KÄYTTÖTURVALLISUUSTIEDOTE

Asetuksen (EY) N:o 1907/2006 mukaisesti

Edellinen päiväys 22-Dec-2021 **Uusintapäivämäärä** 15-Apr-2022 **Versio:** 1.2

KOHTA 1: Aineen tai seoksen ja yhtiön tai yrityksen tunnistetiedot

1.1 Tuotetunniste

Kauppanimi	**WAX SOLUTION 9872**
Kemiallinen nimi	**Valmisteen**
Puhdas aine/seos	Seoksella
Yksilöllinen koostumustunniste (UFI)	N611-40HC-Q00H-4KR8

1.2 Aineen tai seoksen merkitykselliset tunnistetut käytöt ja käytöt, joita ei suositella

Tunnistetut käyttötavat Vahaliuos.

1.3. Käyttöturvallisuustiedotteen toimittajan tiedot

Valmistaja, maahantuoja, muu toiminnanharjoittaja

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Tuotteen valmistaja on yllä mainittujen joukossa sekä etiketissä ja/tai myyntidokumentissa mainittu

Lisätietojen saamiseksi ottakaa yhteyttä

Sähköpostiosoite	sdsregulatory@polynt.com
Internet-osoite	http://www.polynt.com

1.4. Hätäpuhelinnumero

Tämä puhelinnumero on käytettävissä 24 h vuorokaudessa, 7 päivänä viikossa

Europe :	+44 1235 239 670
Middle East/Africa :	+44 1235 239 671
East/South East Asia :	+65 3158 1412
America :	+1 215 207 0061

Myrkytystietokeskuksen puhelinnumero

Euroopan hätänumero : 112
Myrkytystietokeskus (Avoinna 24 t / vrk)
Haartmaninkatu 4, 00290 Helsinki
puh : 09 471 977

KOHTA 2: Vaaran yksilöinti

2.1. Aineen tai seoksen luokitus

Aineen tai seoksen luokitus - GHS/CLP (n° 1272/2008)

Aspiraatiomyrkyllisyys	Luokka 1 - (H304)
Acute Toxicity - Vapors	Luokka 4 - (H332)
Ihon syöpyminen/ärsytys	Luokka 2 - (H315)
Vakava silmävaurio / silmien ärsytys	Luokka 2 - (H319)
Lisääntymiskykyyn vaikuttava myrkyllisyys	Luokka 2 - (H361d)
Systeeminen myrkyllisyys tietylle kohde-elimelle (kerta-altistuminen)	Luokka 3 - (H335)
Elinkohtainen myrkyllisyys - toistuva altistuminen	Luokka 1 - (H372)
Elinkohtainen myrkyllisyys - toistuva altistuminen	Luokka 2 - (H373)
Pitkäaikaismyrkyllisyys vesieliöille	Luokka 3 - (H412)
Syttyvät nesteet	Luokka 3 - (H226)

2.2. Merkinnät

Sisältää Styreeni, ksyleeni

Huomiosana **Vaara**

Vaaralausekkeet

H304 - Voi olla tappavaa nieltynä ja joutuessaan hengitysteihin
H332 - Haitallista hengitettynä
H315 - Ärsyttää ihoa
H319 - Ärsyttää voimakkaasti silmiä
H361d - Epäillään vaurioittavan sikiötä
H335 - Saattaa aiheuttaa hengitysteiden ärsytystä
H372 - Vahingoittaa elimiä pitkäaikaisessa tai toistuvassa altistumisessa hengitettynä
H373 - Saattaa vahingoittaa elimiä pitkäaikaisessa tai toistuvassa altistumisessa
H412 - Haitallista vesieliöille, pitkäaikaisia haittavaikutuksia

Fysikaaliset vaarat

H226 - Syttyvä neste ja höyry

Turvalausekkeet

P210 - Suojaa lämmöltä, kuumilta pinnoilta, kipinöiltä, avotulelta ja muilta sytytyslähteiltä. Tupakointi kielletty
P243 - Estä staattisen sähkön aiheuttama kipinöinti
P260 - Älä hengitä höyryä
P273 - Vältettävä päästämistä ympäristöön
P280 - Käytä suojakäsineitä/suojavaatetusta/silmiensuojainta/kasvonsuojainta
P301 + P310 - JOS KEMIKAALIA ON NIELTY: Ota välittömästi yhteys MYRKYTYSTIETOKESKUKSEEN tai lääkäriin
P302 + P352 - JOS KEMIKAALIA JOUTUU IHOLLE: Pese runsaalla vedellä ja saippualla
P304 + P340 - JOS KEMIKAALIA ON HENGITETTY: Siirrä henkilö raittiiseen ilmaan ja varmista vaivaton hengitys
P305 + P351 + P338 - JOS KEMIKAALIA JOUTUU SILMIIN: Huuhdo huolellisesti vedellä usean minuutin ajan. Poista mahdolliset piilolinssit, jos sen voi tehdä helposti. Jatka huuhtomista
P403 + P233 - Varastoi paikassa, jossa on hyvä ilmanvaihto. Säilytä tiiviisti suljettuna

2.3. Muut vaarat

PBT/αAαB βλέπε παρ. 12.5.

KOHTA 3: Koostumus ja tiedot aineosista

3.2. Seokset

Vaaraa aiheuttavat aineosat

Kemiallinen nimi	EY-Nro	REACH-rekisteröinti numero	CAS-Nro	Paino%	Luokitus (Asetus 1272/2008)
Styreeni	202-851-5	01-2119457861-32	100-42-5	70 - 90	Flam. Liq. 3 (H226) Repr. 2 (H361d) Acute Tox. 4 (H332) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Asp. Tox. 1 (H304) STOT SE 3 (H335) STOT RE 1 (H372) Aquatic Chronic 3 (H412)
ksyleeni	215-535-7	01-2119488216-32	1330-20-7	10 - 20	Flam. Liq. 3 (H226) Asp. Tox. 1 (H304) Acute Tox. 4 (H312) Acute Tox. 4 (H332) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) STOT SE 3 (H335) STOT RE 2 (H373)
Paraffin waxes and Hydrocarbon waxes	232-315-6	01-2119488076-30	8002-74-2	< 6	-
Etyylibentseeni	202-849-4	01-2119489370-35	100-41-4	1 - 5	Flam. Liq. 2 (H225) Acute Tox. 4 (H332) Asp. Tox. 1 (H304) STOT RE 2 (H373) Aquatic Chronic 3 (H412)
toluène	203-625-9	01-2119471310-51	108-88-3	< 1	Flam. Liq. 2 (H225) Asp. Tox. 1 (H304) STOT RE 2 (H373) STOT SE 3 (H336) Repr. 2 (H361d) Skin Irrit. 2 (H315)

Tässä kohdassa mainittujen H-lausekkeiden täydelliset tekstit ovat kohdassa 16

KOHTA 4: Ensiaputoimenpiteet

4.1. Ensiaputoimenpiteiden kuvaus

Erityiset ohjeet	Näytettävä tätä käyttöturvallisuustiedotetta hoitavalle lääkärille Vältettävä pölyn/savun/kaasun/huurun/höyryjen/sumun hengittämistä
Roiskeet silmiin	Roiskeet huuhdeltava huolellisesti runsaalla vedellä, myös silmäluomien alta Silmä pidettävä kunnolla auki huuhtelun aikana. Otettava yhteys lääkäriin mikäli oireet jatkuvat
Ihokosketus	Roiskeet huuhdeltava välittömästi saippualla ja runsaalla vedellä sekä riisuttava tahriintuneet vaatteet ja kengät Mikäli ihoärsytys jatkuu, ota yhteys lääkäriin
Hengitys	Siirrettävä raittiiseen ilmaan Ellei hengitä on elvytettävä Otettava yhteys lääkäriin
Nieleminen	EI saa oksennuttaa Huuhdeltava suu Otettava yhteys lääkäriin
Ensiapua antavien henkilöiden suojaaminen	Käytettävä henkilökohtaista suojavarustusta Lisätietoja on kohdassa 8

4.2. Tärkeimmät oireet ja vaikutukset, sekä välittömät että viivästyneet

Roiskeet silmiin	Ärsyttää silmiä
Ihokosketus	Ärsyttää ihoa
Hengitys	Saattaa aiheuttaa kuoleman hengitettynä Terveydelle haitallista hengitettynä Terveydelle haitallista: pitkäaikainen altistus voi aiheuttaa vakavaa haittaa terveydelle hengitettynä Ärsyttää hengityselimiä
Nieleminen	Saattaa aiheuttaa kuoleman nieltynä Nieleminen voi aiheuttaa vatsalaukun ja ohutsuolistoseudun ärsytystä, pahoinvointia, oksentelua ja ripulia

4.3. Mahdollisesti tarvittavaa välitöntä lääketieteellistä apua ja erityistä hoitoa koskevat ohjeet

Tietoja lääkärille	Tietoa ei ole käytettävissä

KOHTA 5: Palontorjuntatoimenpiteet

5.1. Sammutusaineet

Sopivat sammutusaineet	Jauhe, Vaahto, Hiilidioksidi (CO_2), (suljetut järjestelmät)
Sammutusaineet, joita ei pidä käyttää turvallisuussyistä	Älä käytä suuritehoista paloruiskua, koska se voi hajoittaa ja levittää tulipaloa.

5.2. Aineesta tai seoksesta johtuvat erityiset vaarat

Erityiset altistumisvaarat, jotka johtuvat aineesta tai valmisteesta itsestään, palamistuotteista tai tuloksena syntyvistä kaasuista

Höyryt muodostavat ilman kanssa räjähtäviä seoksia. Useimmat höyryt ovat raskaampia kuin ilma. Ne leviävät maata pitkin ja kerääntyvät mataliin tai ahtaisiin tiloihin (viemärit, kellarit, tankit) Kuumennus tai palo voivat vapauttaa myrkyllistä kaasua : Hiilimonoksidi

5.3. Palontorjuntaa koskevat ohjeet

Erityiset palomiesten suojavarusteet

Käytettävä paineilmalaitetta ja suojapukua.

Muut tiedot

Säiliöt jäähdytettävä vesisuihkulla.
Tulipalon jäännöksien ja saastuneen sammutusveden jatkokäsittely on hoidettava paikallisten viranomaisten määräysten mukaan.

KOHTA 6: Toimenpiteet onnettomuuspäästöissä

6.1. Varotoimenpiteet, henkilönsuojaimet ja menettely hätätilanteessa

Muu kuin pelastushenkilökunta

Henkilökohtaiset suojatoimet

Poistettava kaikki sytytyslähteet
Kuumuus, liekit ja kipinät.
Estä staattiset sähkövaraukset
Huolehdittava riittävästä ilmanvaihdosta
Käytettävä henkilökohtaista suojavarustusta

Pelastushenkilökunta

Vältettävä höyryjen ja sumujen hengittämistä Vältettävä tulipalossa ja/tai räjähdyksessä syntyvän savun hengittämistä. Käytettävä henkilökohtaista suojavarustusta

6.2. Ympäristöön kohdistuvat varotoimet

Ympäristöön kohdistuvat varotoimet

Tuotetta ei saa antaa päästä viemäreihin, vesistöihin tai maaperään.
Ei saa huuhdella pintaveteen tai jätevesiviemäristöön

6.3. Suojarakenteita ja puhdistusta koskevat menetelmät ja -välineet

Puhdistusohjeet

Vuoto pysäytetään ja kerätään palamattoman imeytysaineen (esim. hiekka, multa, piimaa, vermikuliitti) avulla, siirretään astiaan hävitettäväksi paikallisten ja kansallisten säännösten mukaisesti (katso kohta 13)
Käytä puhtaita, kipinöitä aiheuttamattomia työkaluja imeytyneen aineen keräämiseen

6.4. Viittaukset muihin kohtiin

Lisätietoja on kohdassa 8
Katso lisätietoja Kohdasta 12: Tiedot vaarallisuudesta ympäristölle

KOHTA 7: Käsittely ja varastointi

7.1. Turvallisen käsittelyn edellyttämät toimenpiteet

Turvallisen käsittelyn edellyttämät toimenpiteet

Vältettävä staattisen sähkön muodostuminen maadoituksen avulla.

