening niet in de weg staat.

Bijlagen

De Zilverden

Run Rows

Mpact results

Base Case

Data

\De Zilverden\Run Rows\plaatsgebonden risico - dag\Population Results\Mpact results

Settings for Current Run Row Results

RiskRankingPointSet	None
PopulationSet	populatie chalets
IgnitionSet	Binnen inrichting ontstekingsbronnen
StudyLocation	Location Offset
RiskRankingPointSet	None
PopulationSet	populatie chalets
IgnitionSet	Binnen inrichting ontstekingsbronnen
StudyLocation	Location Offset
RiskRankingPointSet	None
PopulationSet	populatie chalets
IgnitionSet	Buiten inrichting ontstekingsbronnen (leeg)
StudyLocation	Location Offset
RiskRankingPointSet	None
PopulationSet	populatie chalets
IgnitionSet	Buiten inrichting ontstekingsbronnen (leeg)
StudyLocation	Location Offset

[Note: Data in square brackets are defaulted values]

plaatsgebonden risico - dag

Base Case

Data

\De Zilverden\Run Rows\plaatsgebonden risico - dag

RunRow Data

Model Selection	Default Model Selection	
Parameters	Individual - Dag	
Materials	materialen	
Weathers	Woensdrecht, dag	
Population	populatie chalets	
Ignition	Binnen inrichting ontstekingsbronnen	
Results Status	Up to date	
Location Offset	Location Offset	
Offset of X from global origin	0	m
Offset of Y from global origin	0	m
Offset angle from global North	0	deg
Run Row Number	2	
factors(1)	0,44	
factors(2)	0	
factors(3)	0	
factors(4)	0	
factors(5)	0	
factors(6)	0	
factors(7)	0	
factors(8)	0	
factors(9)	0	
factors(10)	0	

Settings for Current Run Row Results

RiskRankingPointSet	None
PopulationSet	populatie chalets
IgnitionSet	Binnen inrichting ontstekingsbronnen
StudyLocation	Location Offset

⌈ Note: Data in square brackets are defaulted values ⌉

plaatsgebonden risico - nacht

Base Case

Data

\De Zilverden\Run Rows\plaatsgebonden risico - nacht

RunRow Data

Model Selection	Default Model Selection	
Parameters	Individual - Nacht	
Materials	materialen	
Weathers	Woensdrecht, nacht	
Population	populatie chalets	
Ignition	Binnen inrichting ontstekingsbronnen	
Results Status	Up to date	
Location Offset	Location Offset	
Offset of X from global origin	0	m
Offset of Y from global origin	0	m
Offset angle from global North	0	deg
Run Row Number	3	
factors(1)	0,56	
factors(2)	0	
factors(3)	0	
factors(4)	0	
factors(5)	0	
factors(6)	0	
factors(7)	0	
factors(8)	0	
factors(9)	0	
factors(10)	0	

Settings for Current Run Row Results

RiskRankingPointSet	None
PopulationSet	populatie chalets
IgnitionSet	Binnen inrichting ontstekingsbronnen
StudyLocation	Location Offset

⌈ Note: Data in square brackets are defaulted values ⌉

so - dag

Base Case

Data

\De Zilverden\Run Rows\so - dag

RunRow Data

Model Selection	Default Model Selection	
Parameters	So - Dag	
Materials	materialen	
Weathers	Woensdrecht, dag	
Population	populatie chalets	
Ignition	Buiten inrichting ontstekingsbronnen (leeg)	
Results Status	Up to date	
Location Offset	Location Offset	
Offset of X from global origin	0	m
Offset of Y from global origin	0	m
Offset angle from global North	0	deg
Run Row Number	1	
factors(1)	0,44	
factors(2)	0	
factors(3)	0	
factors(4)	0	
factors(5)	0	
factors(6)	0	
factors(7)	0	
factors(8)	0	
factors(9)	0	
factors(10)	0	

Settings for Current Run Row Results

RiskRankingPointSet	None
PopulationSet	populatie chalets
IgnitionSet	Buiten inrichting ontstekingsbronnen (leeg)
StudyLocation	Location Offset

⌈ Note: Data in square brackets are defaulted values ⌉

so - nacht

Base Case

Data

\De Zilverden\Run Rows\so - nacht

RunRow Data

Model Selection	Default Model Selection	
Parameters	So - Nacht	
Materials	materialen	
Weathers	Woensdrecht, nacht	
Population	populatie chalets	
Ignition	Buiten inrichting ontstekingsbronnen (leeg)	
Results Status	Up to date	
Location Offset	Location Offset	
Offset of X from global origin	0	m
Offset of Y from global origin	0	m
Offset angle from global North	0	deg
Run Row Number	11	
factors(1)	0,56	
factors(2)	0	
factors(3)	0	
factors(4)	0	
factors(5)	0	
factors(6)	0	
factors(7)	0	
factors(8)	0	
factors(9)	0	
factors(10)	0	

Settings for Current Run Row Results

RiskRankingPointSet	None
PopulationSet	populatie chalets
IgnitionSet	Buiten inrichting ontstekingsbronnen (leeg)
StudyLocation	Location Offset

⌈ Note: Data in square brackets are defaulted values ⌉

De Zilverden

Calculated Results

Overall Risk Integrals (for the combination of all run rows using the first column of Factors)

Rate of death	2.05484E-004	/AvgeYear
Rate of death based on the aversion index	6.87049E-004	/AvgeYear
Risk Integral for land use planning	4.46267E-004	/AvgeYear
Individual Risk potential for loss of life	4.37245E-004	/AvgeYear
Societal Risk potential for loss of life	2.04007E-004	/AvgeYear

plaatsgebonden risico - dag

Calculated Results

Grid Data

Lower X Bound of significant risk grid	95.406,00	m
Upper X Bound of significant risk grid	95.886,00	m
Lower Y Bound of significant risk grid	392.166,00	m
Upper Y Bound of significant risk grid	392.646,00	m
Number of X cells	170	
Number of Y cells	170	
Cell Size	6,00	m
Lower X Bound of calculation area grid	95.136,00	m
Upper X Bound of calculation area grid	96.156,00	m
Lower Y Bound of calculation area grid	391.890,00	m
Upper Y Bound of calculation area grid	392.910,00	m
Minimum non zero Outdoor Risk on the grid	3.69019E-018	/AvgeYear
Maximum Outdoor Risk on the grid	1.95377E-004	/AvgeYear
X coordinate for minimum risk	95.577,00	m
Y coordinate for minimum risk	392.631,00	m
X coordinate for maximum risk	95.643,00	m
Y coordinate for maximum risk	392.397,00	m
X Cell number for minimum Risk	74	
Y Cell number for minimum Risk	124	
X Cell number for maximum Risk	85	
Y Cell number for maximum Risk	85	

Overall Risk Integrals

Rate of death	1.43847E-004	/AvgeYear
Rate of death based on the aversion index	4.72985E-004	/AvgeYear
Risk Integral for land use planning	3.08416E-004	/AvgeYear
Individual Risk potential for loss of life	2.14953E-004	/AvgeYear
Societal Risk potential for loss of life	1.42895E-004	/AvgeYear

plaatsgebonden risico - nacht

Calculated Results

Grid Data

Lower X Bound of significant risk grid	95.406,00	m
Upper X Bound of significant risk grid	95.886,00	m
Lower Y Bound of significant risk grid	392.160,00	m
Upper Y Bound of significant risk grid	392.640,00	m
Number of X cells	171	
Number of Y cells	171	
Cell Size	6,00	m
Lower X Bound of calculation area grid	95.130,00	m
Upper X Bound of calculation area grid	96.156,00	m
Lower Y Bound of calculation area grid	391.890,00	m
Upper Y Bound of calculation area grid	392.916,00	m
Minimum non zero Outdoor Risk on the grid	1.68426E-019	/AvgeYear
Maximum Outdoor Risk on the grid	1.90623E-004	/AvgeYear
X coordinate for minimum risk	95.559,00	m
Y coordinate for minimum risk	392.625,00	m
X coordinate for maximum risk	95.643,00	m
Y coordinate for maximum risk	392.403,00	m
X Cell number for minimum Risk	72	
Y Cell number for minimum Risk	123	
X Cell number for maximum Risk	86	
Y Cell number for maximum Risk	86	

Overall Risk Integrals

Rate of death	0.00000E+000	/AvgeYear
Rate of death based on the aversion index	0.00000E+000	/AvgeYear
Risk Integral for land use planning	0.00000E+000	/AvgeYear
Individual Risk potential for loss of life	2.34547E-004	/AvgeYear
Societal Risk potential for loss of life	0.00000E+000	/AvgeYear

so - dag

Calculated Results

Grid Data		
Lower X Bound of significant risk grid	95.406,00	m
Upper X Bound of significant risk grid	95.886,00	m
Lower Y Bound of significant risk grid	392.166,00	m
Upper Y Bound of significant risk grid	392.646,00	m
Number of X cells	170	
Number of Y cells	170	
Cell Size	6,00	m
Lower X Bound of calculation area grid	95.136,00	m
Upper X Bound of calculation area grid	96.156,00	m
Lower Y Bound of calculation area grid	391.890,00	m
Upper Y Bound of calculation area grid	392.910,00	m
Minimum non zero Outdoor Risk on the grid	5.41363E-019	/AvgeYear
Maximum Outdoor Risk on the grid	1.75556E-004	/AvgeYear
X coordinate for minimum risk	95.577,00	m
Y coordinate for minimum risk	392.631,00	m
X coordinate for maximum risk	95.643,00	m
Y coordinate for maximum risk	392.403,00	m
X Cell number for minimum Risk	74	
Y Cell number for minimum Risk	124	
X Cell number for maximum Risk	85	
Y Cell number for maximum Risk	86	
Overall Risk Integrals		
Rate of death	1.42678E-004	/AvgeYear
Rate of death based on the aversion index	4.65341E-004	/AvgeYear
Risk Integral for land use planning	3.04009E-004	/AvgeYear
Individual Risk potential for loss of life	2.08353E-004	/AvgeYear
Societal Risk potential for loss of life	1.41745E-004	/AvgeYear

so - nacht

Calculated Results

Grid Data

Lower X Bound of significant risk grid	95.406,00	m
Upper X Bound of significant risk grid	95.886,00	m
Lower Y Bound of significant risk grid	392.160,00	m
Upper Y Bound of significant risk grid	392.640,00	m
Number of X cells	171	
Number of Y cells	171	
Cell Size	6,00	m
Lower X Bound of calculation area grid	95.130,00	m
Upper X Bound of calculation area grid	96.156,00	m
Lower Y Bound of calculation area grid	391.890,00	m
Upper Y Bound of calculation area grid	392.916,00	m
Minimum non zero Outdoor Risk on the grid	1.18345E-020	/AvgeYear
Maximum Outdoor Risk on the grid	1.71199E-004	/AvgeYear
X coordinate for minimum risk	95.559,00	m
Y coordinate for minimum risk	392.625,00	m
X coordinate for maximum risk	95.643,00	m
Y coordinate for maximum risk	392.403,00	m
X Cell number for minimum Risk	72	
Y Cell number for minimum Risk	123	
X Cell number for maximum Risk	86	
Y Cell number for maximum Risk	86	

Overall Risk Integrals

Rate of death	1.41809E-004	/AvgeYear
Rate of death based on the aversion index	4.89618E-004	/AvgeYear
Risk Integral for land use planning	3.15713E-004	/AvgeYear
Individual Risk potential for loss of life	2.13651E-004	/AvgeYear
Societal Risk potential for loss of life	1.40652E-004	/AvgeYear

De Zilverden (RunRow so - nacht)

De oliepot 9 Rucphen

breuk doorstroombegrenzer sluit

Base Case

Data

\De Zilverden\De oliepot 9 Rucphen\verlading\breuk doorstroombegrenzer sluit

Material

Material Identifier	PROPANE	
Type of Vessel	Saturated Liquid (Equilibrium vapor/liquid)	
Pressure Specification	Pressure specified	
Discharge Pressure - gauge	8,5	bar
Volume Inventory of material to discharge	0,017	m3

Scenario

Type of Event	Line rupture	
Phase	Liquid	
Building Wake Option	None	
PumpHeadSpec	No	
Tank Head	1	m
Number of Excess Flow Valves	0	
Number of Non-Return Valves	0	
Number of Shut-Off Valves	0	

Pipe

PipeDiameter	32	mm

Location

[Release elevation	1	m]
Use NLIV averaging time	NLIV not selected	
Use IDLH averaging time	IDLH not selected	
Use STEL averaging time	STEL not selected	
Supply a user defined averaging time	Not supplied	

Risk

Ignore Fireball Risks - Eg. if a mounded tank	No	
Probability of Immediate Ignition	Transport - Road tanker	
Risk effects to be modelled	Flammable	
Frequency for this event	0,00011	/AvgeYear

Bund

Status of Bund	No bund present	
[Surface type	Concrete]	
[Height	0	m]
[Modelling of bund failure	Bund cannot fail]	

Indoor/Outdoor

Location of release	Open air release	
Outdoor Release Direction	Horizontal	

Flammable

Jet Fire Method	Cone Model	

Dispersion

Late Ignition Location	No ignition location	
Mass Inventory of material to Disperse	8,3498209	kg
Model Vertical Jet Fires	No	

Fireball Parameters

[Mass modification factor	3]	
[Calculation method for fireball	DNV Recommended]	
[TNO model flame temperature	1726,85	degC]

Geometry

Geometry shape	Point	
Coordinates	Absolute	
East(1)	95644	m
North(1)	392400	m

Material

Material Identifier	PROPANE	
Type of Vessel	Saturated Liquid (Equilibrium vapor/liquid)	
Pressure Specification	Pressure specified	
Discharge Pressure - gauge	8,5	bar
Volume Inventory of material to discharge	0,017	m3

Scenario

Type of Event	Line rupture	
Phase	Liquid	
Building Wake Option	None	
PumpHeadSpec	No	
Tank Head	1	m
Number of Excess Flow Valves	0	
Number of Non-Return Valves	0	
Number of Shut-Off Valves	0	

Pipe

PipeDiameter	32	mm
Line length	5	m

Location

[Release elevation	1	m]
Use NLIV averaging time	NLIV not selected	
Use IDLH averaging time	IDLH not selected	
Use STEL averaging time	STEL not selected	
Supply a user defined averaging time	Not supplied	

Risk

Ignore Fireball Risks - Eg. if a mounded tank	No	
Probability of Immediate Ignition	Stationary - use material reactivity	
Risk effects to be modelled	Flammable	
Frequency for this event	0,0001	/AvgeYear

Bund

Status of Bund	No bund present	
[Surface type	Concrete]	
[Height	0	m]
[Modelling of bund failure	Bund cannot fail]	

Indoor/Outdoor

Location of release	Open air release
Outdoor Release Direction	Horizontal

Flammable

Jet Fire Method	Cone Model

Dispersion

Late Ignition Location	No ignition location	
Mass Inventory of material to Disperse	8,3498209	kg
Model Vertical Jet Fires	No	

Fireball Parameters

[Mass modification factor	3]	
[Calculation method for fireball	DNV Recommended]	
[TNO model flame temperature	1726,85	degC]

Geometry

Geometry shape	Point	
Coordinates	Absolute	
East(1)	95644	m
North(1)	392400	m

[Note: Data in square brackets are defaulted values]

breuk doorstroombegrenzer sluit niet

Base Case

Data

\De Zilverden\De oliepot 9 Rucphen\verlading\breuk doorstroombegrenzer sluit niet

Material

Material Identifier	PROPANE	
Type of Vessel	Saturated Liquid (Equilibrium vapor/liquid)	
Pressure Specification	Pressure specified	
Discharge Pressure - gauge	8,5	bar
Volume Inventory of material to discharge	27	m3

Scenario

Type of Event	Line rupture	
Phase	Liquid	
Building Wake Option	None	
PumpHeadSpec	No	
Tank Head	1	m
Number of Excess Flow Valves	0	
Number of Non-Return Valves	0	
Number of Shut-Off Valves	0	

Pipe

PipeDiameter	32	mm

Location

[Release elevation	1	m]
Use NLIV averaging time	NLIV not selected	
Use IDLH averaging time	IDLH not selected	
Use STEL averaging time	STEL not selected	
Supply a user defined averaging time	Not supplied	

Risk

Ignore Fireball Risks - Eg. if a mounded tank	No	
Probability of Immediate Ignition	Transport - Road tanker	
Risk effects to be modelled	Flammable	
Frequency for this event	1,5E-5	/AvgeYear

Bund

Status of Bund	No bund present	
[Surface type	Concrete]	
[Height	0	m]
[Modelling of bund failure	Bund cannot fail]	

Indoor/Outdoor

Location of release	Open air release	
Outdoor Release Direction	Horizontal	

Flammable

Jet Fire Method	Cone Model	

Dispersion

Late Ignition Location	No ignition location	
Mass Inventory of material to Disperse	13261,48	kg
Model Vertical Jet Fires	No	

Fireball Parameters

[Mass modification factor	3]	
[Calculation method for fireball	DNV Recommended]	

Fireball Parameters

[TNO model flame temperature	1726,85	degC]

Geometry

Geometry shape	Point	
Coordinates	Absolute	
East(1)	95644	m
North(1)	392400	m

Material

Material Identifier	PROPANE	
Type of Vessel	Saturated Liquid (Equilibrium vapor/liquid)	
Pressure Specification	Pressure specified	
Discharge Pressure - gauge	8,5	bar
Volume Inventory of material to discharge	27	m3

Scenario

Type of Event	Line rupture	
Phase	Liquid	
Building Wake Option	None	
PumpHeadSpec	No	
Tank Head	1	m
Number of Excess Flow Valves	0	
Number of Non-Return Valves	0	
Number of Shut-Off Valves	0	

Pipe

PipeDiameter	32	mm
Line length	5	m

Location

[Release elevation	1	m]
Use NLIV averaging time	NLIV not selected	
Use IDLH averaging time	IDLH not selected	
Use STEL averaging time	STEL not selected	
Supply a user defined averaging time	Not supplied	

Risk

Ignore Fireball Risks - Eg. if a mounded tank	No	
Probability of Immediate Ignition	Stationary - use material reactivity	
Risk effects to be modelled	Flammable	
Frequency for this event	1,5E-5	/AvgeYear

Bund

Status of Bund	No bund present	
[Surface type	Concrete]	
[Height	0	m]
[Modelling of bund failure	Bund cannot fail]	

Indoor/Outdoor

Location of release	Open air release	
Outdoor Release Direction	Horizontal	

Flammable

Jet Fire Method	Cone Model	

Dispersion

Late Ignition Location	No ignition location	
Mass Inventory of material to Disperse	13261,48	kg

Dispersion		
Model Vertical Jet Fires	No	
Fireball Parameters		
[Mass modification factor	3]	
[Calculation method for fireball	DNV Recommended]	
[TNO model flame temperature	1726,85	degC]
Geometry		
Geometry shape	Point	
Coordinates	Absolute	
East(1)	95644	m
North(1)	392400	m

[Note: Data in square brackets are defaulted values]

Fireball

Base Case

Data

\De Zilverden\De oliepot 9 Rucphen\tankwagen\Fireball

Material

Material Identifier	PROPANE	

Risk

Probability of Immediate Ignition	Stationary - use material reactivity	
Risk effects to be modelled	Flammable	
Frequency for this event	2E-8	/AvgeYear

Bund

Status of Bund	No bund present	

Fireball

Fireball Flammable Mass	13846,593	kg
Vapour Fraction	0,33	fraction
Flame Shape	Use Correlation	
Flame Emissive Power	Use Correlation	
Supply fireball pressure	Yes - Fireball pressure is supplied	
Fireball Pressure (gauge)	27	bar

Fireball Parameters

[Mass modification factor	3]	
[Calculation method for fireball	DNV Recommended]	
[TNO model flame temperature	1726,85	degC]

Geometry

Geometry shape	Point	
Coordinates	Absolute	
East(1)	95644	m
North(1)	392400	m

[Note: Data in square brackets are defaulted values]

instantaan vrijkomen

Base Case

Data

\De Zilverden\De oliepot 9 Rucphen\Propaantank\instantaan vrijkomen

Material

Material Identifier	PROPANE	
Type of Vessel	Saturated Liquid (Equilibrium vapor/liquid)	
Pressure Specification	Pressure specified	
Discharge Pressure - gauge	8,5	bar
Volume Inventory of material to discharge	18	m3