Käytettävä ainoastaan tiloissa, joissa on riittävä ilmanvaihto
Käytettävä sopivaa hengityssuojainta jos tuuletus on riittämätön
Henkilökohtainen suojaus, katso kohta 8

Tulipalon ja räjähdyksen torjunta

Eristettävä avoliekeistä, kuumista pinnoista ja sytytyslähteistä Tyhjät säilytystankit voivat sisältää syttyviä tai räjähtäviä höyryjä

Erityisiä suojautumis- ja hygieniaohjeita

Syöminen, juominen ja tupakointi kielletty ainetta käsiteltäessä Kädet pestävä ennen taukoja ja työpäivän jälkeen Säännöllinen laitteiston, työalueen ja vaatteiden puhdistus

7.2. Turvallisen varastoinnin edellyttämät olosuhteet, mukaan luettuina yhteensopimattomuudet

Tekniset toimenpiteet/Varasto-olosuhteet Säilytettävä kuivassa, viileässä ja hyvin ilmastoidussa paikassa.
Säilytettävä lämpötilassa, joka ei ylitä 30°C
Säilytettävä suojassa lämmöltä ja sytytyslähteistä.

Vältettävät materiaalit Voimakkaat hapettimet, Peroksidit, Pelkistävät aineet

Pakkausmateriaali metallinen GRP-säiliöt (vahvistettu lasipolyesteri)

Sopimattomia materiaaleja säiliöihin kuparinvärinen, Kuparilejeeringit, Pronssi, Sinkki

7.3. Erityinen loppukäyttö

Erityiset käyttötavat Tietoa ei ole käytettävissä

KOHTA 8: Altistumisen ehkäiseminen ja henkilönsuojaimet

8.1. Valvontaa koskevat muuttujat

Raja-arvot

Kemiallinen nimi	Euroopan Unioni	ACGIH OEL (Ceiling)	Suomi
Styreeni 100-42-5	-	ACGIH (2020): TLV-TWA: 10 ppm TLV-STEL/C: 20 ppm Notes: OTO, A3, BEI Critical effects: CNS and hearing impairment, URT irr, peripheral neuropathy visual disorders	TWA 20 ppm TWA 86 mg/m³ STEL 100 ppm STEL 430 mg/m³
ksyleeni 1330-20-7	TWA 50 ppm TWA 221 mg/m³ STEL 100 ppm STEL 442 mg/m³ S*	TWA 100 ppm	TWA 50 ppm TWA 220 mg/m³ STEL 100 ppm STEL 440 mg/m³ iho*
Paraffin waxes and Hydrocarbon waxes 8002-74-2		TWA 2 mg/m³	TWA 1 mg/m³
Etyylibentseeni 100-41-4	TWA 100 ppm TWA 442 mg/m³ STEL 200 ppm STEL 884 mg/m³ S*	TWA 100 ppm	TWA 50 ppm TWA 220 mg/m³ STEL 200 ppm STEL 880 mg/m³ iho*
toluène 108-88-3	TWA 50 ppm TWA 192 mg/m³ STEL 100 ppm STEL 384 mg/m³ S*	TWA 20 ppm	TWA 50 ppm TWA 190 mg/m³ STEL 100 ppm STEL 380 mg/m³ iho*

Aineesta tai seoksesta johtuvat erityiset vaarat

Biologiset raja-arvot

Kemiallinen nimi	Euroopan Unioni	Suomi
Etyylibentseeni 100-41-4	-	Mandelic acid in urine: 5.2 mMol/L, end of shift at end of workweek
toluène 108-88-3	-	Toluene in blood: 1000 nMol/L, morning following the workday

Johdettu vaikutukseton taso (DNEL)

Johdettu vaikutukseton taso (DNEL)				
Styreeni (100-42-5)				
Tyyppi	DNEL suun kautta	DNEL ihon kautta	DNEL hengitys	Huomautuksia
Workers - Long Term - Systemic effect		406 mg/Kg bw/day	85 mg/m³	
Workers - Acute Short Term - Local effect			306 mg/m³	

Workers - Acute Short term - Systemic effect			289 mg/m³	
General Population - Acute Short Term - Local effect			182.7 mg/m³	
General Population - Acute Short Term - Systemic effect			174.2 mg/m³	
General Population - Long Term - Systemic effect	2.1 mg/Kg bw/day	343 mg/Kg bw/day	10.2 mg/m³	

ksyleeni (1330-20-7)				
Tyyppi	DNEL suun kautta	DNEL ihon kautta	DNEL hengitys	Huomautuksia
Workers - Long Term - Systemic effect		180 mg/kg bw/day	77 mg/m³	
Workers - Acute Short term - Systemic effect			289 mg/m³	
Workers - Acute Short Term - Local effect			289 mg/m³	
General Population - Long Term - Systemic effect	1.6 mg/kg bw/day	108 mg/kg bw/day	14.8 mg/m³	
General Population - Acute Short Term - Systemic effect			174 mg/m³	
General Population - Acute Short Term - Local effect			174 mg/m³	

Etyylibentseeni (100-41-4)				
Tyyppi	DNEL suun kautta	DNEL ihon kautta	DNEL hengitys	Huomautuksia
Workers - Acute Short Term - Local effect			293 mg/m³	
Workers - Long Term - Systemic effect		180 mg/kg bw/day	77 mg/m³	
General Population - Long Term - Systemic effect	1.6 mg/kg bw/day		15 mg/m³	

toluène (108-88-3)				
Tyyppi	DNEL suun kautta	DNEL ihon kautta	DNEL hengitys	Huomautuksia
Workers - Acute Short term - Systemic effect			384 mg/m³	
Workers - Acute Short Term - Local effect			384 mg/m³	
Workers - Long Term - Systemic effect			192 mg/m³	
Workers - Long Term - Local effect		384 mg/kg bw/day	192 mg/m³	
General Population - Acute Short Term - Systemic effect			226 mg/m³	
General Population - Acute Short Term - Local effect			226 mg/m³	
General Population - Long Term - Systemic effect	8.13 mg/kg bw/day	226 mg/kg bw/day	56.5 mg/m³	
General Population - Long Term - Local effect			56.5 mg/m³	

Todennäköinen vaikutukseton pitoisuus (PNEC)

PNEC Component		
Styreeni (100-42-5)		
Altistuminen	Tyyppi	PNEC
Makea vesi	PNEC Aqua	0.028 mg/L

Merivesi	PNEC Aqua	0.014 mg/L
Ajoittainen käyttö/vapautuminen	PNEC Aqua	0.04 mg/L
Makea vesi	PNEC Sediment	0.614 mg/Kg.dw
Merivesi	PNEC Sediment	0.307 mg/Kg.dw
Maaperä	PNEC Soil	0.2 mg/Kg.dw
STP mikro-organismeille	PNEC STP	5 mg/L

ksyleeni (1330-20-7)		
Altistuminen	Tyyppi	PNEC
Makea vesi	PNEC Aqua	0.327 mg/L
Merivesi	PNEC Aqua	0.327 mg/L
Ajoittainen käyttö/vapautuminen	PNEC Aqua	0.327 mg/L
	PNEC STP	6.58 mg/L
Makea vesi	PNEC Sediment	12.46 mg/kg sediment dw
Merivesi	PNEC Sediment	12.46 mg/kg sediment dw
	PNEC Soil	2.31 mg/kg soil dw

Etyylibentseeni (100-41-4)		
Altistuminen	Tyyppi	PNEC
Merivesi	PNEC Aqua	0.01 mg/L
Makea vesi	PNEC Aqua	0.1 mg/L
	PNEC STP	9.6 mg/L
Makea vesi	PNEC Sediment	13.7 mg/kg sediment dw
Merivesi	PNEC Sediment	1.37 mg/kg sediment dw
	PNEC Soil	2.68 mg/kg soil dw

toluène (108-88-3)		
Altistuminen	Tyyppi	PNEC
Merivesi	PNEC Aqua	0.68 mg/L
Makea vesi	PNEC Aqua	0.68 mg/L
	PNEC STP	13.61 mg/L
Makea vesi	PNEC Aqua	16.39 mg/kg sediment dw
Merivesi	PNEC Aqua	16.39 mg/kg sediment dw
	PNEC Soil	2.89 mg/kg soil dw

8.2. Altistumisen ehkäiseminen

Työperäisen altistumisen torjunta

Tekniset toimenpiteet Käytettävä teknisiä menetelmiä työpaikan ilman raja-arvojen noudattamiseksi.
Työskennellessä pienissa tiloissa (tankit, säiliöt), varmistettava riittävän hengitysilman saanti ja käytettävä suositeltuja varusteita

Henkilökohtaiset suojaimet

Yleiset tiedot Käytettävä henkilökohtaista suojavarustusta.

Hengityksensuojaus Huolehdi hyvästä yleisen ilmanvaihdon tasosta (ilman vaihtuvuus vähintään 3 - 5 kertaa tunnissa).
Jos raja-arvo todennäköisesti ylitetään / Käytettävä sopivaa hengityslaitetta, mikäli ilmastointi on riittämätön :
Suodattimella varustettu hengityslaite Tyyppi A (Orgaanisten kaasujen ja höyryjen standardin EN 14387 mukainen suodatin , APF 40 < 1 tunti, APF 200 > 1 tunti)

Silmiensuojaus Sivusuojilla varustetut suojalasit. Ei saa käyttää piilolinssejä.

Ihonsuojaus / Kehon suojaus Antistaattiset saappaat. suojakengät tai saappaat. Käytä palosuojattua/paloturvallista vaatetusta.

Käsien suojaus Käytä kemikaalinkestäviä käsineitä (testattu EN 374 mukaisesti) sekä järjestä työntekijöiden peruskoulutus
Käsinemateriaali : Neopreeni , Nitriilit , Viton (R) tai Polyvinyylialkoholi
Suojakäsineet on riisuttava ja vaihdettava, jos esiintyy merkkejä hajoamisesta tai kemikaalin läpäisystä

Ympäristöaltistumisen torjuminen

Ympäristöaltistumisen torjuminen Ei saa päästää ympäristöön likaamaan pohjavesistöä.

KOHTA 9: Fysikaaliset ja kemialliset ominaisuudet

9.1. Fysikaalisia ja kemiallisia perusominaisuuksia koskevat tiedot

Ominaisuus	Arvoihin	Huomautuksia
Olomuoto	Neste	
Väri	valkoinen	
Olomuoto		Tietoja ei saatavissa
Hiukkaskoko		ei määritettävissä
Haju	Pistävä	
Hajukynnys	0.15 ppm	Arvot liittyvät styreeniin
pH		ei määritettävissä
pH (vesiliuoksena)		ei määritettävissä
Sulamispiste/sulamisalue		Tietoja ei saatavissa
Jäätymispiste		Tietoja ei saatavissa
Pehmenemispiste		Tietoja ei saatavissa
Kiehumispiste	137 - 146 °C	
Leimahduspiste	24 °C	ISO 1523
Syttyvyysraja ilmassa		
Ylin	6.6%	
Alin	1.0%	
Höyrynpaine	6.7 - 12 hPa	20°C
Suhteellinen höyryntiheys	3.6 - 3.66	(Ilma = 1.0)
Tiheys	0.89 - 0.92 g/cm3	23°C
Ominaispaino		Tietoja ei saatavissa
Bulkkitiheys		Tietoja ei saatavissa
Vesiliukoisuus	Veteen liukenematon	
Liukoisuus muihin liuottimiin		Tietoja ei saatavissa
Jakaantumiskerroin: n-oktanoli/vesi	3	Arvot liittyvät styreeniin
Itsesyttymislämpötila	490 - 527 °C	
Hajoamislämpötila		Tietoja ei saatavissa
Viskositeetti, kinemaattinen		Tietoja ei saatavissa
Viskositeetti, dynaaminen		Tietoja ei saatavissa

9.2. Muut tiedot

Fyysikaalisia vaaraluokkia koskevat tiedot

Ominaisuus	Arvoihin	Huomautuksia
Räjähteet		Tietoja ei saatavissa
Syttyvät kaasut		Tietoja ei saatavissa
Aerosolit		Tietoja ei saatavissa
Hapettavat kaasut		Tietoja ei saatavissa
Paineen alaiset kaasut		Tietoja ei saatavissa
Syttyvät nesteet		Tietoja ei saatavissa
Syttyvät kiinteät aineet		Tietoja ei saatavissa
Pyroforiset nesteet		Tietoja ei saatavissa
Pyroforiset kiinteät aineet		Tietoja ei saatavissa
Itsestään kuumenevat aineet ja seokset		Tietoja ei saatavissa
Aineet ja seokset, jotka veden kanssa kosketuksiin joutuessaan kehittävät syttyviä kaasuja		Tietoja ei saatavissa
Hapettavat nesteet		Tietoja ei saatavissa

Hapettavat kiinteät aineet		Tietoja ei saatavissa
Hapettavuus		Tietoja ei saatavissa
Orgaaniset peroksidit		Tietoja ei saatavissa
Metalleja syövyttävä		Tietoja ei saatavissa
Epäherkistetyt räjähdysaineet		Tietoja ei saatavissa

Muut turvallisuusominaisuudet

Herkkyys mekaanisille iskuille		Tietoja ei saatavissa
SAPT (itseään kiihdyttävän polymeroitumisen lämpötila)		Tietoja ei saatavissa
Räjähtävien pöly/ilma -seosten muodostuminen		Tietoja ei saatavissa
Happo/emäs varanto		Tietoja ei saatavissa
Haihtumisnopeus	0.49 - 0.86	(BuAc = 1)
Sekoittuva		Tietoja ei saatavissa
Johtavuus		Tietoja ei saatavissa
Syövyttävyys		Tietoja ei saatavissa
Kaasuryhmä		Tietoja ei saatavissa
Hapetus-pelkistyspotentiaali		Tietoja ei saatavissa
Fotokatalyyttiset ominaisuudet		Tietoja ei saatavissa

KOHTA 10: Stabiilisuus ja reaktiivisuus

10.1. Reaktiivisuus

Reaktiivisuus Tuote voi syttyä ja palaa leimahduspisteen ylittävissä lämpötiloissa

10.2. Kemiallinen stabiilisuus

Stabiilisuus Stabiili suositeltavissa varasto-olosuhteissa.

10.3. Vaarallisten reaktioiden mahdollisuus

Vaaralliset reaktiot Käytössä voi muodostua syttyvä/räjähtävä höyry-ilma-seos.

Vaarallinen polymeroituminen Polymerisaatio saattaa tapahtua.

10.4. Vältettävät olosuhteet

Vältettävät olosuhteet Kuumuus, liekit ja kipinät.
Altistuminen valolle.
Estä staattiset sähkövaraukset

10.5. Yhteensopimattomat materiaalit

Vältettävät materiaalit Voimakkaat hapettimet, Peroksidit, Pelkistävät aineet

10.6. Vaaralliset hajoamistuotteet

Vaaralliset hajoamistuotteet Epätaydellinen palaminen ja termolyysi aiheuttavat potentiaalisesti toksisten kaasujen vapautumista (kuten hiilimonoksidi, häkä, ja hiilidioksidi)

KOHTA 11: Myrkyllisyyteen liittyvät tiedot

11.1. Tiedot asetuksessa (EY) N:o 1272/2008 määritellyistä vaaraluokista

Välitön myrkyllisyys

Hengitys Saattaa aiheuttaa kuoleman hengitettynä Terveydelle haitallista hengitettynä Terveydelle haitallista: pitkäaikainen altistus voi aiheuttaa vakavaa haittaa terveydelle hengitettynä Ärsyttää hengityselimiä

Nieleminen Saattaa aiheuttaa kuoleman nieltynä Nieleminen voi aiheuttaa vatsalaukun ja ohutsuolistoseudun ärsytystä, pahoinvointia, oksentelua ja ripulia

Kemiallinen nimi	LC50, suun kautta	LD50, ihon kautta	LC50 Hengitys	Rakenteeltaan samankaltaiset (analogiset)
Styreeni 100-42-5	5000 mg/kg (Rat)	> 2000 mg/kg bw (Rat) 24h OECD 402	11.8 mg/L (Rat) 4h CSR	
ksyleeni 1330-20-7	3523 mg/kg bw (Rat, male) > 4000 mg/kg bw (Rat, female) Similar to EU Method B.1	> 4200 mg/kg bw (Rabbit) No Guideline followed	29091 mg/m³ (Rat) 4h Similar to EU Method B.2	
Paraffin waxes and Hydrocarbon waxes 8002-74-2	> 5000 mg/kg bw (Rat) OECD 420	> 2000 mg/kg bw (Rat) OECD 402		
Etyylibentseeni 100-41-4	3500 mg/kg bw (Rat) No guideline followed	15400 mg/kg bw (Rabbit) No guideline followed	17.6 mg/L (Rat) 4h No guideline followed	
toluène 108-88-3	5580 mg/kg bw (Rat) Similar to EU Method B.1	> 5000 mg/kg bw (Rabbit) 24h No guideline followed	LC50 (male) = 25.7 mg/L air (Rat) 4h LC50 (female) = 30 mg/L air (Rat) 4h Similar to OECD 403	

Ihosyövyttävyys/ihoärsytys

Kemiallinen nimi	ihosyövyttävyys/ihoärsytys	Rakenteeltaan samankaltaiset (analogiset)
Styreeni 100-42-5	Ärsyttää ihoa in vivo -analyysi (elävässä elimistössä) kani	
ksyleeni 1330-20-7	Ärsyttää ihoa kohtalaisesti Ei ihosyövyttävyys in vivo -analyysi (elävässä elimistössä) kani Similar to EU Method B.4	
Paraffin waxes and Hydrocarbon waxes 8002-74-2	Ei ärsytä ihoa in vivo -analyysi (elävässä elimistössä) kani OECD 404	
Etyylibentseeni 100-41-4	Ärsyttää ihoa lievästi in vivo -analyysi (elävässä elimistössä) kani	
toluène 108-88-3	Ärsyttää ihoa in vivo -analyysi (elävässä elimistössä) kani EU Method B.4	

Vakava silmävaurio / silmien ärsytys

Kemiallinen nimi	Vakava silmävaurio / silmien ärsytys	Rakenteeltaan samankaltaiset (analogiset)
Styreeni 100-42-5	Ärsyttää silmiä in vivo -analyysi (elävässä elimistössä) kani	
ksyleeni 1330-20-7	Ärsyttää silmiä kohtalaisesti in vivo -analyysi (elävässä elimistössä) kani	
Paraffin waxes and Hydrocarbon waxes 8002-74-2	Ei aiheuta silmien ärsytystä in vivo -analyysi (elävässä elimistössä) kani OECD 405	
Etyylibentseeni 100-41-4	Ärsyttää silmiä lievästi in vivo -analyysi (elävässä elimistössä) kani	
toluène 108-88-3	Ärsyttää silmiä Ei aiheuta silmien ärsytystä in vivo -analyysi (elävässä elimistössä) kani OECD 405	

Hengityselinten tai ihon herkistyminen

Kemiallinen nimi	Hengityselinten tai ihon herkistyminen	Rakenteeltaan samankaltaiset (analogiset)
Styreeni 100-42-5	Ei aiheuta ihon herkistymistä Ei aiheuta hengityselinten herkistymistä CSR	
ksyleeni 1330-20-7	Ei aiheuta ihon herkistymistä in vivo -analyysi (elävässä elimistössä) hiiri OECD 429	
Paraffin waxes and Hydrocarbon waxes 8002-74-2	Ei aiheuta ihon herkistymistä in vivo -analyysi (elävässä elimistössä) marsut OECD 406 EU Method B.6	
Etyylibentseeni 100-41-4	Ei aiheuta hengityselinten herkistymistä in vivo -analyysi (elävässä elimistössä) ihmisillä saadut tiedot	
toluène 108-88-3	Ei aiheuta ihon herkistymistä in vivo -analyysi (elävässä elimistössä) marsut EU Method B.6	

perimää vaurioittavat

In vitro -tutkimus

Kemiallinen nimi	Ames-testi	Rakenteeltaan samankaltaiset (analogiset)
Styreeni 100-42-5	Epäselvä In vitro -geenimutaatiokoe bakteereilla (S. typhimurium G46, TA1530, TA 1535, TA100, TA98, TA1538, TA 1537) OECD 471	
ksyleeni 1330-20-7	negatiivinen In vitro -geenimutaatiokoe bakteereilla (S. typhimurium TA 1535, TA 1537, TA 98, TA 100, TA 1538) Similar to OECD 471	
Paraffin waxes and Hydrocarbon waxes 8002-74-2	negatiivinen In vitro -geenimutaatiokoe bakteereilla (S. typhimurium TA 1535, TA 1537, TA 98 and TA 100) (Escherichia coli WP2 uvrA) OECD 471	
Etyylibentseeni 100-41-4	negatiivinen In vitro -geenimutaatiokoe bakteereilla (S. typhimurium TA 1535, TA 1537, TA 98 and TA 100) OECD 471	
toluène 108-88-3	negatiivinen In vitro -geenimutaatiokoe bakteereilla (S. typhimurium TA 1535, TA 1537, TA 98 and TA 100) Similar to EU Method B.13/14	

Kemiallinen nimi	Nisäkässolun geenimutaatiotesti in vitro	Rakenteeltaan samankaltaiset (analogiset)
Styreeni 100-42-5	Epäselvä In vitro -geenimutaatiotutkimus nisäkässoluilla hamsteri OECD 476	

ksyleeni 1330-20-7	negatiivinen In vitro -geenimutaatiotutkimus nisäkässoluilla hamsteri hiiri Similar to EU Method B.19 EU Method B.17	
Paraffin waxes and Hydrocarbon waxes 8002-74-2	negatiivinen In vitro -geenimutaatiotutkimus nisäkässoluilla hiiri OECD 476	
Etyylibentseeni 100-41-4	negatiivinen In vitro -geenimutaatiotutkimus nisäkässoluilla hiiri OECD 476	
toluène 108-88-3	negatiivinen In vitro -geenimutaatiotutkimus nisäkässoluilla hiiri Similar to OECD 476	
Kemiallinen nimi	**Nisäkkäiden kromosomipoikkeavuuksien testi in vitro**	**Rakenteeltaan samankaltaiset (analogiset)**
Styreeni 100-42-5	positiivinen Kromosomipoikkeamakoe in vitro OECD 473 OECD 479	
ksyleeni 1330-20-7	negatiivinen Kromosomipoikkeamakoe in vitro hamsteri Similar to EU Method B.10	
Paraffin waxes and Hydrocarbon waxes 8002-74-2	negatiivinen Kromosomipoikkeamakoe in vitro hamsteri Similar to OECD 473	
Etyylibentseeni 100-41-4	negatiivinen Kromosomipoikkeamakoe in vitro hamsteri Similar to OECD 473	

in vivo -analyysi (elävässä elimistössä)