Scenario

Type of Event	Catastrophic rupture	
Phase	Liquid	
Building Wake Option	None	

Location

[Release elevation	1	m]
Use NLIV averaging time	NLIV not selected	
Use IDLH averaging time	IDLH not selected	
Use STEL averaging time	STEL not selected	
Supply a user defined averaging time	Not supplied	

Risk

Ignore Fireball Risks - Eg. if a mounded tank	No	
Probability of Immediate Ignition	Stationary - use material reactivity	
Risk effects to be modelled	Flammable	
Frequency for this event	5E-7	/AvgeYear

Bund

Status of Bund	No bund present	
[Surface type	Concrete]	
[Height	0	m]
[Modelling of bund failure	Bund cannot fail]	

Indoor/Outdoor

Location of release	Open air release	

Flammable

Jet Fire Method	Cone Model	

Dispersion

Late Ignition Location	No ignition location	
Mass Inventory of material to Disperse	8840,9868	kg
Use Burst Pressure	Yes - Supply burst pressure for fireball	
Burst Pressure - gauge	13,8	bar
Model Vertical Jet Fires	No	

Fireball Parameters

[Mass modification factor	3]	
[Calculation method for fireball	DNV Recommended]	
[TNO model flame temperature	1726,85	degC]

Geometry

Geometry shape	Point	
Coordinates	Absolute	
East(1)	95644	m
North(1)	392400	m

Material

Material Identifier	PROPANE	
Type of Vessel	Saturated Liquid (Equilibrium vapor/liquid)	
Pressure Specification	Pressure not used	
Discharge Temperature	9	degC
Volume Inventory of material to discharge	27	m3

Scenario

Type of Event	Catastrophic rupture	
Phase	Liquid	
Building Wake Option	None	

Location

[Release elevation	1	m]
Use NLIV averaging time	NLIV not selected	
Use IDLH averaging time	IDLH not selected	
Use STEL averaging time	STEL not selected	
Supply a user defined averaging time	Not supplied	

Risk

Ignore Fireball Risks - Eg. if a mounded tank	No	
Probability of Immediate Ignition	Transport - Road tanker	
Risk effects to be modelled	Flammable	
Frequency for this event	2E-9	/AvgeYear

Bund

Status of Bund	No bund present	
[Surface type	Concrete]	
[Height	0	m]
[Modelling of bund failure	Bund cannot fail]	

Indoor/Outdoor

Location of release	Open air release	

Flammable

Jet Fire Method	Cone Model	

Dispersion

Late Ignition Location	No ignition location	
Mass Inventory of material to Disperse	13919,532	kg
Use Burst Pressure	Yes - Supply burst pressure for fireball	
Burst Pressure - gauge	27	bar
Model Vertical Jet Fires	No	

Fireball Parameters

[Mass modification factor	3]	
[Calculation method for fireball	DNV Recommended]	
[TNO model flame temperature	1726,85	degC]

Geometry

Geometry shape	Point	
Coordinates	Absolute	
East(1)	95644	m
North(1)	392400	m

[Note: Data in square brackets are defaulted values]

lek

Base Case

Data

\De Zilverden\De oliepot 9 Rucphen\verlading\lek

Material

Material Identifier	PROPANE	
Type of Vessel	Saturated Liquid (Equilibrium vapor/liquid)	
Pressure Specification	Pressure specified	
Discharge Pressure - gauge	8,5	bar
Volume Inventory of material to discharge	27	m3

Scenario

Type of Event	Leak	
Phase	Liquid	
HoleDiameter	3,2	mm
Building Wake Option	None	
Tank Head	0	m

Location

[Release elevation	1	m]
Use NLIV averaging time	NLIV not selected	
Use IDLH averaging time	IDLH not selected	
Use STEL averaging time	STEL not selected	
Supply a user defined averaging time	Not supplied	

Risk

Ignore Fireball Risks - Eg. if a mounded tank	No	
Probability of Immediate Ignition	Transport - Road tanker	
Risk effects to be modelled	Flammable	
Frequency for this event	0,0012	/AvgeYear

Bund

Status of Bund	No bund present	
[Surface type	Concrete]	
[Height	0	m]
[Modelling of bund failure	Bund cannot fail]	

Indoor/Outdoor

Location of release	Open air release	
Outdoor Release Direction	Horizontal	

Flammable

Jet Fire Method	Cone Model	

Dispersion

Late Ignition Location	No ignition location	
Mass Inventory of material to Disperse	13261,48	kg
Model Vertical Jet Fires	No	

Fireball Parameters

[Mass modification factor	3]	
[Calculation method for fireball	DNV Recommended]	
[TNO model flame temperature	1726,85	degC]

Geometry

Geometry shape	Point	
Coordinates	Absolute	
East(1)	95644	m

Geometry		
North(1)	392400	m
Material		
Material Identifier	PROPANE	
Type of Vessel	Saturated Liquid (Equilibrium vapor/liquid)	
Pressure Specification	Pressure specified	
Discharge Pressure - gauge	8,5	bar
Volume Inventory of material to discharge	27	m3
Scenario		
Type of Event	Leak	
Phase	Liquid	
HoleDiameter	10	mm
Building Wake Option	None	
Tank Head	1	m
Location		
[Release elevation	1	m]
Use NLIV averaging time	NLIV not selected	
Use IDLH averaging time	IDLH not selected	
Use STEL averaging time	STEL not selected	
Supply a user defined averaging time	Not supplied	
Risk		
Ignore Fireball Risks - Eg. if a mounded tank	No	
Probability of Immediate Ignition	Stationary - use material reactivity	
Risk effects to be modelled	Flammable	
Frequency for this event	0,0012	/AvgeYear
Bund		
Status of Bund	No bund present	
[Surface type	Concrete]	
[Height	0	m]
[Modelling of bund failure	Bund cannot fail]	
Indoor/Outdoor		
Location of release	Open air release	
Outdoor Release Direction	Horizontal	
Flammable		
Jet Fire Method	Cone Model	
Dispersion		
Late Ignition Location	No ignition location	
Mass Inventory of material to Disperse	13261,48	kg
Model Vertical Jet Fires	No	
Fireball Parameters		
[Mass modification factor	3]	
[Calculation method for fireball	DNV Recommended]	
[TNO model flame temperature	1726,85	degC]
Geometry		
Geometry shape	Point	
Coordinates	Absolute	
East(1)	95644	m
North(1)	392400	m

⌈ Note: Data in square brackets are defaulted values ⌉

vrijkomen van de gehele inhoud

Base Case

Data

\De Zilverden\De oliepot 9 Rucphen\Propaantank\vrijkomen van de gehele inhoud

Material

Material Identifier	PROPANE	
Type of Vessel	Saturated Liquid (Equilibrium vapor/liquid)	
Pressure Specification	Pressure specified	
Discharge Pressure - gauge	8,5	bar
Volume Inventory of material to discharge	18	m3

Scenario

Type of Event	Fixed duration release	
Phase	Liquid	
Building Wake Option	None	
Tank Head	1	m
Duration for fixed duration scenario	600	s

Location

[Release elevation	1	m]
Use NLIV averaging time	NLIV not selected	
Use IDLH averaging time	IDLH not selected	
Use STEL averaging time	STEL not selected	
Supply a user defined averaging time	Not supplied	

Risk

Ignore Fireball Risks - Eg. if a mounded tank	No	
Probability of Immediate Ignition	Stationary - use material reactivity	
Risk effects to be modelled	Flammable	
Frequency for this event	5E-7	/AvgeYear

Bund

Status of Bund	No bund present	
[Surface type	Concrete]	
[Height	0	m]
[Modelling of bund failure	Bund cannot fail]	

Indoor/Outdoor

Location of release	Open air release	
Outdoor Release Direction	Horizontal	

Flammable

Jet Fire Method	Cone Model	

Dispersion

Late Ignition Location	No ignition location	
Mass Inventory of material to Disperse	8840,9868	kg
Model Vertical Jet Fires	No	

Fireball Parameters

[Mass modification factor	3]	
[Calculation method for fireball	DNV Recommended]	
[TNO model flame temperature	1726,85	degC]

Geometry

Geometry shape	Point	
Coordinates	Absolute	
East(1)	95644	m

Geometry		
North(1)	392400	m
Material		
Material Identifier	PROPANE	
Type of Vessel	Saturated Liquid (Equilibrium vapor/liquid)	
Pressure Specification	Pressure not used	
Discharge Temperature	9	degC
Volume Inventory of material to discharge	27	m3
Scenario		
Type of Event	Fixed duration release	
Phase	Vapor	
Building Wake Option	None	
Duration for fixed duration scenario	600	s
Location		
[Release elevation	1	m]
Use NLIV averaging time	NLIV not selected	
Use IDLH averaging time	IDLH not selected	
Use STEL averaging time	STEL not selected	
Supply a user defined averaging time	Not supplied	
Risk		
Ignore Fireball Risks - Eg. if a mounded tank	No	
Probability of Immediate Ignition	Transport - Road tanker	
Risk effects to be modelled	Flammable	
Frequency for this event	2E-9	/AvgeYear
Bund		
Status of Bund	No bund present	
[Surface type	Concrete]	
[Height	0	m]
[Modelling of bund failure	Bund cannot fail]	
Indoor/Outdoor		
Location of release	Open air release	
Outdoor Release Direction	Horizontal	
Flammable		
Jet Fire Method	Cone Model	
Dispersion		
Late Ignition Location	No ignition location	
Mass Inventory of material to Disperse	13919,532	kg
Model Vertical Jet Fires	No	
Fireball Parameters		
[Mass modification factor	3]	
[Calculation method for fireball	DNV Recommended]	
[TNO model flame temperature	1726,85	degC]
Geometry		
Geometry shape	Point	
Coordinates	Absolute	
East(1)	95644	m
North(1)	392400	m

[Note: Data in square brackets are defaulted values]

vrijkomen via lek

Base Case

Data

\De Zilverden\De oliepot 9 Rucphen\Propaantank\vrijkomen via lek

Material

Material Identifier	PROPANE	
Type of Vessel	Saturated Liquid (Equilibrium vapor/liquid)	
Pressure Specification	Pressure specified	
Discharge Pressure - gauge	8,5	bar
Volume Inventory of material to discharge	18	m3

Scenario

Type of Event	Leak	
Phase	Liquid	
HoleDiameter	10	mm
Building Wake Option	None	
Tank Head	1	m

Location

[Release elevation	1	m]
Use NLIV averaging time	NLIV not selected	
Use IDLH averaging time	IDLH not selected	
Use STEL averaging time	STEL not selected	
Supply a user defined averaging time	Not supplied	

Risk

Ignore Fireball Risks - Eg. if a mounded tank	No	
Probability of Immediate Ignition	Stationary - use material reactivity	
Risk effects to be modelled	Flammable	
Frequency for this event	1E-5	/AvgeYear

Bund

Status of Bund	No bund present	
[Surface type	Concrete]	
[Height	0	m]
[Modelling of bund failure	Bund cannot fail]	

Indoor/Outdoor

Location of release	Open air release	
Outdoor Release Direction	Horizontal	

Flammable

Jet Fire Method	Cone Model	

Dispersion

Late Ignition Location	No ignition location	
Mass Inventory of material to Disperse	8840,9868	kg
Model Vertical Jet Fires	No	

Fireball Parameters

[Mass modification factor	3]	
[Calculation method for fireball	DNV Recommended]	
[TNO model flame temperature	1726,85	degC]

Geometry

Geometry shape	Point	
Coordinates	Absolute	
East(1)	95644	m

Geometry

North(1)	392400 m

[Note: Data in square brackets are defaulted values]

De Zilverden (RunRow so - nacht)

De oliepot 9 Rucphen

breuk doorstroombegrenzer sluit

Base Case

Data

Weather: **Woensdrecht, nacht\Woensdrecht - D 1.5m/s**

Speed: **1,50 m/s** **Stability:** **D**

\De Zilverden\De oliepot 9 Rucphen\verlading\breuk doorstroombegrenzer sluit

Material: PROPANE

Dispersion Commentary

-------- Dispersion Results

Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000468368 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 2,63411 s
The release duration 2,63411 s is less than the flammable averaging time 18,75 s.
If the concentration was averaged at a specific location, it could be lower than the reported concentration.
Cloud center has reached the UFL concentration 0,095 fraction at distance 5,14613 m and time 0,0995171 s
Cloud edge has touched down at distance 10,486 m and time 0,393403 s
Droplets totally evaporate at cloud centreline distance 14,5815 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 23,0881 m and time 2,25864 s
Bund was not hit

-------- Dispersion Results

Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000510139 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 2,18266 s
The release duration 2,18266 s is less than the flammable averaging time 18,75 s.
If the concentration was averaged at a specific location, it could be lower than the reported concentration.
Cloud center has reached the UFL concentration 0,095 fraction at distance 5,57057 m and time 0,103884 s
Cloud edge has touched down at distance 10,4862 m and time 0,354253 s
Droplets totally evaporate at cloud centreline distance 16,6295 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 26,3893 m and time 2,7057 s
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - D 1.5m/s Results

Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - D 1.5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 24 records, 1 segment headers, 22 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 1.5m/s Results
JetFire preprocessor returned a mass rate of 3,16988 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 1.5m/s Results
JetFire preprocessor returned a mass rate of 3,16988 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Xplode Woensdrecht - D 1.5m/s Results
Early Explosion flammable mass calculated as 8,350 kg
Early Explosion Liquid Fraction calculated to be 0,659217
-------- Pipe/Orifice Woensdrecht - D 1.5m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - D 1.5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 24 records, 1 segment headers, 22 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 1.5m/s Results
JetFire preprocessor returned a mass rate of 3,82552 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 1.5m/s Results
JetFire preprocessor returned a mass rate of 3,82552 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Xplode Woensdrecht - D 1.5m/s Results
Early Explosion flammable mass calculated as 8,350 kg
Early Explosion Liquid Fraction calculated to be 0,660547

Warnings

-------- Jet Fire Woensdrecht - D 1.5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 6 m from the discharge point
-------- Linked Radiation Woensdrecht - D 1.5m/s Results
Rads 1005: Radiation ellipse found for 26,442 kW/m2 has probit-calculated probability of death less than the minimum so no further ellipses will be calculated
-------- Jet Fire Woensdrecht - D 1.5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 6 m from the discharge point
-------- Linked Radiation Woensdrecht - D 1.5m/s Results
RADS 1006: Cannot find the upwind ellipse boundary for view factor of 0 although one must

exist. Set to the release point
RADS 1006: Cannot find the upwind ellipse boundary for view factor of 0 although one must exist. Set to the release point
RADS 1006: Cannot find the upwind ellipse boundary for view factor of 0 although one must exist. Set to the release point
-------- Linked Radiation Woensdrecht - D 1.5m/s Results
Rads 1005: Radiation ellipse found for 26,442 kW/m2 has probit-calculated probability of death less than the minimum so no further ellipses will be calculated

Weather: **Woensdrecht, nacht\Woensdrecht - D 5.0m/s**

Speed: **5,00 m/s** **Stability:** **D**

\De Zilverden\De oliepot 9 Rucphen\verlading\breuk doorstroombegrenzer sluit

Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000468368 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 2,63411 s
The release duration 2,63411 s is less than the flammable averaging time 18,75 s.
If the concentration was averaged at a specific location, it could be lower than the reported concentration.
Cloud center has reached the UFL concentration 0,095 fraction at distance 4,59007 m and time 0,0834762 s
Cloud edge has touched down at distance 8,31033 m and time 0,263906 s
Droplets totally evaporate at cloud centreline distance 12,1501 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 16,804 m and time 1,17815 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000510139 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 2,18266 s
The release duration 2,18266 s is less than the flammable averaging time 18,75 s.
If the concentration was averaged at a specific location, it could be lower than the reported concentration.
Cloud center has reached the UFL concentration 0,095 fraction at distance 5,03662 m and time 0,0910536 s
Cloud edge has touched down at distance 8,3104 m and time 0,237764 s
Droplets totally evaporate at cloud centreline distance 14,71 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 19,7781 m and time 1,46777 s
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - D 5.0m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - D 5.0m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 22 records, 1 segment headers, 20 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 5.0m/s Results
JetFire preprocessor returned a mass rate of 3,16988 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 5.0m/s Results
JetFire preprocessor returned a mass rate of 3,16988 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Xplode Woensdrecht - D 5.0m/s Results
Early Explosion flammable mass calculated as 8,350 kg
Early Explosion Liquid Fraction calculated to be 0,659217
-------- Pipe/Orifice Woensdrecht - D 5.0m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - D 5.0m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 23 records, 1 segment headers, 21 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 5.0m/s Results
JetFire preprocessor returned a mass rate of 3,82552 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 5.0m/s Results
JetFire preprocessor returned a mass rate of 3,82552 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Xplode Woensdrecht - D 5.0m/s Results
Early Explosion flammable mass calculated as 8,350 kg
Early Explosion Liquid Fraction calculated to be 0,660547

Warnings

-------- Jet Fire Woensdrecht - D 5.0m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 5 m from the discharge point
-------- Linked Radiation Woensdrecht - D 5.0m/s Results
Rads 1005: Radiation ellipse found for 26,442 kW/m2 has probit-calculated probability of death less than the minimum so no further ellipses will be calculated
-------- Jet Fire Woensdrecht - D 5.0m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground

approximately at distance 5 m from the discharge point
-------- Linked Radiation Woensdrecht - D 5.0m/s Results
Rads 1005: Radiation ellipse found for 26,442 kW/m2 has probit-calculated probability of death less than the minimum so no further ellipses will be calculated

Weather: **Woensdrecht, nacht\Woensdrecht - D 9.0m/s**
Speed: **9,00 m/s** **Stability:** **D**

\De Zilverden\De oliepot 9 Rucphen\verlading\breuk doorstroombegrenzer sluit

Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000468368 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 2,63411 s
The release duration 2,63411 s is less than the flammable averaging time 18,75 s.
If the concentration was averaged at a specific location, it could be lower than the reported concentration.
Cloud center has reached the UFL concentration 0,095 fraction at distance 4,03422 m and time 0,0650198 s
Cloud edge has touched down at distance 7,15841 m and time 0,201398 s
Droplets totally evaporate at cloud centreline distance 10,2303 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 12,5769 m and time 0,663097 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000510139 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 2,18266 s
The release duration 2,18266 s is less than the flammable averaging time 18,75 s.
If the concentration was averaged at a specific location, it could be lower than the reported concentration.
Cloud center has reached the UFL concentration 0,095 fraction at distance 4,60592 m and time 0,0746477 s
Cloud edge has touched down at distance 8,18243 m and time 0,244504 s
Droplets totally evaporate at cloud centreline distance 12,2783 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 14,9913 m and time 0,842461 s
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - D 9.0m/s Results
Running model Pipe/Orifice...

-------- Dispersion Woensdrecht - D 9.0m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 22 records, 1 segment headers, 20 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 9.0m/s Results
JetFire preprocessor returned a mass rate of 3,16988 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 9.0m/s Results
JetFire preprocessor returned a mass rate of 3,16988 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Xplode Woensdrecht - D 9.0m/s Results
Early Explosion flammable mass calculated as 8,350 kg
Early Explosion Liquid Fraction calculated to be 0,659217
-------- Pipe/Orifice Woensdrecht - D 9.0m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - D 9.0m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 22 records, 1 segment headers, 20 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 9.0m/s Results
JetFire preprocessor returned a mass rate of 3,82552 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 9.0m/s Results
JetFire preprocessor returned a mass rate of 3,82552 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Xplode Woensdrecht - D 9.0m/s Results
Early Explosion flammable mass calculated as 8,350 kg
Early Explosion Liquid Fraction calculated to be 0,660547

Warnings

-------- Jet Fire Woensdrecht - D 9.0m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 4 m from the discharge point
-------- Linked Radiation Woensdrecht - D 9.0m/s Results
Rads 1005: Radiation ellipse found for 26,442 kW/m2 has probit-calculated probability of death less than the minimum so no further ellipses will be calculated
-------- Jet Fire Woensdrecht - D 9.0m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 4 m from the discharge point
-------- Linked Radiation Woensdrecht - D 9.0m/s Results
Rads 1005: Radiation ellipse found for 26,442 kW/m2 has probit-calculated probability of death less than the minimum so no further ellipses will be calculated

Weather: Woensdrecht, nacht\Woensdrecht - E 5m/s
Speed: 5,00 m/s **Stability:** E

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Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000468397 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 2,63411 s
The release duration 2,63411 s is less than the flammable averaging time 18,75 s.
If the concentration was averaged at a specific location, it could be lower than the reported concentration.
Cloud center has reached the UFL concentration 0,095 fraction at distance 4,59755 m and time 0,0845023 s
Cloud edge has touched down at distance 8,6303 m and time 0,292363 s
Droplets totally evaporate at cloud centreline distance 14,3898 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 17,9661 m and time 1,44763 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000510148 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 2,18266 s
The release duration 2,18266 s is less than the flammable averaging time 18,75 s.
If the concentration was averaged at a specific location, it could be lower than the reported concentration.
Cloud center has reached the UFL concentration 0,095 fraction at distance 5,04208 m and time 0,09205 s
Cloud edge has touched down at distance 8,31039 m and time 0,241405 s
Droplets totally evaporate at cloud centreline distance 14,7099 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 21,4902 m and time 1,88154 s
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - E 5m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - E 5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC

Dispersion results file read. 23 records, 1 segment headers, 21 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - E 5m/s Results
JetFire preprocessor returned a mass rate of 3,16988 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - E 5m/s Results
JetFire preprocessor returned a mass rate of 3,16988 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Xplode Woensdrecht - E 5m/s Results
Early Explosion flammable mass calculated as 8,350 kg
Early Explosion Liquid Fraction calculated to be 0,659217
-------- Pipe/Orifice Woensdrecht - E 5m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - E 5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 24 records, 1 segment headers, 22 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - E 5m/s Results
JetFire preprocessor returned a mass rate of 3,82552 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - E 5m/s Results
JetFire preprocessor returned a mass rate of 3,82552 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Xplode Woensdrecht - E 5m/s Results
Early Explosion flammable mass calculated as 8,350 kg
Early Explosion Liquid Fraction calculated to be 0,660547

Warnings

-------- Jet Fire Woensdrecht - E 5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 5 m from the discharge point
-------- Linked Radiation Woensdrecht - E 5m/s Results
Rads 1005: Radiation ellipse found for 26,442 kW/m2 has probit-calculated probability of death less than the minimum so no further ellipses will be calculated
-------- Jet Fire Woensdrecht - E 5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 5 m from the discharge point
-------- Linked Radiation Woensdrecht - E 5m/s Results
Rads 1005: Radiation ellipse found for 26,442 kW/m2 has probit-calculated probability of death less than the minimum so no further ellipses will be calculated

Weather: Woensdrecht, nacht\Woensdrecht - F 1.5m/s
Speed: 1,50 m/s **Stability:** F

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Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000468413 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 2,63411 s
The release duration 2,63411 s is less than the flammable averaging time 18,75 s.
If the concentration was averaged at a specific location, it could be lower than the reported concentration.
Cloud center has reached the UFL concentration 0,095 fraction at distance 5,18555 m and time 0,101031 s
Cloud edge has touched down at distance 9,97409 m and time 0,355326 s
Droplets totally evaporate at cloud centreline distance 14,5813 m
Quasi-instantaneous transition made at distance 20,3114 m and time 4,11363 s
Cloud center has reached the LFL concentration 0,02 fraction at distance 25,2264 m and time 5,71641 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000510132 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 2,18266 s
The release duration 2,18266 s is less than the flammable averaging time 18,75 s.
If the concentration was averaged at a specific location, it could be lower than the reported concentration.
Cloud center has reached the UFL concentration 0,095 fraction at distance 5,60138 m and time 0,105157 s
Cloud edge has touched down at distance 9,9742 m and time 0,320299 s
Droplets totally evaporate at cloud centreline distance 13,0458 m
Quasi-instantaneous transition made at distance 21,2953 m and time 4,57444 s
Cloud center has touched down at distance 28,5117 m and time 7,32504 s
Cloud center has reached the LFL concentration 0,02 fraction at distance 27,3419 m and time 6,65319 s
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - F 1.5m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - F 1.5m/s Results
Dispersion will end at a concentration of 20000 ppm

Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 33 records, 1 segment headers, 31 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - F 1.5m/s Results
JetFire preprocessor returned a mass rate of 3,16988 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - F 1.5m/s Results
JetFire preprocessor returned a mass rate of 3,16988 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Xplode Woensdrecht - F 1.5m/s Results
Early Explosion flammable mass calculated as 8,350 kg
Early Explosion Liquid Fraction calculated to be 0,659217
-------- Pipe/Orifice Woensdrecht - F 1.5m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - F 1.5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 34 records, 1 segment headers, 32 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - F 1.5m/s Results
JetFire preprocessor returned a mass rate of 3,82552 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - F 1.5m/s Results
JetFire preprocessor returned a mass rate of 3,82552 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Xplode Woensdrecht - F 1.5m/s Results
Early Explosion flammable mass calculated as 8,350 kg
Early Explosion Liquid Fraction calculated to be 0,660547

Warnings

-------- Jet Fire Woensdrecht - F 1.5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 6 m from the discharge point
-------- Linked Radiation Woensdrecht - F 1.5m/s Results
Rads 1005: Radiation ellipse found for 26,442 kW/m2 has probit-calculated probability of death less than the minimum so no further ellipses will be calculated
-------- Jet Fire Woensdrecht - F 1.5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 6 m from the discharge point
-------- Linked Radiation Woensdrecht - F 1.5m/s Results
RADS 1006: Cannot find the upwind ellipse boundary for view factor of 0 although one must exist. Set to the release point
RADS 1006: Cannot find the upwind ellipse boundary for view factor of 0 although one must exist. Set to the release point

RADS 1006: Cannot find the upwind ellipse boundary for view factor of 0 although one must exist. Set to the release point

-------- Linked Radiation Woensdrecht - F 1.5m/s Results

Rads 1005: Radiation ellipse found for 26,442 kW/m2 has probit-calculated probability of death less than the minimum so no further ellipses will be calculated

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Base Case

Data

Weather: **Woensdrecht, nacht\Woensdrecht - D 1.5m/s**

Speed: **1,50 m/s** **Stability:** **D**

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Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000468368 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 5,14613 m and time 0,0995171 s
Cloud edge has touched down at distance 10,486 m and time 0,393403 s
Droplets totally evaporate at cloud centreline distance 14,5815 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 23,0881 m and time 2,25864 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000510139 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 5,57057 m and time 0,103884 s
Cloud edge has touched down at distance 10,4862 m and time 0,354253 s
Droplets totally evaporate at cloud centreline distance 16,6295 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 26,3893 m and time 2,7057 s
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - D 1.5m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - D 1.5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 24 records, 1 segment headers, 22 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 1.5m/s Results
JetFire preprocessor returned a mass rate of 3,16988 kg/s

Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 1.5m/s Results
JetFire preprocessor returned a mass rate of 3,16988 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Pipe/Orifice Woensdrecht - D 1.5m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - D 1.5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 24 records, 1 segment headers, 22 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 1.5m/s Results
JetFire preprocessor returned a mass rate of 3,82552 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 1.5m/s Results
JetFire preprocessor returned a mass rate of 3,82552 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model

Warnings

-------- Jet Fire Woensdrecht - D 1.5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 6 m from the discharge point
-------- Jet Fire Woensdrecht - D 1.5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 6 m from the discharge point
-------- Linked Radiation Woensdrecht - D 1.5m/s Results
RADS 1006: Cannot find the upwind ellipse boundary for view factor of 0 although one must exist. Set to the release point
RADS 1006: Cannot find the upwind ellipse boundary for view factor of 0 although one must exist. Set to the release point
RADS 1006: Cannot find the upwind ellipse boundary for view factor of 0 although one must exist. Set to the release point

Weather: **Woensdrecht, nacht\Woensdrecht - D 5.0m/s**

Speed: **5,00 m/s** **Stability:** **D**

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Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000468368 m

Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 4,59007 m and time 0,0834762 s
Cloud edge has touched down at distance 8,31033 m and time 0,263906 s
Droplets totally evaporate at cloud centreline distance 12,1501 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 16,804 m and time 1,17815 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000510139 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 5,03662 m and time 0,0910536 s
Cloud edge has touched down at distance 8,3104 m and time 0,237764 s
Droplets totally evaporate at cloud centreline distance 14,71 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 19,7781 m and time 1,46777 s
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - D 5.0m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - D 5.0m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 22 records, 1 segment headers, 20 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 5.0m/s Results
JetFire preprocessor returned a mass rate of 3,16988 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 5.0m/s Results
JetFire preprocessor returned a mass rate of 3,16988 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Pipe/Orifice Woensdrecht - D 5.0m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - D 5.0m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 23 records, 1 segment headers, 21 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 5.0m/s Results

JetFire preprocessor returned a mass rate of 3,82552 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 5.0m/s Results
JetFire preprocessor returned a mass rate of 3,82552 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model

Warnings

-------- Jet Fire Woensdrecht - D 5.0m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 5 m from the discharge point
-------- Jet Fire Woensdrecht - D 5.0m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 5 m from the discharge point

Weather: **Woensdrecht, nacht\Woensdrecht - D 9.0m/s**

Speed: **9,00 m/s** **Stability:** **D**

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Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000468368 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 4,03422 m and time 0,0650198 s
Cloud edge has touched down at distance 7,15841 m and time 0,201398 s
Droplets totally evaporate at cloud centreline distance 10,2303 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 12,5769 m and time 0,663097 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000510139 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 4,60592 m and time 0,0746477 s
Cloud edge has touched down at distance 8,18243 m and time 0,244504 s
Droplets totally evaporate at cloud centreline distance 12,2783 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 14,9913 m and time 0,842461 s

Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - D 9.0m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - D 9.0m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 22 records, 1 segment headers, 20 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 9.0m/s Results
JetFire preprocessor returned a mass rate of 3,16988 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 9.0m/s Results
JetFire preprocessor returned a mass rate of 3,16988 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Pipe/Orifice Woensdrecht - D 9.0m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - D 9.0m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 22 records, 1 segment headers, 20 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 9.0m/s Results
JetFire preprocessor returned a mass rate of 3,82552 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 9.0m/s Results
JetFire preprocessor returned a mass rate of 3,82552 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model

Warnings

-------- Jet Fire Woensdrecht - D 9.0m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 4 m from the discharge point
-------- Jet Fire Woensdrecht - D 9.0m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 4 m from the discharge point

Weather: **Woensdrecht, nacht\Woensdrecht - E 5m/s**
Speed: **5,00 m/s** **Stability:** **E**

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Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000468397 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 4,59755 m and time 0,0845023 s
Cloud edge has touched down at distance 8,6303 m and time 0,292363 s
Droplets totally evaporate at cloud centreline distance 14,3898 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 17,9661 m and time 1,44763 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000510148 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 5,04208 m and time 0,09205 s
Cloud edge has touched down at distance 8,31039 m and time 0,241405 s
Droplets totally evaporate at cloud centreline distance 14,7099 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 21,4902 m and time 1,88154 s
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - E 5m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - E 5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 23 records, 1 segment headers, 21 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - E 5m/s Results
JetFire preprocessor returned a mass rate of 3,16988 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - E 5m/s Results
JetFire preprocessor returned a mass rate of 3,16988 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Pipe/Orifice Woensdrecht - E 5m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - E 5m/s Results

Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 24 records, 1 segment headers, 22 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - E 5m/s Results
JetFire preprocessor returned a mass rate of 3,82552 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - E 5m/s Results
JetFire preprocessor returned a mass rate of 3,82552 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model

Warnings

-------- Jet Fire Woensdrecht - E 5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 5 m from the discharge point
-------- Jet Fire Woensdrecht - E 5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 5 m from the discharge point

Weather: **Woensdrecht, nacht\Woensdrecht - F 1.5m/s**

Speed: **1,50 m/s** **Stability:** **F**

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Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000468413 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 5,18555 m and time 0,101031 s
Cloud edge has touched down at distance 9,97409 m and time 0,355326 s
Droplets totally evaporate at cloud centreline distance 14,5813 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 26,5612 m and time 4,00963 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000510132 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s

Cloud center has reached the UFL concentration 0,095 fraction at distance 5,60138 m and time 0,105157 s
Cloud edge has touched down at distance 9,9742 m and time 0,320299 s
Droplets totally evaporate at cloud centreline distance 13,0458 m
Cloud center has touched down at distance 29,3905 m and time 4,57444 s
Cloud center has reached the LFL concentration 0,02 fraction at distance 31,1265 m and time 5,34375 s
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - F 1.5m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - F 1.5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 26 records, 1 segment headers, 24 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - F 1.5m/s Results
JetFire preprocessor returned a mass rate of 3,16988 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - F 1.5m/s Results
JetFire preprocessor returned a mass rate of 3,16988 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Pipe/Orifice Woensdrecht - F 1.5m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - F 1.5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 28 records, 1 segment headers, 26 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - F 1.5m/s Results
JetFire preprocessor returned a mass rate of 3,82552 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - F 1.5m/s Results
JetFire preprocessor returned a mass rate of 3,82552 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model

Warnings

-------- Jet Fire Woensdrecht - F 1.5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 6 m from the discharge point
-------- Jet Fire Woensdrecht - F 1.5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 6 m from the discharge point

-------- Linked Radiation Woensdrecht - F 1.5m/s Results
RADS 1006: Cannot find the upwind ellipse boundary for view factor of 0 although one must exist. Set to the release point
RADS 1006: Cannot find the upwind ellipse boundary for view factor of 0 although one must exist. Set to the release point
RADS 1006: Cannot find the upwind ellipse boundary for view factor of 0 although one must exist. Set to the release point

instantaan vrijkomen

Base Case

Data

Weather: **Woensdrecht, nacht\Woensdrecht - D 1.5m/s**

Speed: **1,50 m/s** **Stability:** **D**

\De Zilverden\De oliepot 9 Rucphen\Propaantank\instantaan vrijkomen

Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Start of new release segment
Dispersion starts as ground level instantaneous cloud
Cloud center has reached the UFL concentration 0,095 fraction at distance 4,68674 m and time 3,73754 s
Instantaneous expansion ends at 13,6443 s
Cloud center has reached the LFL concentration 0,02 fraction at distance 25,4995 m and time 15,6971 s
Cloud center has touched down at distance 27,1899 m and time 16,6443 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Start of new release segment
Dispersion starts as ground level instantaneous cloud
Cloud center has reached the UFL concentration 0,095 fraction at distance 7,48107 m and time 5,70607 s
Instantaneous expansion ends at 13,4757 s
Cloud center has touched down at distance 28,6951 m and time 17,8077 s
Droplets totally evaporate at cloud centreline distance 38,2178 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 46,5935 m and time 28,7718 s
Bund was not hit

Information

-------- Instantaneous pressurized Woensdrecht - D 1.5m/s Results
Running model Instantaneous pressurized...
-------- Dispersion Woensdrecht - D 1.5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 19 records, 1 segment headers, 17 dispersion results
Dispersion results post-processing completed OK
-------- Xplode Woensdrecht - D 1.5m/s Results
Early Explosion flammable mass calculated as 8840,987 kg
Early Explosion Liquid Fraction calculated to be 0,661990
-------- Instantaneous pressurized Woensdrecht - D 1.5m/s Results
Running model Instantaneous pressurized...
-------- Dispersion Woensdrecht - D 1.5m/s Results
Dispersion will end at a concentration of 20000 ppm

Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 21 records, 1 segment headers, 19 dispersion results
Dispersion results post-processing completed OK
-------- Xplode Woensdrecht - D 1.5m/s Results
Early Explosion flammable mass calculated as 13919,532 kg
Early Explosion Liquid Fraction calculated to be 0,742282

Weather: **Woensdrecht, nacht\Woensdrecht - D 5.0m/s**

Speed: **5,00 m/s** **Stability:** **D**

\De Zilverden\De oliepot 9 Rucphen\Propaantank\instantaan vrijkomen

Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Start of new release segment
Dispersion starts as ground level instantaneous cloud
Cloud center has reached the UFL concentration 0,095 fraction at distance 15,6506 m and time 3,73754 s
Instantaneous expansion ends at 13,6443 s
Cloud center has reached the LFL concentration 0,02 fraction at distance 84,1829 m and time 15,5437 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Start of new release segment
Dispersion starts as ground level instantaneous cloud
Cloud center has reached the UFL concentration 0,095 fraction at distance 24,9902 m and time 5,70607 s
Instantaneous expansion ends at 13,4757 s
Cloud center has touched down at distance 95,7939 m and time 17,8077 s
Droplets totally evaporate at cloud centreline distance 127,441 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 138,454 m and time 25,5097 s
Bund was not hit

Information

-------- Instantaneous pressurized Woensdrecht - D 5.0m/s Results
Running model Instantaneous pressurized...
-------- Dispersion Woensdrecht - D 5.0m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 18 records, 1 segment headers, 16 dispersion results
Dispersion results post-processing completed OK
-------- Xplode Woensdrecht - D 5.0m/s Results
Early Explosion flammable mass calculated as 8840,987 kg
Early Explosion Liquid Fraction calculated to be 0,661990

-------- Instantaneous pressurized Woensdrecht - D 5.0m/s Results
Running model Instantaneous pressurized...
-------- Dispersion Woensdrecht - D 5.0m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 21 records, 1 segment headers, 19 dispersion results
Dispersion results post-processing completed OK
-------- Xplode Woensdrecht - D 5.0m/s Results
Early Explosion flammable mass calculated as 13919,532 kg
Early Explosion Liquid Fraction calculated to be 0,742282

Weather: **Woensdrecht, nacht\Woensdrecht - D 9.0m/s**

Speed: **9,00 m/s** **Stability:** **D**

\De Zilverden\De oliepot 9 Rucphen\Propaantank\instantaan vrijkomen

Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Start of new release segment
Dispersion starts as ground level instantaneous cloud
Cloud center has reached the UFL concentration 0,095 fraction at distance 28,2279 m and time 3,73754 s
Instantaneous expansion ends at 13,6443 s
Cloud center has reached the LFL concentration 0,02 fraction at distance 148,704 m and time 15,261 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Start of new release segment
Dispersion starts as ground level instantaneous cloud
Cloud center has reached the UFL concentration 0,095 fraction at distance 45,0898 m and time 5,70607 s
Instantaneous expansion ends at 13,4757 s
Cloud center has touched down at distance 181,323 m and time 18,6077 s
Droplets totally evaporate at cloud centreline distance 222,099 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 225,794 m and time 22,9853 s
Bund was not hit

Information

-------- Instantaneous pressurized Woensdrecht - D 9.0m/s Results
Running model Instantaneous pressurized...
-------- Dispersion Woensdrecht - D 9.0m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 18 records, 1 segment headers, 16 dispersion results

Dispersion results post-processing completed OK
-------- Xplode Woensdrecht - D 9.0m/s Results
Early Explosion flammable mass calculated as 8840,987 kg
Early Explosion Liquid Fraction calculated to be 0,661990
-------- Instantaneous pressurized Woensdrecht - D 9.0m/s Results
Running model Instantaneous pressurized...
-------- Dispersion Woensdrecht - D 9.0m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 22 records, 1 segment headers, 20 dispersion results
Dispersion results post-processing completed OK
-------- Xplode Woensdrecht - D 9.0m/s Results
Early Explosion flammable mass calculated as 13919,532 kg
Early Explosion Liquid Fraction calculated to be 0,742282

Weather: **Woensdrecht, nacht\Woensdrecht - E 5m/s**

Speed: **5,00 m/s** **Stability:** **E**

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Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Start of new release segment
Dispersion starts as ground level instantaneous cloud
Cloud center has reached the UFL concentration 0,095 fraction at distance 14,6342 m and time 3,47115 s
Instantaneous expansion ends at 13,6443 s
Cloud center has reached the LFL concentration 0,02 fraction at distance 89,9611 m and time 15,5701 s
Droplets totally evaporate at cloud centreline distance 91,7414 m
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Start of new release segment
Dispersion starts as ground level instantaneous cloud
Cloud center has reached the UFL concentration 0,095 fraction at distance 24,0312 m and time 5,35692 s
Instantaneous expansion ends at 13,4757 s
Cloud center has touched down at distance 109,155 m and time 18,7288 s
Droplets totally evaporate at cloud centreline distance 124,167 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 146,359 m and time 24,9508 s
Bund was not hit

Information

-------- Instantaneous pressurized Woensdrecht - E 5m/s Results
Running model Instantaneous pressurized...