Kemiallinen nimi	**UDS-testi nisäkkään maksasoluilla in vivo**	**Rakenteeltaan samankaltaiset (analogiset)**
Styreeni 100-42-5	negatiivinen hiiri OECD 486 OECD 474	
ksyleeni 1330-20-7	negatiivinen hiiri rotta Similar to OECD 478	
Paraffin waxes and Hydrocarbon waxes 8002-74-2	negatiivinen hiiri Similar to OECD 474	
Etyylibentseeni 100-41-4	negatiivinen hiiri OECD 474 OECD 486	
toluène 108-88-3	negatiivinen rotta	

Syöpää aiheuttavat vaikutukset

Syöpää aiheuttavat vaikutukset
Styreeni (100-42-5)

Altistumisreitit	Menetelmä	Laji	Dose	Arviointi
Hengitys	OECD 453	rotta	NOAEC systemic (carcinogenicity) >= 4.34 mg/L air (nominal)	negatiivinen
Hengitys	OECD 453	hiiri	LOAEC (carcinogenicity) female/male = 0.09 - 0.18 mg/L air resp., NOAEC (carcinogenicity) male = 0.09 mg/L air	positiivinen
Suun kautta	Tietoa ei ole käytettävissä	rotta	NOAEL (carcinogenicity) >= 2000 mg/kg bw /day	positiivinen
Suun kautta	Tietoa ei ole käytettävissä	hiiri	LOAEL (carcinogenicity) = 150 mg/kg bw /day	positiivinen

ksyleeni (1330-20-7)				
Altistumisreitit	Menetelmä	Laji	Dose	Arviointi
Suun kautta	Similar to EU Method B.32	hiiri rotta	500 - 1000 mg/kg/bw/day (103 weeks)	negatiivinen

Paraffin waxes and Hydrocarbon waxes (8002-74-2)				
Altistumisreitit	Menetelmä	Laji	Dose	Arviointi
Ihon kautta		hiiri	NOEL (carcinogenicity) = 128 mg/kg bw/day	negatiivinen

Etyylibentseeni (100-41-4)				
Altistumisreitit	Menetelmä	Laji	Dose	Arviointi
Hengitys	Similar to OECD 453	hiiri	NOAEC (carcinogenicity) = 1.1 mg/L (103 weeks)	negatiivinen

toluène (108-88-3)				
Altistumisreitit	Menetelmä	Laji	Dose	Arviointi
Hengitys	Similar to OECD 453	rotta	NOAEC (carcinogenicity) 103 weeks = 1131 mg/m³ air	negatiivinen

Lisääntymiselle vaarallinen

Lisääntymiselle vaarallinen				
Styreeni (100-42-5)				
Altistumisreitit	Menetelmä	Laji	Dose	Arviointi
Hengitys	Tietoa ei ole käytettävissä	rotta	NOAEL/LOAEL (fertility) 60d = 100 - 200 mg/kg bw/day	positiivinen
Suun kautta	OECD 422	rotta	NOAEL/LOAEL (fertility) 60d = 200 - 400 mg/kg bw/day	positiivinen
Hengitys	OECD 416	rotta	NOAEC (P, F1) = 0.64 mg/L air LOAEC (P, F1) = 2.13 mg/L air NOAEC (F2) = 0.21 mg/L air LOAEC (F2) = 0.64 mg/L air (70d)	negatiivinen

ksyleeni (1330-20-7)				
Altistumisreitit	Menetelmä	Laji	Dose	Arviointi
Hengitys	Similar to EPA OPPTS 870.3800	rotta	NOAEC (vapour) reproductive and developmental toxicity > 500 ppm (2171 mg/m³)	negatiivinen

Paraffin waxes and Hydrocarbon waxes (8002-74-2)				
Altistumisreitit	Menetelmä	Laji	Dose	Arviointi

Suun kautta	OECD 421	rotta	NOAEL (p/ reproductive performance) >= 1000 mg/kg bw/day NOAEL Neonatal (F1) >= 1000 mg/kg bw/day Read across with : Chevron 100 Neutral	negatiivinen

Etyylibentseeni (100-41-4)				
Altistumisreitit	Menetelmä	Laji	Dose	Arviointi
Hengitys	Similar to OECD 415	rotta	NOAEC = 1000 ppm NOEC F1 = 100 ppm	negatiivinen
Hengitys Suun kautta	OECD 416	rotta	NOAEC (P, F1, F2) = 500 ppm NOEC (P) = 100 ppm	negatiivinen

toluène (108-88-3)				
Altistumisreitit	Menetelmä	Laji	Dose	Arviointi
Hengitys	Tietoa ei ole käytettävissä	rotta	NOAEC (P) = 2261 mg/m³ air	negatiivinen
Hengitys	OECD 416	rotta	NOAEC systemic toxicity (p) = 1875 mg/m³ air NOAEC reproduction (p) = 7500 mg/m³ air NOAEC (F1) = 1875 mg/m³ air NOAEC (F2) = 1875 mg/m³ air	positiivinen

Kehitysmyrkyllisyys Epäillään vaurioittavan sikiötä.

Kehitysmyrkyllisyys				
Styreeni (100-42-5)				
Altistumisreitit	Menetelmä	Laji	Dose	Arviointi
Hengitys	Tietoa ei ole käytettävissä	rotta	NOAEC/LOAEC (maternal toxicity + developemental toxicity) >50d = 1.08 - 2.15 mg/L air	positiivinen
Hengitys	OECD 414	rotta	LOAEC (maternal toxicity) 6-15d = 1.28 mg/L air	positiivinen
Hengitys	OECD 414	rotta	NOAEC (developmental toxicity) 6-15d >= 2.56 mg/L air	negatiivinen
Hengitys	OECD 414	kani	NOAEC (maternal toxicity + developmental toxicity) 6-18d = 2.56 mg/L air	negatiivinen

ksyleeni (1330-20-7)				
Altistumisreitit	Menetelmä	Laji	Dose	Arviointi
Hengitys	Similar to OECD 414	rotta	NOAEC (maternal and developmental toxicity) = 2171 mg/m³ NOAEC (teratogenicity) >= 8684 mg/m³	negatiivinen

Paraffin waxes and Hydrocarbon waxes (8002-74-2)				
Altistumisreitit	Menetelmä	Laji	Dose	Arviointi
Ihon kautta	OECD 414	rotta	LOAEL (maternal toxicity) = 125 mg/kg bw/day NOAEL (teratogenicity) >= 2000 mg/kg bw/day Read across with : 100 SUS solvent refined base oil	negatiivinen

Etyylibentseeni (100-41-4)				
Altistumisreitit	Menetelmä	Laji	Dose	Arviointi

Hengitys	OECD 414	rotta	NOAEC (maternal toxicity) = 1000 ppm NOAEC (teratogenicity) = 2000 ppm NOAEC (developmental toxicity) = 500 ppm	negatiivinen

toluène (108-88-3)				
Altistumisreitit	Menetelmä	Laji	Dose	Arviointi
Hengitys	OECD 414	kani	NOAEC (maternal toxicity) = 1884 mg/m³ air NOAEC (teratogenicity) = 1884 mg/m³ air	negatiivinen

Kemiallinen nimi	**Euroopan Unioni**
toluène 108-88-3	Repr. 2

Elinkohtainen myrkyllisyys - kerta-altistuminen Saattaa ärsyttää hengityselimiä

Elinkohtainen myrkyllisyys - toistuva altistuminen Vahingoittaa elimiä pitkäaikaisessa tai toistuvassa altistumisessa , kohde-elimet : Keskushermosto , Korvat

STOT - toistuva altistuminen				
Styreeni (100-42-5)				
Altistumisreitit	Menetelmä	Laji	Dose	Huomautuksia
Hengitys	OECD 412	rotta hiiri	NOAEC male (28d) = 3.47 mg/L air NOAEC (ototoxicity) 28d = 2.13 mg/L air NOAEC (28d) = 0.181 mg/L air NOAEC (28d) = 0.688 mg/L air	
Hengitys	Tietoa ei ole käytettävissä	rotta	NOAEC (nasal tract) = 0.85 mg/L air NOAEC (overall) = 2.13 mg/L air NOAEC (ototoxicity) = 0.85 mg/L air LOAEC (ototoxicity) = 3.41 mg/L air NOAEC (overall) = 2.13 mg/L air	
Suun kautta	Tietoa ei ole käytettävissä	rotta	NOAEL (toxicity) = 1000 mg/kg bw/day LOAEL (toxicity) = 2000 mg/kg bw/day	
Suun kautta	Tietoa ei ole käytettävissä	hiiri	NOAEL (toxicity) = 150 mg/kg bw /day LOAEL (toxicity) = 300 mg/kg bw /day	
Hengitys	OECD 453	rotta	LOAEC local (toxicity) = 0.21 mg/L air	

ksyleeni (1330-20-7)				
Altistumisreitit	Menetelmä	Laji	Dose	Huomautuksia
Suun kautta	Similar to EU Method B.32	rotta	LOAEL (90d) male = 150 mg/kg bw/day NOAEL (90d) female = 150 mg/kg bw/day	

Paraffin waxes and Hydrocarbon waxes (8002-74-2)				
Altistumisreitit	Menetelmä	Laji	Dose	Huomautuksia

Ihon kautta	Rakenteeltaan samankaltaiset (analogiset) Cas N°: 64742-52-5 OECD 410	kani	NOAEL (28d) = 1000 mg/kg bw/day	
Suun kautta	OECD 408	rotta	NOAEL (Low melting point wax) = 1.5 mg/kg bw/day NOAEL (High melting point and high sulphur wax) = 1500 mg/kg bw/day 90d	
Ihon kautta	Rakenteeltaan samankaltaiset (analogiset) : Lubricant Base Oils OECD 411	rotta	NOAEL (13 weeks)> 2000 mg/kg bw/day	
Ihon kautta	Rakenteeltaan samankaltaiset (analogiset) : MRD-87-016 Similar to OECD 453	hiiri	NOAEL (male) 24 months >= 150 mg/kg bw/day	