-------- Dispersion Woensdrecht - E 5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 18 records, 1 segment headers, 16 dispersion results
Dispersion results post-processing completed OK
-------- Xplode Woensdrecht - E 5m/s Results
Early Explosion flammable mass calculated as 8840,987 kg
Early Explosion Liquid Fraction calculated to be 0,661990
-------- Instantaneous pressurized Woensdrecht - E 5m/s Results
Running model Instantaneous pressurized...
-------- Dispersion Woensdrecht - E 5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 21 records, 1 segment headers, 19 dispersion results
Dispersion results post-processing completed OK
-------- Xplode Woensdrecht - E 5m/s Results
Early Explosion flammable mass calculated as 13919,532 kg
Early Explosion Liquid Fraction calculated to be 0,742282

Weather: **Woensdrecht, nacht\Woensdrecht - F 1.5m/s**

Speed: **1,50 m/s** **Stability:** **F**

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Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Start of new release segment
Dispersion starts as ground level instantaneous cloud
Cloud center has reached the UFL concentration 0,095 fraction at distance 5,19277 m and time 3,83823 s
Instantaneous expansion ends at 13,6443 s
Cloud center has touched down at distance 31,2675 m and time 16,2443 s
Cloud center has reached the LFL concentration 0,02 fraction at distance 30,1005 m and time 15,7067 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Start of new release segment
Dispersion starts as ground level instantaneous cloud
Cloud center has reached the UFL concentration 0,095 fraction at distance 8,73307 m and time 5,90785 s
Instantaneous expansion ends at 13,4757 s
Cloud center has touched down at distance 32,009 m and time 16,8862 s
Droplets totally evaporate at cloud centreline distance 42,7071 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 56,4612 m and time 31,5487 s

Bund was not hit

Information

-------- Instantaneous pressurized Woensdrecht - F 1.5m/s Results
Running model Instantaneous pressurized...
-------- Dispersion Woensdrecht - F 1.5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 18 records, 1 segment headers, 16 dispersion results
Dispersion results post-processing completed OK
-------- Xplode Woensdrecht - F 1.5m/s Results
Early Explosion flammable mass calculated as 8840,987 kg
Early Explosion Liquid Fraction calculated to be 0,661990
-------- Instantaneous pressurized Woensdrecht - F 1.5m/s Results
Running model Instantaneous pressurized...
-------- Dispersion Woensdrecht - F 1.5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 21 records, 1 segment headers, 19 dispersion results
Dispersion results post-processing completed OK
-------- Xplode Woensdrecht - F 1.5m/s Results
Early Explosion flammable mass calculated as 13919,532 kg
Early Explosion Liquid Fraction calculated to be 0,742282

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Base Case

Data

Weather: **Woensdrecht, nacht\Woensdrecht - D 1.5m/s**

Speed: **1,50 m/s** **Stability:** **D**

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Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 2,44242E-5 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 1,00368 m and time 0,0188194 s
Cloud center has reached the LFL concentration 0,02 fraction at distance 3,95505 m and time 0,26519 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000239129 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 3,257 m and time 0,0558496 s
Cloud edge has touched down at distance 9,58968 m and time 0,491743 s
Droplets totally evaporate at cloud centreline distance 11,6373 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 12,6849 m and time 0,917242 s
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - D 1.5m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - D 1.5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 17 records, 1 segment headers, 15 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 1.5m/s Results
JetFire preprocessor returned a mass rate of 0,146076 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model

-------- Vertical Jet Fire Woensdrecht - D 1.5m/s Results
JetFire preprocessor returned a mass rate of 0,146076 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Pipe/Orifice Woensdrecht - D 1.5m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - D 1.5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 21 records, 1 segment headers, 19 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 1.5m/s Results
JetFire preprocessor returned a mass rate of 1,43055 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 1.5m/s Results
JetFire preprocessor returned a mass rate of 1,43055 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model

Warnings

-------- Linked Radiation Woensdrecht - D 1.5m/s Results
RADS 1006: Cannot find the upwind ellipse boundary for view factor of 0 although one must exist. Set to the release point
-------- Jet Fire Woensdrecht - D 1.5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 6 m from the discharge point

Weather: **Woensdrecht, nacht\Woensdrecht - D 5.0m/s**

Speed: **5,00 m/s** **Stability:** **D**

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Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 2,44242E-5 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 0,947261 m and time 0,0170309 s
Cloud center has reached the LFL concentration 0,02 fraction at distance 2,99925 m and time 0,15106 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.

Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000239129 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 3,06781 m and time 0,0520025 s
Cloud edge has touched down at distance 8,18204 m and time 0,38531 s
Cloud center has reached the LFL concentration 0,02 fraction at distance 8,77167 m and time 0,452616 s
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - D 5.0m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - D 5.0m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 16 records, 1 segment headers, 14 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 5.0m/s Results
JetFire preprocessor returned a mass rate of 0,146076 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 5.0m/s Results
JetFire preprocessor returned a mass rate of 0,146076 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Pipe/Orifice Woensdrecht - D 5.0m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - D 5.0m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 18 records, 1 segment headers, 16 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 5.0m/s Results
JetFire preprocessor returned a mass rate of 1,43055 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 5.0m/s Results
JetFire preprocessor returned a mass rate of 1,43055 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model

Warnings

-------- Jet Fire Woensdrecht - D 5.0m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 5 m from the discharge point

Weather: Woensdrecht, nacht\Woensdrecht - D 9.0m/s

Speed: 9,00 m/s **Stability:** D

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Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 2,44242E-5 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 0,889857 m and time 0,0151547 s
Cloud center has reached the LFL concentration 0,02 fraction at distance 2,6769 m and time 0,125921 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000239129 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 2,76118 m and time 0,0422623 s
Cloud edge has touched down at distance 6,47019 m and time 0,248422 s
Droplets totally evaporate at cloud centreline distance 6,47019 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 6,80873 m and time 0,278664 s
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - D 9.0m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - D 9.0m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 15 records, 1 segment headers, 13 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 9.0m/s Results
JetFire preprocessor returned a mass rate of 0,146076 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 9.0m/s Results
JetFire preprocessor returned a mass rate of 0,146076 kg/s

Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Pipe/Orifice Woensdrecht - D 9.0m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - D 9.0m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 22 records, 1 segment headers, 20 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 9.0m/s Results
JetFire preprocessor returned a mass rate of 1,43055 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 9.0m/s Results
JetFire preprocessor returned a mass rate of 1,43055 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model

Warnings

-------- Jet Fire Woensdrecht - D 9.0m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 4 m from the discharge point

Weather: **Woensdrecht, nacht\Woensdrecht - E 5m/s**

Speed: **5,00 m/s** **Stability:** **E**

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Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 2,44258E-5 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 0,946327 m and time 0,0171682 s
Cloud center has reached the LFL concentration 0,02 fraction at distance 2,99843 m and time 0,155829 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000239146 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s

Cloud center has reached the UFL concentration 0,095 fraction at distance 3,07116 m and time 0,0525513 s
Cloud edge has touched down at distance 7,67006 m and time 0,341561 s
Cloud center has reached the LFL concentration 0,02 fraction at distance 8,92254 m and time 0,487121 s
Droplets totally evaporate at cloud centreline distance 9,20591 m
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - E 5m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - E 5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 16 records, 1 segment headers, 14 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - E 5m/s Results
JetFire preprocessor returned a mass rate of 0,146076 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - E 5m/s Results
JetFire preprocessor returned a mass rate of 0,146076 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Pipe/Orifice Woensdrecht - E 5m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - E 5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 19 records, 1 segment headers, 17 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - E 5m/s Results
JetFire preprocessor returned a mass rate of 1,43055 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - E 5m/s Results
JetFire preprocessor returned a mass rate of 1,43055 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model

Warnings

-------- Jet Fire Woensdrecht - E 5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 5 m from the discharge point

Weather: Woensdrecht, nacht\Woensdrecht - F 1.5m/s
Speed: 1,50 m/s **Stability:** F

\De Zilverden\De oliepot 9 Rucphen\verlading\lek

Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 2,44263E-5 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 1,00594 m and time 0,0189987 s
Cloud center has reached the LFL concentration 0,02 fraction at distance 4,01873 m and time 0,279063 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000239154 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 3,28031 m and time 0,0569562 s
Cloud edge has touched down at distance 8,94978 m and time 0,426621 s
Droplets totally evaporate at cloud centreline distance 10,8693 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 13,3525 m and time 1,09981 s
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - F 1.5m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - F 1.5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 17 records, 1 segment headers, 15 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - F 1.5m/s Results
JetFire preprocessor returned a mass rate of 0,146076 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - F 1.5m/s Results
JetFire preprocessor returned a mass rate of 0,146076 kg/s
Cone JetFire calculation selected

Cross wind angle set to zero for linked Jet Fire model
-------- Pipe/Orifice Woensdrecht - F 1.5m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - F 1.5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 22 records, 1 segment headers, 20 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - F 1.5m/s Results
JetFire preprocessor returned a mass rate of 1,43055 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - F 1.5m/s Results
JetFire preprocessor returned a mass rate of 1,43055 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model

Warnings

-------- Linked Radiation Woensdrecht - F 1.5m/s Results
RADS 1006: Cannot find the upwind ellipse boundary for view factor of 0 although one must exist. Set to the release point
-------- Jet Fire Woensdrecht - F 1.5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 6 m from the discharge point

vrijkomen van de gehele inhoud

Base Case

Data

Weather: **Woensdrecht, nacht\Woensdrecht - D 1.5m/s**

Speed: **1,50 m/s** **Stability:** **D**

\De Zilverden\De oliepot 9 Rucphen\Propaantank\vrijkomen van de gehele inhoud

Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000992588 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 600 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 10,1981 m and time 0,17552 s
Cloud edge has touched down at distance 11,2549 m and time 0,212402 s
Droplets totally evaporate at cloud centreline distance 26,6135 m
Cloud center has touched down at distance 47,071 m and time 4,76124 s
Cloud center has reached the LFL concentration 0,02 fraction at distance 77,0333 m and time 14,8509 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,00160614 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 600 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 8,78941 m and time 0,0921255 s
Cloud edge has touched down at distance 10,4876 m and time 0,127821 s
Droplets totally evaporate at cloud centreline distance 16,6316 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 66,1589 m and time 6,03807 s
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - D 1.5m/s Results
Running model Pipe/Orifice...
Fixed duration release (600 s), Flowrate adjusted from 35,7637 to 14,735 kg/s
-------- Dispersion Woensdrecht - D 1.5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 35 records, 1 segment headers, 33 dispersion results
Dispersion results post-processing completed OK

-------- Jet Fire Woensdrecht - D 1.5m/s Results
JetFire preprocessor returned a mass rate of 14,735 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 1.5m/s Results
JetFire preprocessor returned a mass rate of 14,735 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Pipe/Orifice Woensdrecht - D 1.5m/s Results
Running model Pipe/Orifice...
Fixed duration release (600 s), Flowrate adjusted from 3,04127 to 23,1992 kg/s
-------- Dispersion Woensdrecht - D 1.5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 30 records, 1 segment headers, 28 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 1.5m/s Results
JetFire preprocessor returned a mass rate of 23,1992 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 1.5m/s Results
JetFire preprocessor returned a mass rate of 23,1992 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model

Warnings

-------- Jet Fire Woensdrecht - D 1.5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 6 m from the discharge point
-------- Dispersion Woensdrecht - D 1.5m/s Results
UDM 1005: Release velocity > 330m/s: high release velocities may lead to less accurate UDM results
-------- Jet Fire Woensdrecht - D 1.5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 7 m from the discharge point

Weather: **Woensdrecht, nacht\Woensdrecht - D 5.0m/s**
Speed: **5,00 m/s** **Stability:** **D**

\De Zilverden\De oliepot 9 Rucphen\Propaantank\vrijkomen van de gehele inhoud

Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000992588 m
Dispersion starts as momentum jet before touchdown

Release segment of duration 600 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 8,94999 m and time 0,143331 s
Cloud edge has touched down at distance 11,2549 m and time 0,226154 s
Droplets totally evaporate at cloud centreline distance 23,5423 m
Cloud center has touched down at distance 52,2004 m and time 5,16315 s
Cloud center has reached the LFL concentration 0,02 fraction at distance 60,6626 m and time 6,93212 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,00160614 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 600 s
Cloud edge has touched down at distance 8,9516 m and time 0,0990283 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 7,99164 m and time 0,08001 s
Droplets totally evaporate at cloud centreline distance 12,0236 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 68,1443 m and time 5,44247 s
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - D 5.0m/s Results
Running model Pipe/Orifice...
Fixed duration release (600 s), Flowrate adjusted from 35,7637 to 14,735 kg/s
-------- Dispersion Woensdrecht - D 5.0m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 31 records, 1 segment headers, 29 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 5.0m/s Results
JetFire preprocessor returned a mass rate of 14,735 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 5.0m/s Results
JetFire preprocessor returned a mass rate of 14,735 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Pipe/Orifice Woensdrecht - D 5.0m/s Results
Running model Pipe/Orifice...
Fixed duration release (600 s), Flowrate adjusted from 3,04127 to 23,1992 kg/s
-------- Dispersion Woensdrecht - D 5.0m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 32 records, 1 segment headers, 30 dispersion results

Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 5.0m/s Results
JetFire preprocessor returned a mass rate of 23,1992 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 5.0m/s Results
JetFire preprocessor returned a mass rate of 23,1992 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model

Warnings

-------- Jet Fire Woensdrecht - D 5.0m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 4 m from the discharge point
-------- Dispersion Woensdrecht - D 5.0m/s Results
UDM 1005: Release velocity > 330m/s: high release velocities may lead to less accurate UDM results
-------- Jet Fire Woensdrecht - D 5.0m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 5 m from the discharge point

Weather: **Woensdrecht, nacht\Woensdrecht - D 9.0m/s**

Speed: **9,00 m/s** **Stability:** **D**

\De Zilverden\De oliepot 9 Rucphen\Propaantank\vrijkomen van de gehele inhoud

Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000992588 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 600 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 8,05982 m and time 0,124466 s
Cloud edge has touched down at distance 9,10454 m and time 0,156365 s
Droplets totally evaporate at cloud centreline distance 21,8018 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 49,7917 m and time 4,01342 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,00160614 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 600 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 7,35658 m and time

0,0707706 s
Cloud edge has touched down at distance 8,9516 m and time 0,102812 s
Droplets totally evaporate at cloud centreline distance 13,0476 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 60,8487 m and time 3,8653 s
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - D 9.0m/s Results
Running model Pipe/Orifice...
Fixed duration release (600 s), Flowrate adjusted from 35,7637 to 14,735 kg/s
-------- Dispersion Woensdrecht - D 9.0m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 29 records, 1 segment headers, 27 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 9.0m/s Results
JetFire preprocessor returned a mass rate of 14,735 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 9.0m/s Results
JetFire preprocessor returned a mass rate of 14,735 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Pipe/Orifice Woensdrecht - D 9.0m/s Results
Running model Pipe/Orifice...
Fixed duration release (600 s), Flowrate adjusted from 3,04127 to 23,1992 kg/s
-------- Dispersion Woensdrecht - D 9.0m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 30 records, 1 segment headers, 28 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 9.0m/s Results
JetFire preprocessor returned a mass rate of 23,1992 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 9.0m/s Results
JetFire preprocessor returned a mass rate of 23,1992 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model

Warnings

-------- Jet Fire Woensdrecht - D 9.0m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 3 m from the discharge point
-------- Dispersion Woensdrecht - D 9.0m/s Results
UDM 1005: Release velocity > 330m/s: high release velocities may lead to less accurate UDM results

-------- Jet Fire Woensdrecht - D 9.0m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 4 m from the discharge point

Weather: **Woensdrecht, nacht\Woensdrecht - E 5m/s**
Speed: **5,00 m/s** **Stability:** **E**

\De Zilverden\De oliepot 9 Rucphen\Propaantank\vrijkomen van de gehele inhoud

Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000992625 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 600 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 8,97137 m and time 0,144929 s
Cloud edge has touched down at distance 11,2549 m and time 0,228711 s
Droplets totally evaporate at cloud centreline distance 29,6843 m
Cloud center has touched down at distance 46,053 m and time 4,61876 s
Cloud center has reached the LFL concentration 0,02 fraction at distance 61,6427 m and time 8,42815 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,00160525 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 600 s
Cloud edge has touched down at distance 8,9516 m and time 0,0995069 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 8,00447 m and time 0,0805991 s
Droplets totally evaporate at cloud centreline distance 12,0236 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 72,8985 m and time 6,93136 s
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - E 5m/s Results
Running model Pipe/Orifice...
Fixed duration release (600 s), Flowrate adjusted from 35,7637 to 14,735 kg/s
-------- Dispersion Woensdrecht - E 5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 30 records, 1 segment headers, 28 dispersion results

Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - E 5m/s Results
JetFire preprocessor returned a mass rate of 14,735 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - E 5m/s Results
JetFire preprocessor returned a mass rate of 14,735 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Pipe/Orifice Woensdrecht - E 5m/s Results
Running model Pipe/Orifice...
Fixed duration release (600 s), Flowrate adjusted from 3,04127 to 23,1992 kg/s
-------- Dispersion Woensdrecht - E 5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 31 records, 1 segment headers, 29 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - E 5m/s Results
JetFire preprocessor returned a mass rate of 23,1992 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - E 5m/s Results
JetFire preprocessor returned a mass rate of 23,1992 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model

Warnings

-------- Jet Fire Woensdrecht - E 5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 4 m from the discharge point
-------- Dispersion Woensdrecht - E 5m/s Results
UDM 1005: Release velocity > 330m/s: high release velocities may lead to less accurate UDM results
-------- Jet Fire Woensdrecht - E 5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 5 m from the discharge point

Weather: **Woensdrecht, nacht\Woensdrecht - F 1.5m/s**

Speed: **1,50 m/s** **Stability:** **F**

\De Zilverden\De oliepot 9 Rucphen\Propaantank\vrijkomen van de gehele inhoud

Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000992641 m

Dispersion starts as momentum jet before touchdown
Release segment of duration 600 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 10,2735 m and time 0,17832 s
Cloud edge has touched down at distance 11,6644 m and time 0,228704 s
Droplets totally evaporate at cloud centreline distance 19,8558 m
Cloud center has touched down at distance 36,2132 m and time 3,49471 s
Cloud center has reached the LFL concentration 0,02 fraction at distance 103,863 m and time 55,4786 s
Bund was not hit
-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,00160554 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 600 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 8,78517 m and time 0,0927313 s
Cloud edge has touched down at distance 10,3852 m and time 0,126703 s
Droplets totally evaporate at cloud centreline distance 10,3852 m
Cloud center has touched down at distance 61,1581 m and time 6,72494 s
Cloud center has reached the LFL concentration 0,02 fraction at distance 80,5231 m and time 12,1307 s
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - F 1.5m/s Results
Running model Pipe/Orifice...
Fixed duration release (600 s), Flowrate adjusted from 35,7637 to 14,735 kg/s
-------- Dispersion Woensdrecht - F 1.5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 41 records, 1 segment headers, 39 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - F 1.5m/s Results
JetFire preprocessor returned a mass rate of 14,735 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - F 1.5m/s Results
JetFire preprocessor returned a mass rate of 14,735 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Pipe/Orifice Woensdrecht - F 1.5m/s Results
Running model Pipe/Orifice...
Fixed duration release (600 s), Flowrate adjusted from 3,04127 to 23,1992 kg/s
-------- Dispersion Woensdrecht - F 1.5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)

UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 35 records, 1 segment headers, 33 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - F 1.5m/s Results
JetFire preprocessor returned a mass rate of 23,1992 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - F 1.5m/s Results
JetFire preprocessor returned a mass rate of 23,1992 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model

Warnings

-------- Jet Fire Woensdrecht - F 1.5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 6 m from the discharge point
-------- Dispersion Woensdrecht - F 1.5m/s Results
UDM 1005: Release velocity > 330m/s: high release velocities may lead to less accurate UDM results
-------- Jet Fire Woensdrecht - F 1.5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 7 m from the discharge point

vrijkomen via lek

Base Case

Data

Weather: **Woensdrecht, nacht\Woensdrecht - D 1.5m/s**

Speed: **1,50 m/s** **Stability:** **D**

\De Zilverden\De oliepot 9 Rucphen\Propaantank\vrijkomen via lek

Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000239129 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 3,257 m and time 0,0558496 s
Cloud edge has touched down at distance 9,58968 m and time 0,491743 s
Droplets totally evaporate at cloud centreline distance 11,6373 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 12,6849 m and time 0,917242 s
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - D 1.5m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - D 1.5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 21 records, 1 segment headers, 19 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 1.5m/s Results
JetFire preprocessor returned a mass rate of 1,43055 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 1.5m/s Results
JetFire preprocessor returned a mass rate of 1,43055 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model

Warnings

-------- Jet Fire Woensdrecht - D 1.5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 6 m from the discharge point

Weather: **Woensdrecht, nacht\Woensdrecht - D 5.0m/s**
Speed: **5,00 m/s** **Stability:** **D**