Etyylibentseeni (100-41-4)				
Altistumisreitit	Menetelmä	Laji	Dose	Huomautuksia
Suun kautta	OECD 407	rotta	NOAEL (28d) = 75 mg/kg bw/day	
Hengitys	OECD 412	hiiri	NOAEL (4 weeks) = 3.5 mg/L	
Suun kautta	OECD 408	rotta	NOAEL (3 months) = 75 mg/kg bw/day	
Hengitys	OECD 413	hiiri	NOAEC (13 weeks) = 4.3 mg/L	
Hengitys	OECD 453	rotta	NOAEC (104 weeks) = 1.1 mg/L	

toluène (108-88-3)				
Altistumisreitit	Menetelmä	Laji	Dose	Huomautuksia
Suun kautta	EU Method B.26	hiiri	NOAEL (one death and increased absolute and relative liver weights in both sexes at 1250 mg/kg) 13 weeks = 625 mg/kg bw/day LOAEL (mortality (1 death in week 9) 13 weeks = 1250 mg/kg bw/day	
Hengitys	EU Method B.29	rotta	NOAEC = 625 ppm LOAEC = 1250 ppm NOAEC = 2355 mg/m³ air LOAEC = 4710 mg/m³ air 15 weeks	
Hengitys	Similar to OECD 453	rotta	NOAEC (chronic toxicity) 24 months = 300 ppm NOAEC (24 months) = 1131 mg/m³ air	

Aspiraatiovaara Voi olla tappavaa nieltynä ja joutuessaan hengitysteihin

Muut tiedot Ei mitään

KOHTA 12: Tiedot vaarallisuudesta ympäristölle

12.1. Myrkyllisyys

Haitallista vesieliöille, voi aiheuttaa pitkäaikaisia haittavaikutuksia vesiympäristössä. Ei saa huuhdella pintaveteen tai jätevesiviemäristöön

Välitön myrkyllisyys vesieliöille - Tietoja aineosista

Kemiallinen nimi	Myrkyllisyys leville	Myrkyllisyys Daphnialle ja muille veden selkärangattomille.	Myrkyllisyys kalalle	Myrkyllisyys mikro-organismeille
Styreeni 100-42-5	EC50 (72h) = 4.9 mg/L (Pseudokirchnerella subcapitata) EPA OTS 797.1050	EC50 (48h) = 4.7 mg/L (Daphnia magna) NOEC = 1.9 mg/L (Daphnia magna) OECD 202	LC50 (96h) = 4.02 - 10 mg/L (Pimephales promelas) OECD 203	EC (30min) = 500 mg/L (Activated sludge of a predominantly domestic sewage) OECD 209
ksyleeni 1330-20-7	EC50 (73h) = 2.2 mg/L (Pseudokirchnerella subcapitata) OECD 201	IC50 (24h) = 1 mg/L (Daphnia magna) OECD Guideline 202	LC50 (96h) = 2.6 mg/L (Oncorhynchus mykiss) OECD 203	EC50 (3h) > 157 mg/L (Activated sludge, domestic) NOEC (3h) = 157 mg/L (Activated sludge, domestic) OECD 209
Paraffin waxes and Hydrocarbon waxes 8002-74-2	NOEL (72h) >= 100 mg/L (Pseudokirchnerella subcapitata), Read across with : N100DW OECD 201	LL50 (48h) > 1000 mg/L (Daphnia magna) QSAR	LL50 (96h) > 1000 mg/L (Oncorhynchus mykiss) QSAR	LL50 (40h) > 1000 mg/L (Tetrahymena pyriformis) NOEL (40h) >= 1000 mg/L (Tetrahymena pyriformis) QSAR
Etyylibentseeni 100-41-4	EC50 (96h) = 3.6 mg/L (Pseudokirchneriella subcapitata) U.S. EPA. 1985. TSCA Test guidelines: Final Rules 797.1050	EC50 (48h) = 1.8 - 2.4 mg/L (Daphnia magna) EPA method F	LC50 (96h) = 4.2 mg/L (Oncorhynchus mykiss) OECD 203	EC20 (30min) = 200 mg/L (Activated sludge, domestic) OECD 209
toluène 108-88-3	EC50 (3h) = 134 mg/L (Chlorella vulgaris and Chlamydomona angulosa) No guideline followed	EC50 (48h) = 3.78 mg/L (Ceriodaphnia dubia) US EPA 600/4-91-003	LC50 (96h) = 5.5 mg/L (Oncorhynchus kisutch) No guideline followed	IC50 (24h) = 84 mg/L (Nitrosomonas sp) No guideline followed

Krooninen myrkyllisyys vesieliöille - Tietoja aineosista

Kemiallinen nimi	Myrkyllisyys leville	Myrkyllisyys Daphnialle ja muille veden selkärangattomille.	Myrkyllisyys kalalle	Myrkyllisyys mikro-organismeille
Styreeni 100-42-5		NOEC (21d) = 1.01 mg/L (Daphnia magna) LOEC (21d) = 2.06 mg/L (Daphnia magna) EC50 (21d) = 1.88 mg/L (Daphnia magna) OECD 203		
ksyleeni 1330-20-7	NOEC (73h) = 0.44 mg/L (Pseudokirchnerella subcapitata) OECD 201			
Paraffin waxes and Hydrocarbon waxes 8002-74-2		NOEL (21d) >= 1000 mg/L (Daphnia magna) QSAR	NOEL (28d) >= 1000 mg/L (Oncorhynchus mykiss) QSAR	
Etyylibentseeni 100-41-4		NOEC (7d) = 0,96 mg/L (Ceriodaphnia dubia) U.S. EPA 600/4-91-003EPA		
toluène 108-88-3		EC50 (7d) = 3.23 mg/L (Ceriodaphnia dubia) LOEC (7d) = 2.76 mg/L (Ceriodaphnia dubia) NOEC (7d) = 0.74 mg/L (Ceriodaphnia dubia) US EPA 600/4-91-003	NOEC (40d) = 1.39 mg/L (Oncorhynchus kisutch) LOEC (40d) = 2.77 mg/L (Oncorhynchus kisutch)	

Vaikutukset maaeliöstöön - Tietoja aineosista

Välitön myrkyllisyys				
ksyleeni (1330-20-7)				
Välitön myrkyllisyys	Koemenetelmä	Laji	Arvoihin	Huomautuksia
Muut kasvit	OECD 208	Lactuca sativa	EC50 (14d) > 1000 µg/kg	

Krooninen myrkyllisyys

Styreeni (100-42-5)				
Krooninen myrkyllisyys	Menetelmä	Laji	Arvoihin	Huomautuksia
Myrkyllisyys selkärangattomille	OECD 207	Eisenia foetida	LC50 (14d) = 120 mg/kg soil dw LOEC (burrowing time and mean percent weight change) = 65 mg/kg soil dw LOEC (survival) = 180 mg/kg soil dw NOEC (mean percent weight change) = 34 mg/kg soil dw	

Etyylibentseeni (100-41-4)				
Krooninen myrkyllisyys	Menetelmä	Laji	Arvoihin	Huomautuksia
Myrkyllisyys selkärangattomille	OECD 207	Eisenia foetida	LC50 (48h) = 0.047 mg/cm²	

12.2. Pysyvyys ja hajoavuus

Kemiallinen nimi	**Biologinen hajoaminen**	**Arviointi**
Styreeni 100-42-5	87% (20d) similar to OECD 301D	Helposti biologisesti hajoava
ksyleeni 1330-20-7	87.8% (28d) Read across with benzoic acid, sodium salt OECD 301 F	Helposti biologisesti hajoava
Paraffin waxes and Hydrocarbon waxes 8002-74-2	31 % (28d) OECD 301F Read across with : MRD-94-981	Luonnostaan biohajoava.
Etyylibentseeni 100-41-4	70 - 80 % (28d) OECD 310 100 % (6d) OECD 301E	Helposti biologisesti hajoava
toluène 108-88-3	73 % (20d)	Helposti biologisesti hajoava

12.3. Biokertyvyys

Biokertyvyystekijä (BCF)		
Styreeni (100-42-5)		
Menetelmä	Laji	Biokertyvyystekijä (BCF)
Laskentamenetelmä		74

ksyleeni (1330-20-7)		
Menetelmä	Laji	Biokertyvyystekijä (BCF)
Tietoja ei saatavissa	Oncorhynchus mykiss	25.9 (56d)

Etyylibentseeni (100-41-4)		
Menetelmä	Laji	Biokertyvyystekijä (BCF)
Tietoja ei saatavissa	Various species of marine pelecypods	< 10

toluène (108-88-3)		
Menetelmä	Laji	Biokertyvyystekijä (BCF)
OECD 305	Leuciscus idus melanotus	90

Kemiallinen nimi	**log Pow**
Styreeni 100-42-5	3
ksyleeni 1330-20-7	3.12 - 3.2
Etyylibentseeni 100-41-4	2.92
toluène 108-88-3	2.65

12.4. Liikkuvuus maaperässä

Kemiallinen nimi	LogKoc	Koc
Styreeni 100-42-5	2.55	352
ksyleeni 1330-20-7	2.73	537

12.5. PBT- ja vPvB-arvioinnin tulokset

Kemiallinen nimi	PBT	vPvB
Styreeni 100-42-5	Tämän aineen ei katsota olevan pysyvä, kertyvä ja myrkyllinen (PBT).	Tämän aineen ei katsota olevan erittäin pysyvä ja erittäin kertyvä (vPvB).
ksyleeni 1330-20-7	Tämän aineen ei katsota olevan pysyvä, kertyvä ja myrkyllinen (PBT).	Tämän aineen ei katsota olevan erittäin pysyvä ja erittäin kertyvä (vPvB).
Paraffin waxes and Hydrocarbon waxes 8002-74-2	Tämän aineen ei katsota olevan pysyvä, kertyvä ja myrkyllinen (PBT).	Tämän aineen ei katsota olevan erittäin pysyvä ja erittäin kertyvä (vPvB).
Etyylibentseeni 100-41-4	Tämän aineen ei katsota olevan pysyvä, kertyvä ja myrkyllinen (PBT).	Tämän aineen ei katsota olevan erittäin pysyvä ja erittäin kertyvä (vPvB).
toluène 108-88-3	Tämän aineen ei katsota olevan pysyvä, kertyvä ja myrkyllinen (PBT).	Tämän aineen ei katsota olevan erittäin pysyvä ja erittäin kertyvä (vPvB).

12.6. Muut haitalliset vaikutukset

Ei tunneta.

KOHTA 13: Jätteiden käsittelyyn liittyvät näkökohdat

13.1. Jätteiden käsittelymenetelmät

Jätteet jäännöksistä / käyttämättömistä tuotteista Hävitetään jätteitä ja vaarallisia jätteitä koskevien eurodirektiivien mukaisesti.
Ei saa huuhdella pintaveteen tai jätevesiviemäristöön

Likaantunut pakkaus Tyhjät säiliöt on toimitettava hyväksyttyyn jätteenkäsittelylaitokseen kierrätystä tai hävittämistä varten.

Muut tiedot EWC:n (European Waste Catalogue) mukaan jätekoodit eivät ole tiettyä tuotetta, vaan tiettyä käyttötarkoitusta vastaavia.
Käyttäjän tulee määritellä jätekoodit sillä perusteella, millä menetelmällä tuotetta on käsitelty.