\De Zilverden\De oliepot 9 Rucphen\Propaantank\vrijkomen via lek

Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000239129 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 3,06781 m and time 0,0520025 s
Cloud edge has touched down at distance 8,18204 m and time 0,38531 s
Cloud center has reached the LFL concentration 0,02 fraction at distance 8,77167 m and time 0,452616 s
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - D 5.0m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - D 5.0m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 18 records, 1 segment headers, 16 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 5.0m/s Results
JetFire preprocessor returned a mass rate of 1,43055 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 5.0m/s Results
JetFire preprocessor returned a mass rate of 1,43055 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model

Warnings

-------- Jet Fire Woensdrecht - D 5.0m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 5 m from the discharge point

Weather: **Woensdrecht, nacht\Woensdrecht - D 9.0m/s**
Speed: **9,00 m/s** **Stability:** **D**

\De Zilverden\De oliepot 9 Rucphen\Propaantank\vrijkomen via lek

Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000239129 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 2,76118 m and time 0,0422623 s
Cloud edge has touched down at distance 6,47019 m and time 0,248422 s
Droplets totally evaporate at cloud centreline distance 6,47019 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 6,80873 m and time 0,278664 s
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - D 9.0m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - D 9.0m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 22 records, 1 segment headers, 20 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - D 9.0m/s Results
JetFire preprocessor returned a mass rate of 1,43055 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - D 9.0m/s Results
JetFire preprocessor returned a mass rate of 1,43055 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model

Warnings

-------- Jet Fire Woensdrecht - D 9.0m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 4 m from the discharge point

Weather: **Woensdrecht, nacht\Woensdrecht - E 5m/s**
Speed: **5,00 m/s** **Stability:** **E**

\De Zilverden\De oliepot 9 Rucphen\Propaantank\vrijkomen via lek

Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment

Expansion zone is 0,000239146 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 3,07116 m and time 0,0525513 s
Cloud edge has touched down at distance 7,67006 m and time 0,341561 s
Cloud center has reached the LFL concentration 0,02 fraction at distance 8,92254 m and time 0,487121 s
Droplets totally evaporate at cloud centreline distance 9,20591 m
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - E 5m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - E 5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 19 records, 1 segment headers, 17 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - E 5m/s Results
JetFire preprocessor returned a mass rate of 1,43055 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - E 5m/s Results
JetFire preprocessor returned a mass rate of 1,43055 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model

Warnings

-------- Jet Fire Woensdrecht - E 5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 5 m from the discharge point

Weather: **Woensdrecht, nacht\Woensdrecht - F 1.5m/s**

Speed: **1,50 m/s** **Stability:** **F**

\De Zilverden\De oliepot 9 Rucphen\Propaantank\vrijkomen via lek

Material: PROPANE

Dispersion Commentary

-------- Dispersion Results
Unified Dispersion Model in use.
Quasi-Instantaneous transitions enabled (duration adjustment not applied)
Start of new release segment
Expansion zone is 0,000239154 m
Dispersion starts as momentum jet before touchdown
Release segment of duration 1800 s
Cloud center has reached the UFL concentration 0,095 fraction at distance 3,28031 m and time 0,0569562 s

Cloud edge has touched down at distance 8,94978 m and time 0,426621 s
Droplets totally evaporate at cloud centreline distance 10,8693 m
Cloud center has reached the LFL concentration 0,02 fraction at distance 13,3525 m and time 1,09981 s
Bund was not hit

Information

-------- Pipe/Orifice Woensdrecht - F 1.5m/s Results
Running model Pipe/Orifice...
-------- Dispersion Woensdrecht - F 1.5m/s Results
Dispersion will end at a concentration of 20000 ppm
Cloud calculations will use concentration 20000 ppm and Averaging Time 18,75 s (Flammable)
UDM 2001: The surface temperature differs from the groundlevel ambient temperature 7,85 degC
Dispersion results file read. 22 records, 1 segment headers, 20 dispersion results
Dispersion results post-processing completed OK
-------- Jet Fire Woensdrecht - F 1.5m/s Results
JetFire preprocessor returned a mass rate of 1,43055 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model
-------- Vertical Jet Fire Woensdrecht - F 1.5m/s Results
JetFire preprocessor returned a mass rate of 1,43055 kg/s
Cone JetFire calculation selected
Cross wind angle set to zero for linked Jet Fire model

Warnings

-------- Jet Fire Woensdrecht - F 1.5m/s Results
JFSH 1040: Flame touchdown occurs: Type = Partial Truncation: Flame impinges on ground approximately at distance 6 m from the discharge point

De Zilverden (RunRow so - nacht)

De oliepot 9 Rucphen

breuk doorstroombegrenzer sluit

Base Case

Data

Weather: **Woensdrecht, nacht\Woensdrecht - D 1.5m/s**

Speed: **1,50** **m/s** **Stability:** **D**

\De Zilverden\De oliepot 9 Rucphen\verlading\breuk doorstroombegrenzer sluit

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1	0,00	m
Early Explosion Radius 2	0,00	m
Early Explosion Mass	8,35	kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:	Half	
Immediate Continuous Flash Fire Ellipse A	22,47	m
Immediate Continuous Flash Fire Ellipse B	0,88	m
Immediate Continuous Flash Fire Ellipse D	1,00	m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00000E+000	6,46	6,46	0,00

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	18,75	17,77	0,97
1.06716E-001	17,79	15,08	0,96
4.35634E-001	16,95	12,54	0,96
8.21237E-001	16,22	10,12	0,96
1.00000E+000	15,56	7,90	0,96

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	22,47	0,88	1,00	Half	2,63	3.16988E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,03
	3	0,03	2,55	0,08
	4	0,05	3,83	0,16
	5	0,14	6,39	0,38
	6	0,28	8,95	0,67
	7	0,32	9,46	0,74
	8	0,39	10,49	0,88
	9	0,48	11,51	1,03
	10	0,58	12,53	1,18
	11	0,81	14,58	1,48
	12	1,08	16,63	1,77
	13	1,40	18,68	2,01
	14	1,76	20,72	2,19
	15	2,62	24,82	2,33

Weather: Woensdrecht, nacht\Woensdrecht - D 5.0m/s

Speed: 5,00 m/s **Stability:** D

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Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1	0,00	m
Early Explosion Radius 2	0,00	m
Early Explosion Mass	8,35	kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:	Half	
Immediate Continuous Flash Fire Ellipse A	16,72	m
Immediate Continuous Flash Fire Ellipse B	0,71	m
Immediate Continuous Flash Fire Ellipse D	1,00	m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00000E+000	6,46	6,46	0,00

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	15,97	17,20	0,95
1.06716E-001	14,96	14,99	0,95
4.35634E-001	14,08	12,96	0,95
8.21237E-001	13,32	11,05	0,95
1.00000E+000	12,64	9,22	0,94

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	16,72	0,71	1,00	Half	2,63	3.16988E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,03
	3	0,03	2,55	0,08
	4	0,06	3,83	0,16
	5	0,15	6,39	0,38
	6	0,22	7,67	0,53
	7	0,26	8,31	0,60
	8	0,31	8,95	0,67
	9	0,36	9,59	0,75
	10	0,48	10,87	0,89
	11	0,60	12,15	1,02
	12	0,90	14,71	1,21
	13	1,24	17,27	1,27

Weather: Woensdrecht, nacht\Woensdrecht - D 9.0m/s

Speed: 9,00 m/s **Stability:** D

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Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1	0,00	m
Early Explosion Radius 2	0,00	m
Early Explosion Mass	8,35	kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:	Half	
Immediate Continuous Flash Fire Ellipse A	12,55	m
Immediate Continuous Flash Fire Ellipse B	0,61	m
Immediate Continuous Flash Fire Ellipse D	1,00	m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00000E+000	6,46	6,46	0,00

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	15,38	16,90	0,95
1.06716E-001	14,34	14,63	0,95
4.35634E-001	13,43	12,79	0,94
8.21237E-001	12,64	11,06	0,94
1.00000E+000	11,94	9,40	0,94

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	12,55	0,61	1,00	Half	2,63	3.16988E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,03
	3	0,03	2,55	0,08
	4	0,06	3,83	0,16
	5	0,16	6,39	0,38
	6	0,17	6,65	0,41
	7	0,20	7,16	0,46
	8	0,24	7,67	0,51
	9	0,27	8,18	0,56
	10	0,35	9,21	0,64
	11	0,44	10,23	0,70
	12	0,63	12,28	0,77
	13	0,85	14,33	0,78

Weather: Woensdrecht, nacht\Woensdrecht - E 5m/s

Speed: 5,00 m/s **Stability:** E

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Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1	0,00	m
Early Explosion Radius 2	0,00	m
Early Explosion Mass	8,35	kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:	Half	
Immediate Continuous Flash Fire Ellipse A	17,85	m
Immediate Continuous Flash Fire Ellipse B	0,76	m
Immediate Continuous Flash Fire Ellipse D	1,00	m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00000E+000	6,46	6,46	0,00

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	15,97	17,20	0,95
1.06716E-001	14,96	14,99	0,95
4.35634E-001	14,08	12,96	0,95
8.21237E-001	13,32	11,05	0,95
1.00000E+000	12,64	9,22	0,94

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	17,85	0,76	1,00	Half	2,63	3.16988E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,03
	3	0,03	2,55	0,08
	4	0,06	3,83	0,17
	5	0,15	6,39	0,40
	6	0,22	7,67	0,55
	7	0,25	7,99	0,58
	8	0,29	8,63	0,67
	9	0,34	9,27	0,75
	10	0,46	10,55	0,91
	11	0,59	11,83	1,08
	12	0,91	14,39	1,35
	13	1,28	16,95	1,51
	14	1,70	19,51	1,54

Weather: Woensdrecht, nacht\Woensdrecht - F 1.5m/s

Speed: 1,50 m/s **Stability:** F

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Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	4	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1	0,00	m
Early Explosion Radius 2	0,00	m
Early Explosion Mass	8,35	kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:	Half	
Immediate Continuous Flash Fire Ellipse A	22,45	m
Immediate Continuous Flash Fire Ellipse B	1,12	m
Immediate Continuous Flash Fire Ellipse D	1,00	m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00000E+000	6,46	6,46	0,00

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	18,75	17,77	0,97
1.06716E-001	17,79	15,08	0,96
4.35634E-001	16,95	12,54	0,96
8.21237E-001	16,22	10,12	0,96
1.00000E+000	15,56	7,90	0,96

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	12,44	1,06	1,00	Full	2,63	3.16988E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,03
	3	0,03	2,55	0,08
	4	0,05	3,83	0,16
	5	0,14	6,39	0,39
	6	0,28	8,95	0,70
	7	0,32	9,46	0,77
	8	0,36	9,97	0,85
	9	0,40	10,49	0,93
	10	0,49	11,51	1,10
	11	0,60	12,53	1,29
	12	0,87	14,58	1,69
	13	1,21	16,63	2,13
	14	1,63	18,68	2,56
	15	2,13	20,72	2,96
	16	3,36	24,80	3,51

Weather: Woensdrecht, nacht\Woensdrecht - D 1.5m/s

Speed: 1,50 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\Pomp tank\breuk doorstroombegrenzer sluit

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1	0,00	m
Early Explosion Radius 2	0,00	m
Early Explosion Mass	8,35	kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:	Half	
Immediate Continuous Flash Fire Ellipse A	23,92	m
Immediate Continuous Flash Fire Ellipse B	1,06	m
Immediate Continuous Flash Fire Ellipse D	1,00	m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00000E+000	6,46	6,46	0,00

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	20,32	19,42	0,97
1.06716E-001	19,27	16,49	0,97
4.35634E-001	18,36	13,75	0,97
8.21237E-001	17,56	11,12	0,97
1.00000E+000	16,84	8,64	0,96

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	25,55	1,01	1,00	Half	2,18	3.82552E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,03
	3	0,03	2,55	0,09
	4	0,05	3,83	0,18
	5	0,13	6,39	0,43
	6	0,25	8,95	0,76
	7	0,29	9,46	0,84
	8	0,35	10,49	1,00
	9	0,43	11,51	1,18
	10	0,52	12,53	1,36
	11	0,72	14,58	1,74
	12	0,97	16,63	2,13
	13	1,25	18,68	2,49
	14	1,94	22,77	3,07
	15	2,81	26,86	3,31

Weather: Woensdrecht, nacht\Woensdrecht - D 5.0m/s

Speed: 5,00 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\Pomp tank\breuk doorstroombegrenzer sluit

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1	0,00	m
Early Explosion Radius 2	0,00	m
Early Explosion Mass	8,35	kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:	Half	
Immediate Continuous Flash Fire Ellipse A	19,63	m
Immediate Continuous Flash Fire Ellipse B	0,82	m
Immediate Continuous Flash Fire Ellipse D	1,00	m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00000E+000	6,46	6,46	0,00

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	17,31	18,75	0,96
1.06716E-001	16,21	16,36	0,96
4.35634E-001	15,26	14,15	0,95
8.21237E-001	14,42	12,09	0,95
1.00000E+000	13,69	10,11	0,95

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	19,63	0,82	1,00	Half	2,18	3.82552E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,03
	3	0,03	2,55	0,09
	4	0,05	3,83	0,18
	5	0,14	6,39	0,43
	6	0,20	7,67	0,60
	7	0,24	8,31	0,69
	8	0,28	8,95	0,78
	9	0,33	9,59	0,87
	10	0,43	10,87	1,06
	11	0,54	12,15	1,24
	12	0,81	14,71	1,57
	13	1,12	17,27	1,80
	14	1,47	19,83	1,89

Weather: Woensdrecht, nacht\Woensdrecht - D 9.0m/s

Speed: 9,00 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\Pomp tank\breuk doorstroombegrenzer sluit

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1	0,00	m
Early Explosion Radius 2	0,00	m
Early Explosion Mass	8,35	kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:	Half	
Immediate Continuous Flash Fire Ellipse A	14,96	m
Immediate Continuous Flash Fire Ellipse B	0,70	m
Immediate Continuous Flash Fire Ellipse D	1,00	m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00000E+000	6,46	6,46	0,00

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	16,68	18,44	0,96
1.06716E-001	15,54	15,95	0,95
4.35634E-001	14,55	13,95	0,95
8.21237E-001	13,69	12,08	0,95
1.00000E+000	12,93	10,29	0,94

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	14,96	0,70	1,00	Half	2,18	3.82552E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,03
	3	0,03	2,55	0,09
	4	0,09	5,11	0,29
	5	0,14	6,39	0,43
	6	0,15	6,65	0,46
	7	0,18	7,16	0,53
	8	0,24	8,18	0,65
	9	0,32	9,21	0,77
	10	0,40	10,23	0,88
	11	0,57	12,28	1,05
	12	0,77	14,33	1,13
	13	0,99	16,37	1,15

Weather: Woensdrecht, nacht\Woensdrecht - E 5m/s

Speed: 5,00 m/s **Stability:** E

\De Zilverden\De oliepot 9 Rucphen\Pomp tank\breuk doorstroombegrenzer sluit

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1	0,00	m
Early Explosion Radius 2	0,00	m
Early Explosion Mass	8,35	kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:	Half	
Immediate Continuous Flash Fire Ellipse A	21,26	m
Immediate Continuous Flash Fire Ellipse B	0,89	m
Immediate Continuous Flash Fire Ellipse D	1,00	m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00000E+000	6,46	6,46	0,00

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	17,31	18,75	0,96
1.06716E-001	16,21	16,36	0,96
4.35634E-001	15,26	14,15	0,95
8.21237E-001	14,42	12,09	0,95
1.00000E+000	13,69	10,11	0,95

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	21,26	0,89	1,00	Half	2,18	3.82552E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,03
	3	0,03	2,55	0,09
	4	0,05	3,83	0,19
	5	0,14	6,39	0,44
	6	0,20	7,67	0,62
	7	0,24	8,31	0,71
	8	0,28	8,95	0,81
	9	0,33	9,59	0,91
	10	0,44	10,87	1,12
	11	0,56	12,15	1,34
	12	0,85	14,71	1,75
	13	1,20	17,27	2,08
	14	1,59	19,83	2,29
	15	2,04	22,39	2,35

Weather: Woensdrecht, nacht\Woensdrecht - F 1.5m/s

Speed: 1,50 m/s **Stability:** F

\De Zilverden\De oliepot 9 Rucphen\Pomp tank\breuk doorstroombegrenzer sluit

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	4	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1	0,00	m
Early Explosion Radius 2	0,00	m
Early Explosion Mass	8,35	kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:	Half	
Immediate Continuous Flash Fire Ellipse A	21,91	m
Immediate Continuous Flash Fire Ellipse B	1,22	m
Immediate Continuous Flash Fire Ellipse D	1,00	m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00000E+000	6,46	6,46	0,00

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	20,32	19,42	0,97
1.06716E-001	19,27	16,49	0,97
4.35634E-001	18,36	13,75	0,97
8.21237E-001	17,56	11,12	0,97
1.00000E+000	16,84	8,64	0,96

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	25,38	1,33	1,00	Half	2,18	3.82552E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,03
	3	0,03	2,55	0,09
	4	0,05	3,83	0,18
	5	0,13	6,39	0,44
	6	0,25	8,95	0,79
	7	0,29	9,46	0,87
	8	0,32	9,97	0,96
	9	0,36	10,49	1,05
	10	0,40	11,00	1,14
	11	0,49	12,02	1,35
	12	0,59	13,05	1,58
	13	0,84	15,09	2,08
	14	1,16	17,14	2,63
	15	1,55	19,19	3,20
	16	2,00	21,23	3,75
	17	3,13	25,32	4,71

breuk doorstroombegrenzer sluit niet

Base Case

Data

Weather: Woensdrecht, nacht\Woensdrecht - D 1.5m/s

Speed: 1,50 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\verlading\breuk doorstroombegrenzer sluit niet

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	18,75	17,77	0,97
1.06716E-001	17,79	15,08	0,96
4.35634E-001	16,95	12,54	0,96
8.21237E-001	16,22	10,12	0,96
1.00000E+000	15,56	7,90	0,96

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	22,47	0,88	1,00	Half	1.800,00	3.16988E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time	Distance	Mass
		s	m	kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,03
	3	0,03	2,55	0,08
	4	0,05	3,83	0,16
	5	0,14	6,39	0,38
	6	0,28	8,95	0,67
	7	0,32	9,46	0,74
	8	0,39	10,49	0,88
	9	0,48	11,51	1,03
	10	0,58	12,53	1,18
	11	0,81	14,58	1,48
	12	1,08	16,63	1,77
	13	1,40	18,68	2,01
	14	1,76	20,72	2,19
	15	2,62	24,82	2,33

Weather: Woensdrecht, nacht\Woensdrecht - D 5.0m/s

Speed: 5,00 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\verlading\breuk doorstroombegrenzer sluit niet

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	15,97	17,20	0,95
1.06716E-001	14,96	14,99	0,95
4.35634E-001	14,08	12,96	0,95
8.21237E-001	13,32	11,05	0,95
1.00000E+000	12,64	9,22	0,94

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	16,72	0,71	1,00	Half	1.800,00	3.16988E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,03
	3	0,03	2,55	0,08
	4	0,06	3,83	0,16
	5	0,15	6,39	0,38
	6	0,22	7,67	0,53
	7	0,26	8,31	0,60
	8	0,31	8,95	0,67
	9	0,36	9,59	0,75
	10	0,48	10,87	0,89
	11	0,60	12,15	1,02
	12	0,90	14,71	1,21
	13	1,24	17,27	1,27

Weather: Woensdrecht, nacht\Woensdrecht - D 9.0m/s

Speed: 9,00 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\verlading\breuk doorstroombegrenzer sluit niet

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	15,38	16,90	0,95
1.06716E-001	14,34	14,63	0,95
4.35634E-001	13,43	12,79	0,94
8.21237E-001	12,64	11,06	0,94
1.00000E+000	11,94	9,40	0,94

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	12,55	0,61	1,00	Half	1.800,00	3.16988E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,03
	3	0,03	2,55	0,08
	4	0,06	3,83	0,16
	5	0,16	6,39	0,38
	6	0,17	6,65	0,41
	7	0,20	7,16	0,46
	8	0,24	7,67	0,51
	9	0,27	8,18	0,56
	10	0,35	9,21	0,64
	11	0,44	10,23	0,70
	12	0,63	12,28	0,77
	13	0,85	14,33	0,78

Weather: Woensdrecht, nacht\Woensdrecht - E 5m/s

Speed: 5,00 m/s **Stability:** E

\De Zilverden\De oliepot 9 Rucphen\verlading\breuk doorstroombegrenzer sluit niet

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	15,97	17,20	0,95
1.06716E-001	14,96	14,99	0,95
4.35634E-001	14,08	12,96	0,95
8.21237E-001	13,32	11,05	0,95
1.00000E+000	12,64	9,22	0,94

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	17,85	0,76	1,00	Half	1.800,00	3.16988E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,03
	3	0,03	2,55	0,08
	4	0,06	3,83	0,17
	5	0,15	6,39	0,40
	6	0,22	7,67	0,55
	7	0,25	7,99	0,58
	8	0,29	8,63	0,67
	9	0,34	9,27	0,75
	10	0,46	10,55	0,91
	11	0,59	11,83	1,08
	12	0,91	14,39	1,35
	13	1,28	16,95	1,51
	14	1,70	19,51	1,54

Weather: Woensdrecht, nacht\Woensdrecht - F 1.5m/s

Speed: 1,50 m/s **Stability:** F

\De Zilverden\De oliepot 9 Rucphen\verlading\breuk doorstroombegrenzer sluit niet

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	18,75	17,77	0,97
1.06716E-001	17,79	15,08	0,96
4.35634E-001	16,95	12,54	0,96
8.21237E-001	16,22	10,12	0,96
1.00000E+000	15,56	7,90	0,96

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	12,45	1,06	1,00	Full	1.800,00	3.16988E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,03
	3	0,03	2,55	0,08
	4	0,05	3,83	0,16
	5	0,14	6,39	0,39
	6	0,28	8,95	0,70
	7	0,32	9,46	0,77
	8	0,36	9,97	0,85
	9	0,40	10,49	0,93
	10	0,49	11,51	1,10
	11	0,60	12,53	1,29
	12	0,87	14,58	1,69
	13	1,21	16,63	2,13
	14	1,63	18,68	2,56
	15	2,13	20,72	2,96
	16	3,36	24,80	3,51
	17	4,11	26,84	3,60

Weather: Woensdrecht, nacht\Woensdrecht - D 1.5m/s

Speed: 1,50 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\Pomp tank\breuk doorstroombegrenzer sluit niet

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	20,32	19,42	0,97
1.06716E-001	19,27	16,49	0,97
4.35634E-001	18,36	13,75	0,97
8.21237E-001	17,56	11,12	0,97
1.00000E+000	16,84	8,64	0,96

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	25,55	1,01	1,00	Half	1.800,00	3.82552E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,03
	3	0,03	2,55	0,09
	4	0,05	3,83	0,18
	5	0,13	6,39	0,43
	6	0,25	8,95	0,76
	7	0,29	9,46	0,84
	8	0,35	10,49	1,00
	9	0,43	11,51	1,18
	10	0,52	12,53	1,36
	11	0,72	14,58	1,74
	12	0,97	16,63	2,13
	13	1,25	18,68	2,49
	14	1,94	22,77	3,07
	15	2,81	26,86	3,31

Weather: Woensdrecht, nacht\Woensdrecht - D 5.0m/s

Speed: 5,00 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\Pomp tank\breuk doorstroombegrenzer sluit niet

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	17,31	18,75	0,96
1.06716E-001	16,21	16,36	0,96
4.35634E-001	15,26	14,15	0,95
8.21237E-001	14,42	12,09	0,95
1.00000E+000	13,69	10,11	0,95

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	19,63	0,82	1,00	Half	1.800,00	3.82552E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,03
	3	0,03	2,55	0,09
	4	0,05	3,83	0,18
	5	0,14	6,39	0,43
	6	0,20	7,67	0,60
	7	0,24	8,31	0,69
	8	0,28	8,95	0,78
	9	0,33	9,59	0,87
	10	0,43	10,87	1,06
	11	0,54	12,15	1,24
	12	0,81	14,71	1,57
	13	1,12	17,27	1,80
	14	1,47	19,83	1,89

Weather: Woensdrecht, nacht\Woensdrecht - D 9.0m/s

Speed: 9,00 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\Pomp tank\breuk doorstroombegrenzer sluit niet

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	16,68	18,44	0,96
1.06716E-001	15,54	15,95	0,95
4.35634E-001	14,55	13,95	0,95
8.21237E-001	13,69	12,08	0,95
1.00000E+000	12,93	10,29	0,94

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	14,96	0,70	1,00	Half	1.800,00	3.82552E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,03
	3	0,03	2,55	0,09
	4	0,09	5,11	0,29
	5	0,14	6,39	0,43
	6	0,15	6,65	0,46
	7	0,18	7,16	0,53
	8	0,24	8,18	0,65
	9	0,32	9,21	0,77
	10	0,40	10,23	0,88
	11	0,57	12,28	1,05
	12	0,77	14,33	1,13
	13	0,99	16,37	1,15

Weather: Woensdrecht, nacht\Woensdrecht - E 5m/s

Speed: 5,00 m/s **Stability:** E

\De Zilverden\De oliepot 9 Rucphen\Pomp tank\breuk doorstroombegrenzer sluit niet

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	17,31	18,75	0,96
1.06716E-001	16,21	16,36	0,96
4.35634E-001	15,26	14,15	0,95
8.21237E-001	14,42	12,09	0,95
1.00000E+000	13,69	10,11	0,95

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	21,26	0,89	1,00	Half	1.800,00	3.82552E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,03
	3	0,03	2,55	0,09
	4	0,05	3,83	0,19
	5	0,14	6,39	0,44
	6	0,20	7,67	0,62
	7	0,24	8,31	0,71
	8	0,28	8,95	0,81
	9	0,33	9,59	0,91
	10	0,44	10,87	1,12
	11	0,56	12,15	1,34
	12	0,85	14,71	1,75
	13	1,20	17,27	2,08
	14	1,59	19,83	2,29
	15	2,04	22,39	2,35

Weather: Woensdrecht, nacht\Woensdrecht - F 1.5m/s

Speed: 1,50 m/s **Stability:** F

\De Zilverden\De oliepot 9 Rucphen\Pomp tank\breuk doorstroombegrenzer sluit niet

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	20,32	19,42	0,97
1.06716E-001	19,27	16,49	0,97
4.35634E-001	18,36	13,75	0,97
8.21237E-001	17,56	11,12	0,97
1.00000E+000	16,84	8,64	0,96

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	28,15	1,30	1,00	Half	1.800,00	3.82552E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,03
	3	0,03	2,55	0,09
	4	0,05	3,83	0,18
	5	0,13	6,39	0,44
	6	0,25	8,95	0,79
	7	0,29	9,46	0,87
	8	0,32	9,97	0,96
	9	0,36	10,49	1,05
	10	0,40	11,00	1,14
	11	0,49	12,02	1,35
	12	0,59	13,05	1,58
	13	0,84	15,09	2,08
	14	1,16	17,14	2,63
	15	1,55	19,19	3,20
	16	2,00	21,23	3,75
	17	3,13	25,32	4,71
	18	4,57	29,39	5,25

Fireball

Base Case

Data

Weather: Woensdrecht, nacht\Woensdrecht - D 1.5m/s

Speed: 1,50 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\tankwagen\Fireball

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Instantaneous	
Time When Pool is Left		s
Route Number	0	
Instantaneous Results Present:	No	
Continuous Results Present:	No	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass	4.569,38	kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Use event trees	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	233,66	233,66	0,00
4.65893E-002	206,24	206,24	0,00
1.51176E-001	180,05	180,05	0,00
3.50511E-001	154,72	154,72	0,00
1.00000E+000	129,74	129,74	0,00

Weather: Woensdrecht, nacht\Woensdrecht - D 5.0m/s

Speed: 5,00 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\tankwagen\Fireball

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Instantaneous	
Time When Pool is Left		s
Route Number	0	
Instantaneous Results Present:	No	
Continuous Results Present:	No	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass	4.569,38	kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Use event trees	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	233,66	233,66	0,00
4.65893E-002	206,24	206,24	0,00
1.51176E-001	180,05	180,05	0,00
3.50511E-001	154,72	154,72	0,00
1.00000E+000	129,74	129,74	0,00

Weather: Woensdrecht, nacht\Woensdrecht - D 9.0m/s

Speed: 9,00 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\tankwagen\Fireball

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Instantaneous	
Time When Pool is Left		s
Route Number	0	
Instantaneous Results Present:	No	
Continuous Results Present:	No	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass	4.569,38	kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Use event trees	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	233,66	233,66	0,00
4.65893E-002	206,24	206,24	0,00
1.51176E-001	180,05	180,05	0,00
3.50511E-001	154,72	154,72	0,00
1.00000E+000	129,74	129,74	0,00

Weather: Woensdrecht, nacht\Woensdrecht - E 5m/s

Speed: 5,00 m/s **Stability:** E

\De Zilverden\De oliepot 9 Rucphen\tankwagen\Fireball

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Instantaneous	
Time When Pool is Left		s
Route Number	0	
Instantaneous Results Present:	No	
Continuous Results Present:	No	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass	4.569,38	kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Use event trees	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	233,66	233,66	0,00
4.65893E-002	206,24	206,24	0,00
1.51176E-001	180,05	180,05	0,00
3.50511E-001	154,72	154,72	0,00
1.00000E+000	129,74	129,74	0,00

Weather: Woensdrecht, nacht\Woensdrecht - F 1.5m/s

Speed: 1,50 m/s **Stability:** F

\De Zilverden\De oliepot 9 Rucphen\tankwagen\Fireball

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Instantaneous	
Time When Pool is Left		s
Route Number	0	
Instantaneous Results Present:	No	
Continuous Results Present:	No	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass	4.569,38	kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Use event trees	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	233,66	233,66	0,00
4.65893E-002	206,24	206,24	0,00
1.51176E-001	180,05	180,05	0,00
3.50511E-001	154,72	154,72	0,00
1.00000E+000	129,74	129,74	0,00

instantaan vrijkomen

Base Case

Data

Weather: Woensdrecht, nacht\Woensdrecht - D 1.5m/s

Speed: 1,50 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\Propaantank\instantaan vrijkomen

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Instantaneous	
Time When Pool is Left		s
Route Number	11	
Instantaneous Results Present:	Yes	
Continuous Results Present:	No	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1	103,42	m
Early Explosion Radius 2	206,83	m
Early Explosion Mass	8.840,99	kg
Immediate Flash Fire Radius	14,93	m
Immediate Flash Fire Location	0,39	m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	164,19	164,19	0,00
3.99001E-002	144,44	144,44	0,00
1.19524E-001	125,11	125,11	0,00
2.73291E-001	105,84	105,84	0,00
1.00000E+000	86,76	86,77	0,00

Instantaneous Results

Step Number	Time s	Distance m	Radius m	Mass kg
1	0,00	0,00	7,55	8.782,36
2	0,00	0,00	7,55	8.782,36
3	0,04	0,02	8,32	8.785,07
4	0,11	0,05	9,49	8.770,56
5	0,26	0,15	11,43	8.742,46
6	0,55	0,40	15,08	8.633,64
7	1,14	1,02	20,28	8.290,59
8	1,73	1,76	24,38	7.766,90
9	2,90	3,40	29,23	6.484,90
10	5,25	7,02	30,65	4.454,77
11	9,95	14,96	24,72	1.615,59
12	13,64	21,70	13,54	236,90
13	13,84	22,08	13,01	200,22
14	14,24	22,84	11,76	135,20
15	15,04	24,32	8,15	38,42

Weather: **Woensdrecht, nacht\Woensdrecht - D 5.0m/s**

Speed: **5,00 m/s** **Stability:** **D**

\De Zilverden\De oliepot 9 Rucphen\Propaantank\instantaan vrijkomen

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Instantaneous	
Time When Pool is Left		s
Route Number	11	
Instantaneous Results Present:	Yes	
Continuous Results Present:	No	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1	103,42	m
Early Explosion Radius 2	206,83	m
Early Explosion Mass	8.840,99	kg
Immediate Flash Fire Radius	14,93	m
Immediate Flash Fire Location	1,29	m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	164,19	164,19	0,00
3.99001E-002	144,44	144,44	0,00
1.19524E-001	125,11	125,11	0,00
2.73291E-001	105,84	105,84	0,00
1.00000E+000	86,76	86,77	0,00

Instantaneous Results

Step Number	Time s	Distance m	Radius m	Mass kg
1	0,00	0,00	7,55	8.782,36
2	0,00	0,00	7,55	8.782,36
3	0,04	0,05	8,32	8.785,07
4	0,11	0,18	9,49	8.770,56
5	0,26	0,50	11,43	8.742,46
6	0,55	1,32	15,08	8.633,64
7	1,14	3,40	20,28	8.290,59
8	1,73	5,87	24,38	7.766,90
9	2,90	11,35	29,23	6.484,90
10	5,25	23,45	30,65	4.454,77
11	9,95	49,94	24,72	1.615,59
12	13,64	72,45	13,54	236,90
13	13,84	73,72	12,97	198,58
14	14,24	76,23	11,61	130,48
15	15,04	81,17	7,47	30,13

Weather: Woensdrecht, nacht\Woensdrecht - D 9.0m/s

Speed: 9,00 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\Propaantank\instantaan vrijkomen

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Instantaneous	
Time When Pool is Left		s
Route Number	11	
Instantaneous Results Present:	Yes	
Continuous Results Present:	No	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1	103,42	m
Early Explosion Radius 2	206,83	m
Early Explosion Mass	8.840,99	kg
Immediate Flash Fire Radius	14,93	m
Immediate Flash Fire Location	2,33	m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	164,19	164,19	0,00
3.99001E-002	144,44	144,44	0,00
1.19524E-001	125,11	125,11	0,00
2.73291E-001	105,84	105,84	0,00
1.00000E+000	86,76	86,77	0,00

Instantaneous Results

Step Number	Time s	Distance m	Radius m	Mass kg
1	0,00	0,00	7,55	8.782,36
2	0,00	0,00	7,55	8.782,36
3	0,04	0,10	8,32	8.785,07
4	0,11	0,33	9,49	8.770,56
5	0,26	0,90	11,43	8.742,46
6	0,55	2,38	15,08	8.633,64
7	1,14	6,14	20,28	8.290,59
8	1,73	10,59	24,38	7.766,90
9	2,90	20,47	29,23	6.484,90
10	5,25	42,29	30,65	4.454,77
11	9,95	90,04	24,72	1.615,59
12	13,64	130,61	13,54	236,90
13	13,84	132,89	12,86	193,96
14	14,24	137,42	11,20	117,85
15	15,04	146,34	5,36	11,94

Weather: **Woensdrecht, nacht\Woensdrecht - E 5m/s**

Speed: **5,00 m/s** **Stability:** **E**

\De Zilverden\De oliepot 9 Rucphen\Propaantank\instantaan vrijkomen

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Instantaneous	
Time When Pool is Left		s
Route Number	11	
Instantaneous Results Present:	Yes	
Continuous Results Present:	No	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1	103,42	m
Early Explosion Radius 2	206,83	m
Early Explosion Mass	8.840,99	kg
Immediate Flash Fire Radius	15,04	m
Immediate Flash Fire Location	1,39	m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	164,19	164,19	0,00
3.99001E-002	144,44	144,44	0,00
1.19524E-001	125,11	125,11	0,00
2.73291E-001	105,84	105,84	0,00
1.00000E+000	86,76	86,77	0,00

Instantaneous Results

Step Number	Time s	Distance m	Radius m	Mass kg
1	0,00	0,00	7,55	8.787,20
2	0,00	0,00	7,55	8.787,20
3	0,04	0,06	8,32	8.786,60
4	0,11	0,20	9,49	8.774,24
5	0,26	0,54	11,43	8.742,61
6	0,55	1,40	15,08	8.639,27
7	1,14	3,54	20,34	8.291,37
8	2,31	8,73	27,40	7.117,68
9	3,49	14,73	30,18	5.884,02
10	5,84	27,78	30,34	3.983,13
11	10,54	56,35	23,44	1.299,01
12	13,64	77,03	13,54	220,57
13	13,84	78,41	12,98	183,36
14	14,24	81,16	11,64	120,63
15	15,04	86,55	7,59	28,63

Weather: Woensdrecht, nacht\Woensdrecht - F 1.5m/s

Speed: 1,50 m/s **Stability:** F

\De Zilverden\De oliepot 9 Rucphen\Propaantank\instantaan vrijkomen

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Instantaneous	
Time When Pool is Left		s
Route Number	11	
Instantaneous Results Present:	Yes	
Continuous Results Present:	No	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1	103,42	m
Early Explosion Radius 2	206,83	m
Early Explosion Mass	8.840,99	kg
Immediate Flash Fire Radius	15,25	m
Immediate Flash Fire Location	0,46	m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	164,19	164,19	0,00
3.99001E-002	144,44	144,44	0,00
1.19524E-001	125,11	125,11	0,00
2.73291E-001	105,84	105,84	0,00
1.00000E+000	86,76	86,77	0,00

Instantaneous Results

Step Number	Time s	Distance m	Radius m	Mass kg
1	0,00	0,00	7,55	8.790,19
2	0,00	0,00	7,55	8.790,19
3	0,04	0,02	8,32	8.790,72
4	0,11	0,07	9,49	8.778,26
5	0,26	0,17	11,43	8.746,46
6	0,55	0,44	15,08	8.647,51
7	1,14	1,10	20,28	8.315,80
8	2,31	2,70	27,39	7.168,15
9	4,66	6,55	30,78	4.956,58
10	9,37	15,63	25,87	1.941,50
11	13,64	25,31	13,55	244,06
12	13,84	25,80	13,02	205,89
13	14,24	26,77	11,78	139,56
14	15,04	28,64	8,18	40,31
15	15,44	29,53	5,12	9,63

Weather: **Woensdrecht, nacht\Woensdrecht - D 1.5m/s**

Speed: **1,50 m/s** **Stability:** **D**

\De Zilverden\De oliepot 9 Rucphen\tankwagen\instantaan vrijkomen

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Instantaneous	
Time When Pool is Left		s
Route Number	11	
Instantaneous Results Present:	Yes	
Continuous Results Present:	No	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1	110,42	m
Early Explosion Radius 2	220,84	m
Early Explosion Mass	10.761,94	kg
Immediate Flash Fire Radius	17,22	m
Immediate Flash Fire Location	0,69	m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	235,38	235,38	0,00
4.68367E-002	207,69	207,69	0,00
1.52366E-001	181,26	181,26	0,00
3.53331E-001	155,70	155,70	0,00
1.00000E+000	130,49	130,49	0,00

Instantaneous Results

Step Number	Time s	Distance m	Radius m	Mass kg
1	0,00	0,00	8,05	10.725,22
2	0,00	0,00	8,05	10.725,22
3	0,06	0,03	9,07	11.826,11
4	0,17	0,09	10,63	13.510,80
5	0,40	0,25	12,93	13.768,25
6	0,86	0,66	17,06	13.609,80
7	1,79	1,69	23,15	13.090,10
8	2,71	2,91	27,87	12.298,41
9	4,55	5,61	33,85	10.214,87
10	8,24	11,57	35,57	6.892,62
11	15,61	24,62	28,19	2.355,72
12	15,81	25,00	28,40	2.260,03
13	16,21	25,75	28,76	2.078,18
14	17,01	27,24	29,22	1.740,83
15	17,81	28,70	29,36	1.441,85
16	18,61	30,12	29,27	1.216,25
17	20,21	32,89	28,44	850,16
18	23,41	38,22	24,26	352,79

Weather: Woensdrecht, nacht\Woensdrecht - D 5.0m/s

Speed: 5,00 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\tankwagen\instantaan vrijkomen

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Instantaneous	
Time When Pool is Left		s
Route Number	11	
Instantaneous Results Present:	Yes	
Continuous Results Present:	No	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1	110,42	m
Early Explosion Radius 2	220,84	m
Early Explosion Mass	10.761,94	kg
Immediate Flash Fire Radius	17,22	m
Immediate Flash Fire Location	2,30	m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	235,38	235,38	0,00
4.68367E-002	207,69	207,69	0,00
1.52366E-001	181,26	181,26	0,00
3.53331E-001	155,70	155,70	0,00
1.00000E+000	130,49	130,49	0,00