KOHTA 14: Kuljetustiedot

14.1. YK-numero tai tunnistenumero

ADR/RID	UN1993
IMDG/IMO	UN1993
ICAO/IATA	UN1993
ADN	UN1993

14.2. Kuljetuksessa käytettävä virallinen nimi

ADR/RID
UN1993, Palava neste, n.o.s. (Styreeni, ksyleeni), 3, III
IMDG/IMO
UN1993, Palava neste, n.o.s. (Styreeni, ksyleeni), 3, III, (24°C c.c.)
ICAO/IATA
UN1993, Palava neste, n.o.s. (Styreeni, ksyleeni), 3, III
ADN
UN1993, Palava neste, n.o.s. (Styreeni, ksyleeni), 3, III

14.3. Kuljetuksen vaaraluokat

ADR/RID

Vaaraluokalla	3

IMDG/IMO

Vaaraluokalla	3

ICAO/IATA

Vaaraluokalla	3

ADN

Vaaraluokalla	3

14.4. Pakkausryhmä

ADR/RID	III
IMDG/IMO	III
ICAO/IATA	III
ADN	III

14.5. Ympäristövaarat

ADR/RID

IMDG/IMO

Meriä saastuttava aine Ei

ICAO/IATA

ADN

14.6. Erityiset varotoimet käyttäjälle

ADR/RID

Luokitustunnus	F1
Erityismääräykset	274, 601, 640E
Tunnelirajoituskoodi	(D/E)
Rajoitettu määrä	5 L

IMDG/IMO

EmS	F-E, S-E
Rajoitettu määrä	5 L

ICAO/IATA

ERG-numero	3L
Rajoitettu määrä	10 L

ADN

Luokitustunnus	F1
Rajoitettu määrä	5 L
ilmanvaihto	VE01

Erityiset varotoimeet käyttäjiä varten

Erityiset varotoimet	Tietoa ei ole käytettävissä

14.7. Merikuljetus irtolastina IMO:n asiakirjojen mukaisesti

Kuljetus irtolastina Marpol 73/78 -sopimuksen II liitteen ja IBC-säännöstön mukaisesti ei määritettävissä

KOHTA 15: Lainsäädäntöä koskevat tiedot

15.1. Nimenomaisesti ainetta tai seosta koskevat turvallisuus-, terveys- ja ympäristösäännökset tai -lainsäädäntö

Asetus (EY) N:o 1907/2006 (REACH)
Asetus (EY) N:o 1272/2008 (CLP)
Asetus (EU) N:o 830/2015
Direktiivi 88/642/ETY
Direktiivi 98/24/EY
Direktiivi 1999/92/EY
Direktiivi 2012/18/EU

Seoksen käyttöön sovelletaan rajoituksia: ks. Liite XVII asetus 1907/2006/EY (REACH): sarake 1, nro 3; sarake 1, nro 40.

Euroopan Unioni

Tietoja kansallisista määräyksistä
Suomi

Vältettävä annettujen enimmäisyyspitoisuusrajojen ylittämistä (katso kohta 8).

15.2. Kemikaaliturvallisuusarviointi

Kemikaaliturvallisuusarviointi	Kyllä
Altistumisskenaario	Οι πληροφορίες που σχετίζονται με τον έλεγχο των κινδύνων κοινοποιούνται υπό μορφή σεναρίου έκθεσης το οποίο επισυνάπτεται στο δελτίο δεδομένων ασφαλείας.

KOHTA 16: Muut tiedot

Kohdissa 2 ja 3 mainittujen H-lausekkeiden täydelliset tekstit

H225 - Helposti syttyvä neste ja höyry
H226 - Syttyvä neste ja höyry
H304 - Voi olla tappavaa nieltynä ja joutuessaan hengitysteihin
H312 - Haitallista joutuessaan iholle
H315 - Ärsyttää ihoa
H319 - Ärsyttää voimakkaasti silmiä
H332 - Haitallista hengitettynä
H335 - Saattaa aiheuttaa hengitysteiden ärsytystä
H336 - Saattaa aiheuttaa uneliaisuutta ja huimausta
H361d - Epäillään vaurioittavan sikiötä
H372 - Vahingoittaa elimiä pitkäaikaisessa tai toistuvassa altistumisessa hengitettynä
H373 - Saattaa vahingoittaa elimiä pitkäaikaisessa tai toistuvassa altistumisessa hengitettynä
H412 - Haitallista vesieliöille, pitkäaikaisia haittavaikutuksia
EUH066 - Toistuva altistus voi aiheuttaa ihon kuivumista tai halkeilua

Koulutukseen liittyviä ohjeita	Käsiteltävä hyvän työhygienian ja turvallisuuskäytännön mukaisesti. Noudata käyttöohjeita ihmisille ja ympäristölle aiheutuvien vaarojen välttämiseksi
Tietolhteet, joita on käytetty tiedotetta laadittaessa	ECHA
Edellinen päiväys	22-Dec-2021
Uusintapäivämäärä	15-Apr-2022
Muutoshuomautus	Päivitetyt käyttöturvallisuustiedotteen kohdat : 11

Tämä käyttöturvallisuustiedote täyttää Asetuksen (EY) N:o 1907/2006 vaatimukset

Vastuuvapauslauseke
Tämän käyttöturvallisuustiedotteen tiedot ovat parhaan tietämyksemme mukaan oikeita laatimispäivänä. Annetut tiedot ovat ainoastaan ohjeellisia turvallista käsittelyä, käyttöä, työstöä, varastointia, kuljetusta, jätteidenkäsittelyä ja päästöjä varten, eikä niitä saa käsittää takuuksi tai laatuspesifikaatioksi. Tiedot koskevat vain mainittua tuotetta, eivätkä välttämättä pidä paikkaansa, jos tuotetta käytetään yhdessä toisen tuotteen kanssa tai prosessissa, ellei erikseen mainittu tekstissä.

Turvallisuustiedotteen loppu

Scenario 1: Manufacturing of UP/VE resins and formulated resins (Gelcoat, Coulour Paste, Putty, Bonding paste/Adhesive) (ES1)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.
The following scenarios contribute to the scenario *Manufacturing of UP/VE resins and formulated resins (Gelcoat, Coulour Paste, Putty, Bonding paste/Adhesive)*.

This document has been prepared using REACH-Practical-Guide-on-Safe-Use-Information-for-Mixtures-under-REACH-The-LCID-Methodology, considering exposure scenario of relevant raw materials contained in the mixture.

The corresponding release to the environment, exposure of workers resulting from these contributing scenarios is summarized below.

Table 1. Description of ES 1

Free short title	Manufacturing of UP/VE resins and formulated resins (Gelcoat, Coulour Paste, Putty, Bonding paste/Adhesive) (ES1)
Systematic title based on use descriptor	ERC 2; PROC 1, 3, 4, 5, 8a, 8b, 9, 15
Name of contributing environmental scenario and corresponding ERC	ERC 2 – Formulation into mixture
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Chemical production in closed process PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Chemical production where opportunity for exposure arises PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact) PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 8b - Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC 9 - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC 15 - Use of laboratory reagents in small scale laboratories
Contributing Scenario (1) controlling environmental exposure for ERC 2	
Operational conditions *(referred to styrene)*	
Daily amount used at site	45700 kg/day *(referred to styrene)*

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Release times per year	300 days/year *(justification: Continous release)*
Local freshwater dilution factor	41
Local marine water dilution factor	100
Release fraction to air from process	0.102 %
Release fraction to wastewater from process	0.00063 %
Release fraction to soil from process	0.0025 %
Fraction tonnage to region	10 %
Fraction used at main source	60 %
STP	yes
River flow rate	18000 m^3/day
Municipal sewage treatment plant discharge	2000000 L/day
Other modified EUSES values *(referred to styrene)*	
Fraction released to agricultural soil (Femis.agric)	0 % *(justification: No direct release to soil (EU Risk Assessment Report on Styrene,European Communities, 2002)*
Fraction released to industrial soil (Femis.ind)	0 % *(justification: No direct release to soil (EU Risk Assessment Report on Styrene,European Communities, 2002))*
Fraction released to waste water (Femis.water)	0.00063 % *(justification: EU Risk Assessment Report, 2002)*
Fraction released to air (Femis.air)	0.102 % *(justification: EU Risk Assessment Report, 2002)*
Fraction used at main source	60 % *(justification: Value adopted to account for Worst-case European manufacturing site)*
Fraction of emission directed to water by local STP (Fstp.water)	0.081 - *(justification: Efficiency STP 91.9%)*

Contributing Scenario (2) controlling industrial worker exposure for PROC 1

Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Scenario subtitle	Use in contained batch processes. Closed processes
Qualitative Risk Assessment	
General	Use in semi-automated and predominantly enclosed filling lines. Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. Ensure good work practices are implemented. Provide basic employe training to prevent/minimize exposures. Use suitable chemically resistant gloves, tested to EN374. Use suitable eye protection.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %

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Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	240 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	enhanced (>30%)
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
Contributing Scenario (3) controlling industrial worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Scenario subtitle	Bulk transfers. Receipt and storage of raw materials in bulk or as packed goods, indoor and outdoor; Raw material assembly and charging; dispensing of liquids and solids via pipeline;
Qualitative Risk Assessment	
General	Use in semi-automated and predominantly enclosed filling lines; Use bulk or semi-bulk handling systems. Drain down and flush system prior to equipment break-in or maintenance. Provide extract ventilation to points where emissions occur. Ensure good work practices are implemented. Provide basic employe training to prevent/minimize exposures. Use suitable chemically resistant gloves, tested to EN374. Use suitable eye protection.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	15 min.-1 hour
Frequency of use	5 days / week

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Human factors not influenced by risk management	
Exposed skin surface	240 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	enhanced (>30%)
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	Yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
Local exhaust ventilation	Use local exhaust ventilation with adequate effectiveness
Contributing Scenario (4) controlling industrial worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Scenario subtitle	Dissolving linear UP/VE polymer in blending vessel (or dissolver)
Qualitative Risk Assessment	
General	Use in semi-automated and predominantly enclosed filling lines; Drain down and flush system prior to equipment break-in or maintenance. Apply vessel entry procedures including use of forced supplied air. Ensure good work practices are implemented. Provide basic employe training to prevent/minimize exposures. Use suitable chemically resistant gloves, tested to EN374. Use suitable eye protection.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	240 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	good (30%)

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Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
Contributing Scenario (5) controlling industrial worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Scenario subtitle	Equipment cleaning and maintenance. Cleaning and maintenance of blending vessel, roadtankers etc.
Qualitative Risk Assessment	
General	Use in semi-automated and predominantly enclosed filling lines. Drain or remove substance from equipment prior to break-in or maintenance. Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Ensure good work practices are implemented. Provide basic employe training to prevent/minimize exposures. Use suitable chemically resistant gloves, tested to EN374. Use suitable eye protection. In case of potential exposure wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	240 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	good (30%)
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes

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Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Use respiratory protection when exposure might occur
Local exhaust ventilation	Use local exhaust ventilation with adequate effectiveness
Contributing Scenario (6) controlling industrial worker exposure for PROC 4	
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Scenario subtitle	Material transfers. All internal transport. Raw material assembly and charging / raw material dispensing of liquids and solids manually from bulk storage or packed goods into blending tank.
Qualitative Risk Assessment	
General	Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). Provide extract ventilation to points where emissions occur. Ensure good work practices are implemented. Provide basic employe training to prevent/minimize exposures. Use suitable chemically resistant gloves, tested to EN374. Use suitable eye protection. In case of potential exposure wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	Good (>30%)
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Use respiratory protection when exposure might occur

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Local exhaust ventilation	Use local exhaust ventilation with adequate effectiveness
Contributing Scenario (7) controlling industrial worker exposure for PROC 4	
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Scenario subtitle	Process sampling.
Qualitative Risk Assessment	
General	Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour): Avoid dip sampling. Ensure good work practices are implemented. Provide basic employe training to prevent/minimize exposures. Use suitable chemically resistant gloves, tested to EN374. Use suitable eye protection. In case of potential exposure wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	15 min.-1 hour
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	Good (>30%)
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Use respiratory protection when exposure might occur
Local exhaust ventilation	Use local exhaust ventilation with adequate effectiveness
Contributing Scenario (8) controlling industrial worker exposure for PROC 5	
Name of contributing scenario	5 - Mixing or blending in batch processes (multistage and/or significant contact)

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Scenario subtitle	Drum/batch transfers; Pouring from small containers; Transfer from/pouring from containers; Mixing operations (open systems). Mixing liquid and solid components / into final formulated resin in blending vessel
Qualitative Risk Assessment	
General	Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). Keep lids of containers closed during blending. Ensure good work practices are implemented. Provide basic employe training to prevent/minimize exposures. Use suitable chemically resistant gloves, tested to EN374. Use suitable eye protection. Wear suitable coveralls to prevent exposure to the skin. In case of potential exposure wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Use respiratory protection when exposure occurs
Local exhaust ventilation	inhalation: 90 % *(justification: Use local exhaust ventilation with adequate effectiveness)*
Contributing Scenario (9) controlling industrial worker exposure for PROC 8A	
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Scenario subtitle	Equipment cleaning and maintenance. Cleaning and maintenance of pipes, pumps, filters, etc.
Qualitative Risk Assessment	

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General	Drain down system prior to equipment break-in or maintenance. Drain or remove substance from equipment prior to break-in or maintenance. Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Wear suitable coveralls to prevent exposure to the skin. Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. In case of potential exposure wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Use respiratory protection when exposure occurs
Local exhaust ventilation	inhalation: 70 % *(justification: Use local exhaust ventilation with adequate effectiveness)*
Contributing Scenario (10) controlling industrial worker exposure for PROC 8A	
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Scenario subtitle	Disposal of wastes. Handling of non cured waste; Waste management / handling and storage of waste for removal for off-site treatment or for on-site treatment like incineration and/or biological waste water treatment
Qualitative Risk Assessment	

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General	Provide a good standard of general ventilation. Controlled ventilation means air is supplied or removed by a powered fan. Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Dispose of empty containers and wastes safely. Dispose of waste in accordance with environmental legislation. Use suitable chemically resistant gloves, tested to EN374. In case of potential exposure wear a suitable respiratory protection with adeguate effectiveness. Use suitable eye protection.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	<1 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm^2
Other given operational conditions affecting workers exposure	
Location	Indoors/outdoor
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Use respiratory protection when exposure might occur
Contributing Scenario (11) controlling industrial worker exposure for PROC 8b	
Name of contributing scenario	8b -Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Scenario subtitle	Bulk transfers. All activities related to transport finished product to customer. Dispensing final UP/VE resin (linear UP/VE polymer + styrene + additives) into roadtanker
Qualitative Risk Assessment	

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General	Fill containers/cans at dedicated fill points supplied with local extract ventilation. Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable chemically resistant gloves, tested to EN374. Use suitable eye protection. In case of potential exposure wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Use respiratory protection when exposure might occur
Local exhaust ventilation	inhalation: 70 % *(justification: Use local exhaust ventilation with adequate effectiveness)*
Contributing Scenario (12) controlling industrial worker exposure for PROC 9	
Name of contributing scenario	9 -Transfer of chemicals into small containers (dedicated filling line)
Scenario subtitle	Bulk transfers. All activities related to transport finished product to customer. Dispensing final UP/VE resin (linear UP/VE polymer + styrene + additives) / into storage tank, IBC, drum or pail.
Qualitative Risk Assessment	

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General	Fill containers/cans at dedicated fill points supplied with local extract ventilation. Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable chemically resistant gloves, tested to EN374. Use suitable eye protection.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
Local exhaust ventilation	inhalation: 90 % *(justification: Use local exhaust ventilation with adequate effectiveness)*
Contributing Scenario (13) controlling industrial worker exposure for PROC 15	
Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Scenario subtitle	Laboratory activities. All laboratory activities. Quality control work of samples from reactor and blending vessel. R&D work including handling of samples from 1 kg to 1 drum.
Qualitative Risk Assessment	
General	Carry out in a vented booth or extracted enclosure. Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374.
Product characteristics	

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Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	240 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
Local exhaust ventilation	inhalation: 90 % *(justification: Use local exhaust ventilation with adequate effectiveness)*

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Scenario 2: FRP manufacturing in an industrial setting, using UP/VE resins and/or formulated resins (gelcoat, bonding paste, putty etc.) (ES2)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.
The following scenarios contribute to the scenario *FRP manufacturing in an industrial setting, using UP/VE resins and/or formulated resins (gelcoat, bonding paste, putty etc.)*.

This document has been prepared using REACH-Practical-Guide-on-Safe-Use-Information-for-Mixtures-under-REACH-The-LCID-Methodology, considering exposure scenario of relevant raw materials contained in the mixture.

The corresponding release to the environment, exposure of workers resulting from these contributing scenarios is summarized below.

Table 2. Description of ES 2

Free short title	FRP manufacturing in an industrial setting, using UP/VE resins and/or formulated resins (gelcoat, bonding paste, putty etc.) (ES2)
Systematic title based on use descriptor	ERC 6D; PROC 3, 5, 7, 8A, 10, 13, 14, 15
Name of contributing environmental scenario and corresponding ERC	ERC 6d Production of resins
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 3 - Use in closed batch process (synthesis or formulation) PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact) PROC 7 - Industrial spraying PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 10 - Roller application or brushing PROC 13 - Treatment of articles by dipping and pouring PROC 14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC 15 - Use of laboratory reagents in small scale laboratories
Contributing Scenario (1) controlling environmental exposure for ERC 6D	
Operational conditions *(referred to styrene)*	
Daily amount used at site	161000 kg/day *(referred to styrene)*
Release times per year	300 days/year *(justification: Continous release)*
Local freshwater dilution factor	10

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Local marine water dilution factor	100
Release fraction to air from process	0.102 %
Release fraction to wastewater from process	0.00063 %
Release fraction to soil from process	0.025 %
Fraction tonnage to region	10 %
Fraction used at main source	60 %
STP	yes
River flow rate	18000 m^3/day
Municipal sewage treatment plant discharge	2000000 L/day
Other modified EUSES values	
Fraction released to agricultural soil (Femis.agric)	0 % *(justification: No direct release to soil (EU Risk Assessment Report on Styrene,European Communities, 2002))*
Fraction released to industrial soil (Femis.ind)	0 % *(justification: No direct release to soil (EU Risk Assessment Report on Styrene,European Communities, 2002))*
Fraction released to waste water (Femis.water)	0.00063 % *(justification: EU Risk Assessment Report, 2002)*
Fraction released to air (Femis.air)	0.102 % *(justification: EU Risk Assessment Report, 2002)*
Fraction used at main source	60 % *(justification: Value adopted to account for Worst-case European manufacturing site)*
Fraction of emission directed to water by local STP (Fstp.water)	0.081 - *(justification: Efficiency STP 91.9%)*
Contributing Scenario (2) controlling industrial worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Scenario subtitle	Material transfers; Automated process with (semi) closed systems; Use in contained batch processes. Resin injection and transfer processes, such as vacuüm infusion, RTM, impregnation of sewer relining sleeves
Qualitative Risk Assessment	
General	Put lids on containers immediately after use. Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)

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Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	240 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	good (30%)
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
Contributing Scenario (3) controlling industrial worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Scenario subtitle	Material transfers. Product delivery/storage - delivery of bulk and packaged products - outdoor / indoor
Qualitative Risk Assessment	
General	Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	240 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	good (30%)
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no

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Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
Contributing Scenario (4) controlling industrial worker exposure for PROC 5	
Name of contributing scenario	5 - Mixing or blending in batch processes (multistage and/or significant contact)
Scenario subtitle	Drum/batch transfers; Pouring from small containers; Transfer from/pouring from containers; Mixing operations (open systems). Loading of mixing equipment; Preparation of material for application; (liquid products) - batch, indoor
Qualitative Risk Assessment	
General	Put lids on containers immediately after use. Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. Wear suitable coveralls to prevent exposure to the skin. In case of potential exposure wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Use respiratory protection when exposure occurs
Local exhaust ventilation	inhalation: 90 % *(justification: Use local exhaust ventilation with adequate effectiveness)*

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Contributing Scenario (5) controlling industrial worker exposure for PROC 5	
Name of contributing scenario	5 - Mixing or blending in batch processes (multistage and/or significant contact)
Scenario subtitle	Casting operations; Mixing operations (open systems). Casting and mixing operations in (semi-) open containers. Examples are centrifugal casting, casting of polymer concrete and artificial marble and the manufacturing of SMC / BMC/ TMC, etc
Qualitative Risk Assessment	
General	Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. Wear suitable coveralls to prevent exposure to the skin. In case of potential exposure wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	5-60%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Use respiratory protection when exposure occur
Local exhaust ventilation	inhalation: 90 % *(justification: Use local exhaust ventilation with adequate effectiveness)*
Contributing Scenario (6) controlling industrial worker exposure for PROC 5	
Name of contributing scenario	5 - Mixing or blending in batch processes (multistage and/or significant contact)

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Scenario subtitle	General exposures (closed systems). Mixing liquid and solid components / into final formulated resin in blending vessel; Examples are gelcoat blending and compounding, formulation of repair putties, bonding pastes, chemical anchoring, etc
Qualitative Risk Assessment	
General	Put lids on containers immediately after use. Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. Wear suitable coveralls to prevent exposure to the skin. In case of potential exposure wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	enhanced (70%)
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	Yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Use respiratory protection when exposure occurs
Local exhaust ventilation	inhalation: 70 % *(justification: Use local exhaust ventilation with adequate effectiveness)*
Contributing Scenario (7) controlling industrial worker exposure for PROC 7	
Name of contributing scenario	7 - Industrial spraying
Scenario subtitle	Spraying; Spraying (automatic/robotic) All open mould applications where resins is applied by automated spraying or by robot in a spray cabin without direct worker involvement. Examples are spray lamination, gelcoat spraying and “chop-hoop” filament winding

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Qualitative Risk Assessment	
General	Ensure the ventilation system is regularly maintained and tested Dispose of empty containers and wastes safely Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Wear suitable coveralls to prevent exposure to the skin Use suitable eye protection. Wear suitable face shield Wear chemically resistant gloves tested to EN374, in combination with intensive management supervision control. In case of potential exposure wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	1,500 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	Yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Use respiratory protection when exposure might occur
Carry out in a vented booth or extracted enclosure	inhalation: 95 % *(justification: Carry out in a vented booth or extracted enclosure)*
Contributing Scenario (8) controlling industrial worker exposure for PROC 7	
Name of contributing scenario	7 - Industrial spraying
Scenario subtitle	Spraying; Spraying (manually) All open mould applications where resins is applied by manual spraying in an open work environement. Examples are spray lamination, gelcoat spraying and “chop-hoop” filament winding
Qualitative Risk Assessment	

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General	Carefully pour from containers Use long handled tools where possible Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable eye protection. Wear suitable face shield. Wear suitable coveralls to prevent exposure to the skin Wear chemically resistant gloves tested to EN374 in combination with intensive management supervision control. Wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	1,500 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	good (30%)
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	Yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Yes
Local exhaust ventilation	inhalation: 95 % *(justification: Use local exhaust ventilation with adequate effectiveness)*
Contributing Scenario (9) controlling industrial worker exposure for PROC 8A	
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Scenario subtitle	Equipment maintenance; Maintenance of small items. Equipment cleaning and maintenance
Qualitative Risk Assessment	