Instantaneous Results

Step Number	Time s	Distance m	Radius m	Mass kg
1	0,00	0,00	8,05	10.725,22
2	0,00	0,00	8,05	10.725,22
3	0,06	0,09	9,07	11.826,11
4	0,17	0,30	10,63	13.510,80
5	0,40	0,83	12,93	13.768,25
6	0,86	2,19	17,06	13.609,80
7	1,79	5,65	23,15	13.090,10
8	2,71	9,72	27,87	12.298,41
9	4,55	18,74	33,85	10.214,87
10	8,24	38,66	35,57	6.892,62
11	15,61	82,20	28,19	2.355,72
12	15,81	83,48	28,39	2.257,62
13	16,21	86,00	28,72	2.070,53
14	17,01	90,97	29,08	1.722,20
15	17,81	95,79	29,08	1.405,65
16	18,61	100,51	28,78	1.161,59
17	20,21	109,72	27,21	752,07
18	23,41	127,44	19,00	176,49

Weather: **Woensdrecht, nacht\Woensdrecht - D 9.0m/s**

Speed: **9,00 m/s** **Stability:** **D**

\De Zilverden\De oliepot 9 Rucphen\tankwagen\instantaan vrijkomen

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Instantaneous	
Time When Pool is Left		s
Route Number	11	
Instantaneous Results Present:	Yes	
Continuous Results Present:	No	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1	110,42	m
Early Explosion Radius 2	220,84	m
Early Explosion Mass	10.761,94	kg
Immediate Flash Fire Radius	17,22	m
Immediate Flash Fire Location	4,15	m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	235,38	235,38	0,00
4.68367E-002	207,69	207,69	0,00
1.52366E-001	181,26	181,26	0,00
3.53331E-001	155,70	155,70	0,00
1.00000E+000	130,49	130,49	0,00

Instantaneous Results

Step Number	Time s	Distance m	Radius m	Mass kg
1	0,00	0,00	8,05	10.725,22
2	0,00	0,00	8,05	10.725,22
3	0,06	0,16	9,07	11.826,11
4	0,17	0,54	10,63	13.510,80
5	0,40	1,50	12,93	13.768,25
6	0,86	3,95	17,06	13.609,80
7	1,79	10,18	23,15	13.090,10
8	2,71	17,54	27,87	12.298,41
9	4,55	33,82	33,85	10.214,87
10	8,24	69,75	35,57	6.892,62
11	15,61	148,26	28,19	2.355,72
12	15,81	150,56	28,34	2.248,37
13	16,21	155,11	28,56	2.041,87
14	17,01	164,08	28,62	1.653,32
15	17,81	172,79	28,17	1.292,29
16	18,61	181,32	27,25	1.000,96
17	19,41	189,69	25,79	740,79
18	21,01	206,12	20,71	307,40
19	22,61	222,10	9,04	24,09

Weather: Woensdrecht, nacht\Woensdrecht - E 5m/s

Speed: 5,00 m/s **Stability:** E

\De Zilverden\De oliepot 9 Rucphen\tankwagen\instantaan vrijkomen

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Instantaneous	
Time When Pool is Left		s
Route Number	11	
Instantaneous Results Present:	Yes	
Continuous Results Present:	No	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1	110,42	m
Early Explosion Radius 2	220,84	m
Early Explosion Mass	10.761,94	kg
Immediate Flash Fire Radius	17,33	m
Immediate Flash Fire Location	2,54	m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	235,38	235,38	0,00
4.68367E-002	207,69	207,69	0,00
1.52366E-001	181,26	181,26	0,00
3.53331E-001	155,70	155,70	0,00
1.00000E+000	130,49	130,49	0,00

Instantaneous Results

Step Number	Time s	Distance m	Radius m	Mass kg
1	0,00	0,00	8,05	10.730,24
2	0,00	0,00	8,05	10.730,24
3	0,06	0,10	9,07	11.831,33
4	0,17	0,33	10,63	13.516,36
5	0,40	0,91	12,93	13.773,66
6	0,86	2,35	17,06	13.615,43
7	1,79	5,94	23,15	13.090,97
8	3,63	14,62	31,57	11.239,98
9	5,47	24,65	35,03	9.205,00
10	9,16	46,46	35,18	6.107,86
11	16,53	94,17	26,60	1.847,34
12	16,73	95,59	26,70	1.738,59
13	17,13	98,40	26,84	1.571,15
14	17,93	103,88	26,82	1.262,51
15	18,73	109,15	26,40	985,94
16	19,53	114,26	25,68	777,71
17	21,13	124,17	23,11	437,32
18	24,33	142,97	9,51	24,18

Weather: **Woensdrecht, nacht\Woensdrecht - F 1.5m/s**

Speed: **1,50 m/s** **Stability:** **F**

\De Zilverden\De oliepot 9 Rucphen\tankwagen\instantaan vrijkomen

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Instantaneous	
Time When Pool is Left		s
Route Number	11	
Instantaneous Results Present:	Yes	
Continuous Results Present:	No	
Fireball Results Present:	Yes	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1	110,42	m
Early Explosion Radius 2	220,84	m
Early Explosion Mass	10.761,94	kg
Immediate Flash Fire Radius	17,61	m
Immediate Flash Fire Location	0,87	m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

FireballEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	235,38	235,38	0,00
4.68367E-002	207,69	207,69	0,00
1.52366E-001	181,26	181,26	0,00
3.53331E-001	155,70	155,70	0,00
1.00000E+000	130,49	130,49	0,00

Instantaneous Results

Step Number	Time s	Distance m	Radius m	Mass kg
1	0,00	0,00	8,05	10.730,99
2	0,00	0,00	8,05	10.730,99
3	0,06	0,03	9,07	11.836,26
4	0,17	0,11	10,63	13.522,94
5	0,40	0,30	12,93	13.780,62
6	0,86	0,75	17,06	13.629,17
7	1,79	1,88	23,15	13.124,71
8	3,63	4,64	31,58	11.324,73
9	7,31	11,26	35,74	7.695,23
10	14,69	26,90	29,62	2.861,64
11	14,89	27,40	29,93	2.751,60
12	15,29	28,37	30,47	2.560,38
13	16,09	30,25	31,29	2.202,59
14	16,89	32,01	31,81	1.887,41
15	17,69	33,69	32,10	1.646,88
16	19,29	36,87	32,09	1.248,53
17	22,49	42,71	30,07	680,60
18	28,89	52,92	16,87	79,88

lek

Base Case

Data

Weather: Woensdrecht, nacht\Woensdrecht - D 1.5m/s

Speed: 1,50 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\verlading\lek

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	4,97	3,93	0,82
1.06716E-001	4,76	3,21	0,81
4.35634E-001	4,56	2,53	0,80
8.21237E-001	4,39	1,90	0,79
1.00000E+000	4,23	1,49	0,79

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	3,95	0,14	1,00	Half	1.800,00	1.46076E-001

Detailed Continuous Segment Results

Segment Number	Step Number	Time	Distance	Mass
		s	m	kg
1				
	1	0,00	0,00	0,00
	2	0,02	1,11	0,00
	3	0,05	1,75	0,01
	4	0,15	3,03	0,01
	5	0,31	4,31	0,02

Weather: **Woensdrecht, nacht\Woensdrecht - D 5.0m/s**

Speed: **5,00 m/s** **Stability:** **D**

\De Zilverden\De oliepot 9 Rucphen\verlading\lek

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	4,25	4,01	0,78
1.06716E-001	4,02	3,43	0,77
4.35634E-001	3,82	2,87	0,76
8.21237E-001	3,64	2,33	0,74
1.00000E+000	3,49	1,81	0,73

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	3,00	0,11	1,00	Half	1.800,00	1.46076E-001

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,02	1,11	0,00
	3	0,05	1,75	0,01
	4	0,15	3,03	0,01

Weather: Woensdrecht, nacht\Woensdrecht - D 9.0m/s

Speed: 9,00 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\verlading\lek

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	4,09	3,96	0,77
1.06716E-001	3,85	3,43	0,76
4.35634E-001	3,64	2,92	0,74
8.21237E-001	3,46	2,42	0,73
1.00000E+000	3,30	1,93	0,72

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	2,68	0,11	1,00	Half	1.800,00	1.46076E-001

Detailed Continuous Segment Results

Segment Number	Step Number	Time	Distance	Mass
		s	m	kg
1				
	1	0,00	0,00	0,00
	2	0,02	1,11	0,00
	3	0,05	1,75	0,01
	4	0,15	3,03	0,01

Weather: **Woensdrecht, nacht\Woensdrecht - E 5m/s**

Speed: **5,00 m/s** **Stability:** **E**

\De Zilverden\De oliepot 9 Rucphen\verlading\lek

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	4,25	4,01	0,78
1.06716E-001	4,02	3,43	0,77
4.35634E-001	3,82	2,87	0,76
8.21237E-001	3,64	2,33	0,74
1.00000E+000	3,49	1,81	0,73

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	3,00	0,11	1,00	Half	1.800,00	1.46076E-001

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,02	1,11	0,00
	3	0,05	1,75	0,01
	4	0,16	3,03	0,01

Weather: Woensdrecht, nacht\Woensdrecht - F 1.5m/s

Speed: 1,50 m/s **Stability:** F

\De Zilverden\De oliepot 9 Rucphen\verlading\lek

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	4,97	3,93	0,82
1.06716E-001	4,76	3,21	0,81
4.35634E-001	4,56	2,53	0,80
8.21237E-001	4,39	1,90	0,79
1.00000E+000	4,23	1,49	0,79

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	4,02	0,14	1,00	Half	1.800,00	1.46076E-001

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,02	1,11	0,00
	3	0,05	1,75	0,01
	4	0,15	3,03	0,01
	5	0,32	4,31	0,02

Weather: Woensdrecht, nacht\Woensdrecht - D 1.5m/s

Speed: 1,50 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\Pomp tank\lek

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	13,16	12,05	0,94
1.06716E-001	12,51	10,16	0,94
4.35634E-001	11,94	8,37	0,94
8.21237E-001	11,43	6,66	0,94
1.00000E+000	10,98	5,07	0,93

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	12,56	0,48	1,00	Half	1.800,00	1.43055E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,02
	3	0,02	1,91	0,03
	4	0,05	3,19	0,07
	5	0,10	4,47	0,12
	6	0,25	7,03	0,25
	7	0,29	7,54	0,28
	8	0,38	8,57	0,33
	9	0,49	9,59	0,38
	10	0,61	10,61	0,41
	11	0,75	11,64	0,44
	12	1,07	13,68	0,46

Weather: Woensdrecht, nacht\Woensdrecht - D 5.0m/s

Speed: 5,00 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\Pomp tank\lek

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	11,19	11,78	0,93
1.06716E-001	10,51	10,24	0,92
4.35634E-001	9,91	8,80	0,92
8.21237E-001	9,39	7,45	0,91
1.00000E+000	8,93	6,14	0,91

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	8,76	0,41	1,00	Half	1.800,00	1.43055E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time	Distance	Mass
		s	m	kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,02
	3	0,03	2,55	0,05
	4	0,08	3,83	0,09
	5	0,22	6,39	0,20
	6	0,24	6,65	0,22
	7	0,28	7,16	0,23
	8	0,39	8,18	0,26
	9	0,50	9,21	0,26

Weather: **Woensdrecht, nacht\Woensdrecht - D 9.0m/s**

Speed: **9,00** **m/s** **Stability:** **D**

\De Zilverden\De oliepot 9 Rucphen\Pomp tank\lek

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	10,78	11,54	0,92
1.06716E-001	10,07	10,04	0,92
4.35634E-001	9,45	8,74	0,91
8.21237E-001	8,91	7,51	0,91
1.00000E+000	8,43	6,32	0,90

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	6,81	0,38	1,00	Half	1.800,00	1.43055E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,35	0,02
	3	0,04	2,63	0,05
	4	0,08	3,91	0,10
	5	0,15	5,19	0,15
	6	0,17	5,45	0,16
	7	0,21	5,96	0,18
	8	0,21	6,06	0,18
	9	0,23	6,27	0,18
	10	0,25	6,47	0,19
	11	0,27	6,67	0,19
	12	0,30	7,08	0,19

Weather: Woensdrecht, nacht\Woensdrecht - E 5m/s

Speed: 5,00 m/s **Stability:** E

\De Zilverden\De oliepot 9 Rucphen\Pomp tank\lek

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	11,19	11,78	0,93
1.06716E-001	10,51	10,24	0,92
4.35634E-001	9,91	8,80	0,92
8.21237E-001	9,39	7,45	0,91
1.00000E+000	8,93	6,14	0,91

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	8,92	0,42	1,00	Half	1.800,00	1.43055E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,02
	3	0,04	2,55	0,05
	4	0,08	3,83	0,10
	5	0,22	6,39	0,21
	6	0,24	6,65	0,23
	7	0,29	7,16	0,25
	8	0,34	7,67	0,27
	9	0,40	8,18	0,28
	10	0,52	9,21	0,29

Weather: Woensdrecht, nacht\Woensdrecht - F 1.5m/s

Speed: 1,50 m/s **Stability:** F

\De Zilverden\De oliepot 9 Rucphen\Pomp tank\lek

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	13,16	12,05	0,94
1.06716E-001	12,51	10,16	0,94
4.35634E-001	11,94	8,37	0,94
8.21237E-001	11,43	6,66	0,94
1.00000E+000	10,98	5,07	0,93

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	13,28	0,50	1,00	Half	1.800,00	1.43055E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,02
	3	0,02	1,91	0,03
	4	0,05	3,19	0,07
	5	0,10	4,47	0,13
	6	0,25	7,03	0,26
	7	0,36	8,31	0,34
	8	0,43	8,95	0,38
	9	0,50	9,59	0,41
	10	0,58	10,23	0,45
	11	0,66	10,87	0,48
	12	0,87	12,15	0,52
	13	1,11	13,43	0,54

vrijkomen van de gehele inhoud

Base Case

Data

Weather: Woensdrecht, nacht\Woensdrecht - D 1.5m/s

Speed: 1,50 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\Propaantank\vrijkomen van de gehele inhoud

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	36,83	36,99	0,99
1.06716E-001	34,86	31,67	0,99
4.35634E-001	33,15	26,71	0,99
8.21237E-001	31,64	22,00	0,99
1.00000E+000	30,30	17,51	0,99

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	70,50	3,96	1,00	Half	600,00	1.47350E+001

Detailed Continuous Segment Results

Segment Number	Step Number	Time	Distance	Mass
		s	m	kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,11
	3	0,02	2,55	0,26
	4	0,05	5,11	0,72
	5	0,10	7,67	1,41
	6	0,12	8,18	1,58
	7	0,14	9,21	1,95
	8	0,18	10,23	2,36
	9	0,21	11,25	2,80
	10	0,25	12,28	3,28
	11	0,30	13,30	3,81
	12	0,35	14,33	4,37
	13	0,46	16,37	5,63
	14	0,59	18,42	7,03
	15	0,92	22,52	10,22
	16	1,33	26,61	13,85
	17	1,82	30,71	17,80
	18	2,41	34,80	21,94
	19	3,10	38,89	26,13
	20	3,88	42,98	30,19
	21	4,76	47,07	33,99
	22	5,75	51,17	37,56
	23	8,06	59,36	43,96
	24	10,88	67,55	48,67
	25	14,23	75,74	50,83

Weather: Woensdrecht, nacht\Woensdrecht - D 5.0m/s

Speed: 5,00 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\Propaantank\vrijkomen van de gehele inhoud

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	31,62	35,67	0,98
1.06716E-001	29,44	30,92	0,98
4.35634E-001	27,60	26,89	0,98
8.21237E-001	26,03	23,17	0,98
1.00000E+000	24,65	19,64	0,98

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	57,56	3,07	1,00	Half	600,00	1.47350E+001

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,11
	3	0,02	2,55	0,26
	4	0,05	5,11	0,72
	5	0,11	7,67	1,45
	6	0,12	8,18	1,63
	7	0,15	9,21	2,02
	8	0,23	11,25	2,92
	9	0,32	13,30	3,99
	10	0,43	15,35	5,19
	11	0,56	17,40	6,52
	12	0,71	19,45	7,93
	13	1,05	23,54	10,95
	14	1,46	27,64	14,16
	15	1,92	31,73	17,46
	16	2,45	35,83	20,77
	17	3,04	39,92	23,99
	18	3,69	44,02	27,02
	19	5,16	52,20	31,75
	20	5,99	56,30	33,14
	21	6,87	60,39	33,69

Weather: Woensdrecht, nacht\Woensdrecht - D 9.0m/s

Speed: 9,00 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\Propaantank\vrijkomen van de gehele inhoud

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	30,78	35,10	0,96
1.06716E-001	28,49	30,32	0,96
4.35634E-001	26,50	26,39	0,97
8.21237E-001	24,77	22,97	0,97
1.00000E+000	23,30	19,76	0,98

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	48,80	2,35	1,00	Half	600,00	1.47350E+001

Detailed Continuous Segment Results

Segment Number	Step Number	Time	Distance	Mass
		s	m	kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,11
	3	0,02	2,55	0,26
	4	0,05	5,11	0,74
	5	0,06	5,62	0,87
	6	0,08	6,65	1,16
	7	0,14	8,69	1,88
	8	0,16	9,10	2,05
	9	0,17	9,51	2,23
	10	0,20	10,33	2,59
	11	0,27	11,97	3,39
	12	0,36	13,61	4,26
	13	0,45	15,25	5,18
	14	0,66	18,53	7,13
	15	0,90	21,80	9,17
	16	1,18	25,08	11,23
	17	1,80	31,63	15,26
	18	2,52	38,18	18,83
	19	3,33	44,74	21,34
	20	4,22	51,29	22,26

Weather: Woensdrecht, nacht\Woensdrecht - E 5m/s

Speed: 5,00 m/s **Stability:** E

\De Zilverden\De oliepot 9 Rucphen\Propaantank\vrijkomen van de gehele inhoud

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	31,62	35,67	0,98
1.06716E-001	29,44	30,92	0,98
4.35634E-001	27,60	26,89	0,98
8.21237E-001	26,03	23,17	0,98
1.00000E+000	24,65	19,64	0,98

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	59,52	3,66	1,00	Half	600,00	1.47350E+001

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,11
	3	0,02	2,55	0,26
	4	0,05	5,11	0,73
	5	0,11	7,67	1,46
	6	0,12	8,18	1,65
	7	0,15	9,21	2,05
	8	0,23	11,25	2,98
	9	0,33	13,30	4,12
	10	0,45	15,35	5,43
	11	0,59	17,40	6,91
	12	0,93	21,49	10,21
	13	1,35	25,59	13,91
	14	1,84	29,68	17,89
	15	2,42	33,78	22,04
	16	3,07	37,87	26,25
	17	3,81	41,96	30,38
	18	4,62	46,05	34,21
	19	5,51	50,15	37,58
	20	7,52	58,34	42,03
	21	9,78	66,53	43,27

Weather: Woensdrecht, nacht\Woensdrecht - F 1.5m/s

Speed: 1,50 m/s **Stability:** F

\De Zilverden\De oliepot 9 Rucphen\Propaantank\vrijkomen van de gehele inhoud

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	36,83	36,99	0,99
1.06716E-001	34,86	31,67	0,99
4.35634E-001	33,15	26,71	0,99
8.21237E-001	31,64	22,00	0,99
1.00000E+000	30,30	17,51	0,99

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	96,60	10,13	1,00	Half	600,00	1.47350E+001

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,11
	3	0,02	2,55	0,26
	4	0,05	5,11	0,72
	5	0,10	7,67	1,43
	6	0,12	8,18	1,60
	7	0,14	9,21	1,98
	8	0,18	10,23	2,39
	9	0,18	10,44	2,48
	10	0,20	10,85	2,66
	11	0,23	11,66	3,04
	12	0,26	12,48	3,47
	13	0,30	13,30	3,93
	14	0,39	14,94	5,01
	15	0,50	16,58	6,27
	16	0,78	19,86	9,30
	17	1,15	23,13	12,98
	18	1,59	26,41	17,21
	19	2,13	29,68	21,93
	20	2,76	32,95	27,05
	21	3,49	36,21	32,44
	22	4,33	39,49	38,12
	23	6,37	46,04	50,61
	24	8,96	52,60	64,49
	25	12,19	59,15	79,35
	26	16,15	65,70	94,61
	27	20,87	72,26	109,64
	28	26,42	78,81	123,78
	29	32,82	85,37	136,48
	30	40,07	91,92	147,23
	31	48,17	98,47	154,95

Weather: Woensdrecht, nacht\Woensdrecht - D 1.5m/s

Speed: 1,50 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\tankwagen\vrijkomen van de gehele inhoud

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	40,75	41,62	0,99
1.06716E-001	38,58	35,62	0,99
4.35634E-001	36,70	30,06	0,99
8.21237E-001	35,05	24,81	0,99
1.00000E+000	33,59	19,83	0,99