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General	Drain or remove substance from equipment prior to break-in or maintenance. Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. Wear suitable coveralls to prevent exposure to the skin. In case of potential exposure wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	Yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Use respiratory protection when exposure might occur
Local exhaust ventilation	inhalation: 70 % *(justification: Use local exhaust ventilation with adequate effectiveness)*
Contributing Scenario (10) controlling industrial worker exposure for PROC 8A	
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Scenario subtitle	Disposal of wastes. Handling of non cured waste; Waste management / handling and storage of waste for removal for off-site treatment or for on-site treatment like incineration and/or biological waste water treatment
Qualitative Risk Assessment	

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General	Put lids on containers immediately after use. Contain and dispose of waste according to local regulations Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. Wear suitable coveralls to prevent exposure to the skin. In case of potential exposure wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm^2
Other given operational conditions affecting workers exposure	
Location	Indoors/outdoor
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	Yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Use respiratory protection when exposure might occur
Local exhaust ventilation	inhalation: 90 % *(justification: Use local exhaust ventilation with adequate effectiveness)*
Contributing Scenario (11) controlling industrial worker exposure for PROC 10	
Name of contributing scenario	10 - Roller application or brushing
Scenario subtitle	Rolling, Brushing; Roller, spreader, flow application All open mould applications where resins is applied by brushing, rolling and other low energy spreading operations; Examples are handlamination, gelcoatbrushing, filament winding
Qualitative Risk Assessment	

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General	Use long handled brushes and rollers where possible Ensure the ventilation system is regularly maintained and tested Dispose of empty containers and wastes safely Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. Wear suitable coveralls to prevent exposure to the skin In case of potential exposure wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	enhanced (70%)
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	Yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Use respiratory protection when exposure occur
Local exhaust ventilation	inhalation: 70 % *(justification: Use local exhaust ventilation with adequate effectiveness)*
Contributing Scenario (12) controlling industrial worker exposure for PROC 10	
Name of contributing scenario	10 - Roller application or brushing
Scenario subtitle	Dipping, immersion and pouring; Rolling, Brushing; Roller, spreader, flow application Application of repair putties; Application of bonding pastes / adhesives.
Qualitative Risk Assessment	

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General	Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. Wear suitable coveralls to prevent exposure to the skin. Wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	enhanced (70%)
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	Yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	yes
Local exhaust ventilation	inhalation: 70 % *(justification: Use local exhaust ventilation with adequate effectiveness)*
Contributing Scenario (13) controlling industrial worker exposure for PROC 13	
Name of contributing scenario	13 - Treatment of articles by dipping and pouring
Scenario subtitle	Dipping, immersion and pouring; Continuous process. Continuous processes with open impregnation steps, such as pultrusion with open impregnation baths and (semi-) continuous production of flat laminates
Qualitative Risk Assessment	

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General	Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. Wear suitable coveralls to prevent exposure to the skin. In case of potential exposure wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Use respiratory protection when exposure occurs
Local exhaust ventilation	inhalation: 90 % *(justification: Use local exhaust ventilation with adequate effectiveness)*
Contributing Scenario (14) controlling industrial worker exposure for PROC 14	
Name of contributing scenario	14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation
Scenario subtitle	Material transfers; Production or preparation or articles by tabletting, compression, extrusion or pelletisation; Treatment by heating; Batch processes at elevated temperatures. Processes where curing of UP / VE resins takes place at high temperature. Examples are pultrusion with injection dies and processing of SMC / BMC / TMC, etc
Qualitative Risk Assessment	

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General	Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures In case of potential exposure: Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. In case of potential exposure wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	enhanced (70%)
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	Yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Use respiratory protection when exposure occurs
Local exhaust ventilation	inhalation: 70 % *(justification: Use local exhaust ventilation with adequate effectiveness)*
Contributing Scenario (15) controlling industrial worker exposure for PROC 15	
Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Scenario subtitle	Laboratory activities. Quality control work of samples from blending vessel; R&D work including handling of samples from 1 kg to 1 drum
Qualitative Risk Assessment	
General	Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374.
Product characteristics	
Physical state	liquid

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Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	240 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	Yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	No
Local exhaust ventilation	inhalation: 90 % *(justification: Use local exhaust ventilation with adequate effectiveness)*

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Scenario 3: FRP manufacturing in a professional setting, using UP/VE resins and/or formulated resins (gelcoat, bonding paste, putty etc.) (ES3)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.
The following scenarios contribute to the scenario *FRP manufacturing in a professional setting, using UP/VE resins and/or formulated resins (gelcoat, bonding paste, putty etc.)*.

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The corresponding release to the environment, exposure of workers resulting from these contributing scenarios is summarized below.

Table 2. Description of ES 3

Free short title	FRP manufacturing in a professional setting, using UP/VE resins and/or formulated resins (gelcoat, bonding paste, putty etc.) (ES8)
Systematic title based on use descriptor	ERC 6C; PROC 3, 4, 5, 8A, 10, 11
Name of contributing environmental scenario and corresponding ERC	ERC 6c Production of plastics
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact) PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 10 - Roller application or brushing PROC 11 - Non industrial spraying
Contributing Scenario (1) controlling environmental exposure for ERC 6C	
Operational conditions *(referred to styrene)*	
Daily amount used at site	48300 kg/day (*referred to styrene)*
Release times per year	300 days/year *(justification: Continous release)*
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.102 %
Release fraction to wastewater from process	0.000012 %

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Release fraction to soil from process	0 %
Fraction tonnage to region	10 %
Fraction used at main source	60 %
STP	Yes
River flow rate	18000 m^3/day
Municipal sewage treatment plant discharge	2000000 L/day
Other modified EUSES values	
Fraction released to agricultural soil (Femis.agric)	0 % *(justification: No direct release to soil (EU Risk Assessment Report on Styrene,European Communities, 2002))*
Fraction released to industrial soil (Femis.ind)	0 % *(justification: No direct release to soil (EU Risk Assessment Report on Styrene,European Communities, 2002))*
Fraction released to waste water (Femis.water)	0.000012 % *(justification: EU Risk Assessment Report, 2002)*
Fraction released to air (Femis.air)	0.102 % *(justification: EU Risk Assessment Report, 2002)*
Fraction used at main source	60 % *(justification: Value adopted to account for worst-case European manufacturing site)*
Fraction of emission directed to water by local STP (Fstp.water)	0.081 - *(justification: Efficiency STP 91.9%)*
Contributing Scenario (2) controlling professional worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Scenario subtitle	Use in contained batch processes. Application of chemical anchoring
Qualitative Risk Assessment	
General	Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures In case of potential exposure: Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. In case of potential exposure wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	240 cm^2

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Other given operational conditions affecting workers exposure	
Location	outdoors (30%)
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	No
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Use respiratory protection when exposure might occur
Contributing Scenario (3) controlling professional worker exposure for PROC 4	
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Scenario subtitle	Use in contained batch processes. Sewer relining operation
Qualitative Risk Assessment	
General	Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. Wear suitable coveralls to prevent exposure to the skin. In case of potential exposure wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm^2
Other given operational conditions affecting workers exposure	
Location	outdoors (30%)
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	No
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Use respiratory protection when exposure occurs

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Contributing Scenario (4) controlling professional worker exposure for PROC 5	
Name of contributing scenario	5 - Mixing or blending in batch processes (multistage and/or significant contact)
Scenario subtitle	Material transfers; Pouring from small containers. Preparation of material for application (liquids) - transfer of material from one container to another; Formulating / blending resins, gelcoats, bonding pastes, putties etc. in blending vessels
Qualitative Risk Assessment	
General	Use drum pumps. Put lids on containers immediately after use. Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. Wear suitable coveralls to prevent exposure to the skin. In case of potential exposure wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	480 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	good (30%)
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	Yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Use respiratory protection when exposure occurs
Local exhaust ventilation	Use local exhaust ventilation with adequate effectiveness

Contributing Scenario (5) controlling professional worker exposure for PROC 8A

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Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Scenario subtitle	Equipment maintenance; Maintenance of small items. Equipment cleaning and maintenance
Qualitative Risk Assessment	
General	Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. Wear suitable coveralls to prevent exposure to the skin. In case of potential exposure wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	15 mins to 1 hour
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	good (30%)
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	Yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Use respiratory protection when exposure might occur
Local exhaust ventilation	Use local exhaust ventilation with adequate effectiveness
Contributing Scenario (6) controlling professional worker exposure for PROC 8A	
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Scenario subtitle	Disposal of wastes. Handling of non cured waste; Waste management / handling and storage of waste for removal for off-site treatment or for on-site treatment like incineration and/or biological waste water treatment
Qualitative Risk Assessment	

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General	Dispose of empty containers and wastes safely Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. Wear suitable coveralls to prevent exposure to the skin. In case of potential exposure wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	15 mins to 1 hour
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	good (30%)
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Use respiratory protection when exposure occurs
Local exhaust ventilation	Use local exhaust ventilation with adequate effectiveness
Contributing Scenario (7) controlling professional worker exposure for PROC 10	
Name of contributing scenario	10 - Roller application or brushing
Scenario subtitle	Rolling, Brushing; Roller, spreader, flow application All open mould applications where resins is applied by brushing, rolling and other low energy spreading operations; Examples are handlamination, gelcoatbrushing, semi-continuous production of flat panels and laminates
Qualitative Risk Assessment	

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General	Use long handled brushes and rollers where possible Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. Wear suitable coveralls to prevent exposure to the skin. In case of potential exposure wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	good (30%)
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	Use respiratory protection when exposure occurs
Local exhaust ventilation	Use local exhaust ventilation with adequate effectiveness
Contributing Scenario (8) controlling professional worker exposure for PROC 10	
Name of contributing scenario	10 - Roller application or brushing
Scenario subtitle	Dipping, immersion and pouring; Rolling, Brushing; Roller, spreader, flow application Application of repair putties; Application of bonding pastes / adhesives.
Qualitative Risk Assessment	

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General	Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. Wear suitable coveralls to prevent exposure to the skin. Wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid
Concentration in substance	100%
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	good (30%)
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	yes
Contributing Scenario (9) controlling professional worker exposure for PROC 10	
Name of contributing scenario	10 - Roller application or brushing
Scenario subtitle	Dipping, immersion and pouring; Rolling, Brushing; Roller, spreader, flow application Application of floorings, mastics, coatings, castings
Qualitative Risk Assessment	
General	Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable eye protection. Use suitable chemically resistant gloves, tested to EN374. Wear suitable coveralls to prevent exposure to the skin. Wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	

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Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	960 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	good (30%)
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	yes
Local exhaust ventilation	Use local exhaust ventilation with adequate effectiveness
Contributing Scenario (10) controlling professional worker exposure for PROC 11	
Name of contributing scenario	11 - Non industrial spraying
Scenario subtitle	Spraying; Spraying (manually) All open mould applications where resins is applied by manual spraying in an open work environement. Examples are spray lamination, gelcoat spraying and “chop-hoop” filament winding
Qualitative Risk Assessment	
General	Keep people not involved in the activity, away from the operation Ensure good work practices are implemented Provide basic employe training to prevent/minimize exposures Use suitable eye protection. Wear suitable face shield Wear suitable coveralls to prevent exposure to the skin. Wear chemically resistant gloves, tested to EN374, in combination with intensive management supervision control. Wear a suitable respiratory protection with adeguate effectiveness.
Product characteristics	
Physical state	liquid

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Concentration in substance	100 %
Fugacity / Dustiness	medium
Frequency and duration of use	
Duration of activity	1 - 4 hours
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	1,500 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	good (30%)
Domain	professional
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes
Conditions and measures related to personal protection, hygiene and health evaluation: see details on sec.8 of SDS	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	yes
Local exhaust ventilation	Use local exhaust ventilation with adequate effectiveness

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