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	65,02	2,79	1,00	Half	600,00	2.31992E+001

Detailed Continuous Segment Results

Segment Number	Step Number	Time	Distance	Mass
		s	m	kg
1				
	1	0,00	0,00	0,00
	2	0,00	1,27	0,11
	3	0,01	2,55	0,27
	4	0,02	3,83	0,49
	5	0,05	6,39	1,10
	6	0,09	8,95	1,94
	7	0,11	9,46	2,14
	8	0,13	10,49	2,56
	9	0,15	11,51	3,03
	10	0,18	12,54	3,53
	11	0,25	14,58	4,66
	12	0,32	16,63	5,94
	13	0,52	20,73	8,86
	14	0,76	24,82	12,20
	15	1,06	28,92	15,80
	16	1,40	33,02	19,51
	17	1,80	37,11	23,21
	18	2,74	45,30	30,12
	19	3,87	53,49	35,69
	20	5,20	61,68	39,04
	21	6,73	69,87	40,06

Weather: Woensdrecht, nacht\Woensdrecht - D 5.0m/s

Speed: 5,00 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\tankwagen\vrijkomen van de gehele inhoud

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	34,55	40,40	0,99
1.06716E-001	32,31	35,03	0,99
4.35634E-001	30,37	30,39	0,99
8.21237E-001	28,68	26,12	0,99
1.00000E+000	27,21	22,13	0,98

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	67,26	2,57	1,00	Half	600,00	2.31992E+001

Detailed Continuous Segment Results

Segment Number	Step Number	Time	Distance	Mass
		s	m	kg
1				
	1	0,00	0,00	0,00
	2	0,00	1,27	0,11
	3	0,01	2,55	0,27
	4	0,02	3,83	0,49
	5	0,05	6,39	1,11
	6	0,06	6,90	1,27
	7	0,08	7,93	1,62
	8	0,10	8,95	2,01
	9	0,12	9,98	2,43
	10	0,15	11,00	2,90
	11	0,18	12,02	3,41
	12	0,24	14,07	4,52
	13	0,32	16,12	5,77
	14	0,41	18,17	7,12
	15	0,62	22,26	10,06
	16	0,88	26,36	13,20
	17	1,17	30,46	16,41
	18	1,50	34,55	19,58
	19	2,27	42,74	25,50
	20	3,16	50,93	30,47
	21	4,18	59,13	34,03
	22	5,32	67,32	35,64

Weather: Woensdrecht, nacht\Woensdrecht - D 9.0m/s

Speed: 9,00 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\tankwagen\vrijkomen van de gehele inhoud

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	33,51	39,82	0,97
1.06716E-001	31,08	34,35	0,98
4.35634E-001	28,98	29,86	0,98
8.21237E-001	27,22	25,94	0,98
1.00000E+000	25,70	22,29	0,98

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	30,32	2,36	1,00	Full	600,00	2.31992E+001

Detailed Continuous Segment Results

Segment Number	Step Number	Time	Distance	Mass
		s	m	kg
1				
	1	0,00	0,00	0,00
	2	0,00	1,27	0,11
	3	0,01	2,55	0,27
	4	0,02	3,83	0,50
	5	0,05	6,39	1,13
	6	0,06	6,90	1,30
	7	0,08	7,93	1,66
	8	0,10	8,95	2,06
	9	0,13	9,98	2,50
	10	0,15	11,00	2,98
	11	0,22	13,05	4,04
	12	0,29	15,10	5,20
	13	0,38	17,14	6,45
	14	0,57	21,24	9,11
	15	0,81	25,34	11,87
	16	1,07	29,43	14,62
	17	1,36	33,53	17,27
	18	2,01	41,72	22,11
	19	2,75	49,91	26,00
	20	3,57	58,10	28,24
	21	4,46	66,29	28,84

Weather: Woensdrecht, nacht\Woensdrecht - E 5m/s

Speed: 5,00 m/s **Stability:** E

\De Zilverden\De oliepot 9 Rucphen\tankwagen\vrijkomen van de gehele inhoud

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	34,55	40,40	0,99
1.06716E-001	32,31	35,03	0,99
4.35634E-001	30,37	30,39	0,99
8.21237E-001	28,68	26,12	0,99
1.00000E+000	27,21	22,13	0,98

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	71,61	3,02	1,00	Half	600,00	2.31992E+001

Detailed Continuous Segment Results

Segment Number	Step Number	Time	Distance	Mass
		s	m	kg
1				
	1	0,00	0,00	0,00
	2	0,00	1,27	0,11
	3	0,01	2,55	0,27
	4	0,02	3,83	0,50
	5	0,05	6,39	1,13
	6	0,06	6,90	1,29
	7	0,08	7,93	1,64
	8	0,10	8,95	2,04
	9	0,12	9,98	2,47
	10	0,15	11,00	2,96
	11	0,18	12,02	3,49
	12	0,25	14,07	4,69
	13	0,33	16,12	6,06
	14	0,54	20,22	9,19
	15	0,80	24,31	12,72
	16	1,10	28,41	16,49
	17	1,45	32,50	20,34
	18	2,27	40,70	27,92
	19	3,24	48,89	34,92
	20	4,35	57,08	40,80
	21	5,62	65,27	45,00
	22	7,03	73,46	46,64

Weather: Woensdrecht, nacht\Woensdrecht - F 1.5m/s

Speed: 1,50 m/s **Stability:** F

\De Zilverden\De oliepot 9 Rucphen\tankwagen\vrijkomen van de gehele inhoud

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Transport - Road tanker	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	40,75	41,62	0,99
1.06716E-001	38,58	35,62	0,99
4.35634E-001	36,70	30,06	0,99
8.21237E-001	35,05	24,81	0,99
1.00000E+000	33,59	19,83	0,99

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	78,44	3,97	1,00	Half	600,00	2.31992E+001

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,00	1,27	0,11
	3	0,01	2,55	0,27
	4	0,02	3,83	0,50
	5	0,05	6,39	1,11
	6	0,06	6,90	1,27
	7	0,08	7,93	1,61
	8	0,10	8,95	1,99
	9	0,10	9,16	2,07
	10	0,11	9,57	2,24
	11	0,13	10,39	2,59
	12	0,15	11,20	2,97
	13	0,17	12,02	3,40
	14	0,22	13,66	4,39
	15	0,29	15,30	5,55
	16	0,46	18,58	8,33
	17	0,68	21,85	11,69
	18	0,94	25,13	15,51
	19	1,25	28,41	19,65
	20	2,00	34,96	28,51
	21	2,92	41,51	37,76
	22	4,01	48,06	46,81
	23	5,28	54,61	55,09
	24	6,72	61,16	62,01
	25	8,36	67,71	67,34
	26	12,22	80,82	72,35

vrijkomen via lek

Base Case

Data

Weather: Woensdrecht, nacht\Woensdrecht - D 1.5m/s

Speed: 1,50 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\Propaantank\vrijkomen via lek

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	13,16	12,05	0,94
1.06716E-001	12,51	10,16	0,94
4.35634E-001	11,94	8,37	0,94
8.21237E-001	11,43	6,66	0,94
1.00000E+000	10,98	5,07	0,93

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	12,56	0,48	1,00	Half	1.800,00	1.43055E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time	Distance	Mass
		s	m	kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,02
	3	0,02	1,91	0,03
	4	0,05	3,19	0,07
	5	0,10	4,47	0,12
	6	0,25	7,03	0,25
	7	0,29	7,54	0,28
	8	0,38	8,57	0,33
	9	0,49	9,59	0,38
	10	0,61	10,61	0,41
	11	0,75	11,64	0,44
	12	1,07	13,68	0,46

Weather: **Woensdrecht, nacht\Woensdrecht - D 5.0m/s**

Speed: **5,00 m/s** **Stability:** **D**

\De Zilverden\De oliepot 9 Rucphen\Propaantank\vrijkomen via lek

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	11,19	11,78	0,93
1.06716E-001	10,51	10,24	0,92
4.35634E-001	9,91	8,80	0,92
8.21237E-001	9,39	7,45	0,91
1.00000E+000	8,93	6,14	0,91

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	8,76	0,41	1,00	Half	1.800,00	1.43055E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,02
	3	0,03	2,55	0,05
	4	0,08	3,83	0,09
	5	0,22	6,39	0,20
	6	0,24	6,65	0,22
	7	0,28	7,16	0,23
	8	0,39	8,18	0,26
	9	0,50	9,21	0,26

Weather: Woensdrecht, nacht\Woensdrecht - D 9.0m/s

Speed: 9,00 m/s **Stability:** D

\De Zilverden\De oliepot 9 Rucphen\Propaantank\vrijkomen via lek

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	10,78	11,54	0,92
1.06716E-001	10,07	10,04	0,92
4.35634E-001	9,45	8,74	0,91
8.21237E-001	8,91	7,51	0,91
1.00000E+000	8,43	6,32	0,90

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	6,81	0,38	1,00	Half	1.800,00	1.43055E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,35	0,02
	3	0,04	2,63	0,05
	4	0,08	3,91	0,10
	5	0,15	5,19	0,15
	6	0,17	5,45	0,16
	7	0,21	5,96	0,18
	8	0,21	6,06	0,18
	9	0,23	6,27	0,18
	10	0,25	6,47	0,19
	11	0,27	6,67	0,19
	12	0,30	7,08	0,19

Weather: Woensdrecht, nacht\Woensdrecht - E 5m/s

Speed: 5,00 m/s **Stability:** E

\De Zilverden\De oliepot 9 Rucphen\Propaantank\vrijkomen via lek

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	11,19	11,78	0,93
1.06716E-001	10,51	10,24	0,92
4.35634E-001	9,91	8,80	0,92
8.21237E-001	9,39	7,45	0,91
1.00000E+000	8,93	6,14	0,91

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	8,92	0,42	1,00	Half	1.800,00	1.43055E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,02
	3	0,04	2,55	0,05
	4	0,08	3,83	0,10
	5	0,22	6,39	0,21
	6	0,24	6,65	0,23
	7	0,29	7,16	0,25
	8	0,34	7,67	0,27
	9	0,40	8,18	0,28
	10	0,52	9,21	0,29

Weather: Woensdrecht, nacht\Woensdrecht - F 1.5m/s

Speed: 1,50 m/s **Stability:** F

\De Zilverden\De oliepot 9 Rucphen\Propaantank\vrijkomen via lek

Flammable Results (For toxic results, please see the Indoor and Outdoor Toxic Reports)

Release Type	Continuous	
Time When Pool is Left		s
Route Number	3	
Instantaneous Results Present:	No	
Continuous Results Present:	Yes	
Fireball Results Present:	No	
Immediate Pool Fire Results Present:	No	
Early Pool Fire Results Present:	No	
Late Pool Fire Results Present:	No	
Early Explosion Radius 1		m
Early Explosion Radius 2		m
Early Explosion Mass		kg
Immediate Flash Fire Radius		m
Immediate Flash Fire Location		m
Immediate Continuous Flash Fire Ellipse Type:		
Immediate Continuous Flash Fire Ellipse A		m
Immediate Continuous Flash Fire Ellipse B		m
Immediate Continuous Flash Fire Ellipse D		m
Method for Immediate Ignition Probability	Stationary - use material reactivity	
Immediate Ignition Probability		
Probability of Non-ignition		
Handling of BLEVE risk (mounded tanks)	Risk for Fireballs is included	

Lethality Ellipses

HorizontalJetEllipses

Lethality	Ellipse A m	Ellipse B m	Ellipse D
1.00006E-002	13,16	12,05	0,94
1.06716E-001	12,51	10,16	0,94
4.35634E-001	11,94	8,37	0,94
8.21237E-001	11,43	6,66	0,94
1.00000E+000	10,98	5,07	0,93

Continuous Segment Results

Segment	Ellipse A m	Ellipse B m	Ellipse D	Ellipse Type	Duration s	Rate kg/s
1	13,28	0,50	1,00	Half	1.800,00	1.43055E+000

Detailed Continuous Segment Results

Segment Number	Step Number	Time s	Distance m	Mass kg
1				
	1	0,00	0,00	0,00
	2	0,01	1,27	0,02
	3	0,02	1,91	0,03
	4	0,05	3,19	0,07
	5	0,10	4,47	0,13
	6	0,25	7,03	0,26
	7	0,36	8,31	0,34
	8	0,43	8,95	0,38
	9	0,50	9,59	0,41
	10	0,58	10,23	0,45
	11	0,66	10,87	0,48
	12	0,87	12,15	0,52
	13	1,11	13,43	0,54

De Zilverden (RunRow so - nacht)

materialen

PROPANE	DIPPR 2000 data	
CAS Number	**74986**	
Critical Temperature	96,68	degC
Critical pressure	42.5	bar
Normal Boiling Point	-42,04	degC
Molecular Weight	44,10	kg/kmol
Flammable/Toxic Flag	Flammable	
Heat of Combustion	2043110.0	kJ/kmol
Lower Flammability Limit	20.000,00	ppm
Upper Flammability Limit	95.000,00	ppm
Combustion 'Ct'	0,04	
Combustion 'At'	0,96	
VRW	0,00	ppm
AGW	0,00	ppm
LBW	0,00	ppm
Toxic Property N	0,00	
Toxic Property A	0,00	
Toxic Property B	0,00	
IDLH Concentration		ppm
STEL Concentration		ppm
Melting Point	-187,68	degC
Reactivity with Atmosphere	Not Strongly Reactive	
TNT Explosion Eff.	0,00	%
Human Response Coefficient 1	0,00	
Human Response Coefficient 2	0,00	
Debilitation Factor Change 1	0,00	
Debilitation Factor Change 2	0,00	
Luminous / Smoky Flame Flag	Luminous	
Maximum Surface Emissive Power	160,00	kW/m2
Emissive Pow er Log Scale	2,75	
Equation of State Flag	Soave Redlich Kwong	
Acid Association Flag	Not Modeled	
Dimer Coefficient 1	0,00	
Dimer Coefficient 2	0,00	
Trimer Coefficient 1	0,00	
Trimer Coefficient 2	0,00	
Hexamer Coefficient 1	0,00	
Hexamer Coefficient 2	0,00	
Octamer Coefficient 1	0,00	
Octamer Coefficient 2	0,00	
Enthalpy Interpolation Range	0,00	degC
Pool Fire Burn Rate Length	2,00	m
Maximum Burn Rate	0,12	kg/m2.s
Liquid / Wat er Surface Tension	0,05	dyne/cm
Solubility in Water	0,00	
Heat of Solution	0,00	kJ/kg
Reaction with Water Model	None	
Water Heat Transfer Coefficient	900,00	W/m2.degK
Dangerous Toxic Load		
Flash Point	-91,96	degC
Laminar Burning Velocity	0,46	m/s
Immediate Ignition Category	Average	

De Zilverden (RunRow so - nacht)

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MATERIAL **PROPANE** **74986**

	Liquid Density	Vapor Pressure
Equation Type	105	101
A	1,38	59,08
B	0,27	-3.492,60
C	369,83	-6,07
D	0,29	1.09190E-005
E	0,00	2,00

Liquid-Water Enthalpy Coefficient

A	0,00
B	0,00
C	0,00
D	0,00

Heat Capacity	**Liquid**	**Ideal Gas**
Equation Type	114	107
A	62,98	51.920,00
B	113.630,00	192.450,00
C	633,21	1.626,50
D	-8.73460E+002	116.800,00
E	0.00000E+000	723,60

	Second Virial Coefficient	Surface Tension
Equation Type	104	106
A	0,11	0,05
B	-99,20	1,22
C	-4.51000E+006	0,00
D	3.09000E+017	0,00
E	-7.05000E+019	0,00

Viscosity	**Absolute Liquid**	**Vapor**
Equation Type	101	102
A	-17,16	2.49930E-007
B	646,25	0,69
C	1,11	179,34
D	-7.34390E-011	-8.254,60
E	4,00	0,00

Thermal Conductivity	**Liquid**	**Vapor**
Equation Type	100	102
A	0,27	-1.12000E+000
B	-6.64570E-004	0,11
C	2.77400E-007	-9.83460E+003
D	0,00	-7.53580E+006
E	0,00	0,00

De Zilverden (RunRow so - nacht)

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MATERIAL **PROPANE** 74986

Temperature degC	**Heat of vaporization** kJ/kg	**Ideal gas enthalpy** kJ/kg	**Ideal gas heat capacity** kJ/kg.degK	**Liquid heat capacity** kJ/kg.degK	**Liquid Thermal Conductivity** kJ/m.s.degK	**Ratio of specific heats**	**Saturated liquid density** kg/m3
-99,82	480,72	-175,99	1,22	2,04	0,00	1,18	646,57
-51,62	438,41	-114,57	1,34	2,21	0,00	1,16	593,80
-3,42	383,49	-45,47	1,53	2,48	0,00	1,14	533,15
44,78	301,27	33,87	1,76	2,98	0,00	1,12	456,84
92,98	121,93	124,30	1,99	11,55	0,00	1,10	308,73

Saturated liquid enthalpy	kJ/kg
-99,82	-659,04
-51,62	-558,29
-3,42	-445,02
44,78	-308,06
92,98	-95,24
Saturated liquid entropy	kJ/kg
-99,82	-5,04
-51,62	-4,53
-3,42	-4,07
44,78	-3,61
92,98	-3,02
Saturated vapor density	kg/m3
-99,82	0,09
-51,62	1,59
-3,42	9,27
44,78	33,50
92,98	124,07
Saturated vapor enthalpy	kJ/kg
-99,82	-176,14
-51,62	-117,08
-3,42	-58,79
44,78	-9,36
92,98	-9,15
Saturated vapor entropy	kJ/kg.degK
-99,82	-2,26
-51,62	-2,54
-3,42	-2,64
44,78	-2,67
92,98	-2,78
Saturated vapor pressure	bar
-99,82	0,03
-51,62	0,65
-3,42	4,27
44,78	15,29
92,98	39,52
Surface tension	dyne/cm
-99,82	23,55
-51,62	16,70
-3,42	10,34
44,78	4,64
92,98	0,19
Vapor density (1 atm)	kg/m3
-99,82	3,33
-51,62	2,52
-3,42	2,03
44,78	1,71
92,98	1,48

De Zilverden (RunRow so - nacht)

materialen

MATERIAL **PROPANE** **74986**

Temperature degC	Pressures bar 1,00	2,00	3,00	4,00	5,00	6,00
Liquid enthalpy			kJ/kg			
-99,82	-658,92	-658,79	-658,67	-658,54	-658,42	-658,29
-51,62	-558,26	-558,16	-558,06	-557,96	-557,85	-557,75
-3,42	-445,13	-445,10	-445,06	-445,03	-445,00	-444,96
44,78	-303,82	-304,18	-304,53	-304,87	-305,20	-305,52
92,98	-182,55	-181,11	-179,65	-178,16	-176,65	-175,12
Liquid entropy			kJ/kg.degK			
-99,82	-5,04	-5,04	-5,04	-5,04	-5,04	-5,04
-51,62	-4,53	-4,53	-4,53	-4,53	-4,53	-4,53
-3,42	-4,07	-4,07	-4,07	-4,07	-4,07	-4,07
44,78	-3,59	-3,59	-3,59	-3,59	-3,60	-3,60
92,98	-3,23	-3,22	-3,22	-3,22	-3,21	-3,21
Vapor density			kg/m3			
-99,82	3,29	7,20	12,31	22,81	38,72	607,62
-51,62	2,48	5,17	8,12	11,42	15,22	19,84
-3,42	2,01	4,11	6,30	8,62	11,07	13,68
44,78	1,69	3,43	5,21	7,05	8,94	10,89
92,98	1,46	2,95	4,46	6,00	7,56	9,16
Vapor enthalpy			kJ/kg			
-99,82	-181,62	-188,26	-196,86	-214,23	-234,55	-658,29
-51,62	-118,47	-122,67	-127,25	-132,34	-138,17	-145,19
-3,42	-48,38	-51,40	-54,56	-57,87	-61,35	-65,04
44,78	31,62	29,30	26,94	24,51	22,02	19,46
92,98	122,49	120,67	118,81	116,93	115,02	113,08
Vapor entropy			kJ/kg.degK			
-99,82	-2,94	-3,10	-3,21	-3,35	-3,48	-5,04
-51,62	-2,62	-2,77	-2,86	-2,93	-2,99	-3,04
-3,42	-2,34	-2,48	-2,56	-2,62	-2,67	-2,72
44,78	-2,07	-2,20	-2,28	-2,34	-2,39	-2,43
92,98	-1,80	-1,93	-2,01	-2,07	-2,12	-2,16