We create chemistry

Safety data sheet

BASF safety data sheet. This is a translation of the country-specific safety data sheet into a language other than that required by law. This document does not replace the safety data sheet provided according to Regulation (EC) No 1907/2006.
Date / Revised: 07.08.2023 Version: 2.0
Date previous version: 29.07.2022 Previous version: 1.0
Date / First version: 29.07.2022
Product: **C9-Cut**

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

C9-Cut

Chemical name: Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction
CAS Number: 94733-07-0

REACH registration number: 01-2119487291-35-0000

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: Chemical, Intermediate, additive for the petroleum industry
Recommended use: Chemical

For the detailed identified uses of the product see appendix of the safety data sheet.

1.3. Details of the supplier of the safety data sheet

Company:
BASF SE
67056 Ludwigshafen
GERMANY
Operating Division Petrochemicals

Telephone: +49 621 60-42151
E-mail address: sds-petrochemicals@basf.com

1.4. Emergency telephone number

International emergency number:
Telephone: +49 180 2273-112

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

According to Regulation (EC) No 1272/2008 [CLP]

Asp. Tox. 1	H304 May be fatal if swallowed and enters airways.
Flam. Liq. 3	H226 Flammable liquid and vapour.
Skin Corr./Irrit. 2	H315 Causes skin irritation.
Eye Dam./Irrit. 2	H319 Causes serious eye irritation.
Muta. 1B	H340 May cause genetic defects.
Carc. 1A	H350 May cause cancer.
Repr. 2	H361d Suspected of damaging the unborn child.
STOT RE 2	H373 May cause damage to organs through prolonged or repeated exposure.
Aquatic Chronic 2	H411 Toxic to aquatic life with long lasting effects.

For the classifications not written out in full in this section the full text can be found in section 16.

2.2. Label elements

According to Regulation (EC) No 1272/2008 [CLP]

Pictogram:

Signal Word:

Danger

Hazard Statement:

H226	Flammable liquid and vapour.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H304	May be fatal if swallowed and enters airways.
H373	May cause damage to organs through prolonged or repeated exposure.
H350	May cause cancer.
H340	May cause genetic defects.
H361d	Suspected of damaging the unborn child.
H411	Toxic to aquatic life with long lasting effects.

Precautionary Statements (Prevention):

P280	Wear protective gloves, protective clothing and eye protection or face protection.
P201	Obtain special instructions before use.
P273	Avoid release to the environment.

Precautionary Statements (Response):

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Precautionary Statements (Storage):

P405	Store locked up.

Precautionary Statements (Disposal):

P501	Dispose of contents and container to hazardous or special waste collection point.

Labeling of special preparations (GHS):

Restricted to professional users.

Hazard determining component(s) for labelling: benzene, xylene, Trimethylbenzene, ethylbenzene

2.3. Other hazards

According to Regulation (EC) No 1272/2008 [CLP]

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.
See section 12 - Results of PBT and vPvB assessment.
Product does not contain a substance above legal limits included in the list established in accordance with Article 59(1) of Regulation (EC) No 1907/2006 for having endocrine disrupting properties or is identified to have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.
The product does not fulfill the criteria for PBT (Persistent/bioaccumulative/toxic) and vPvB (very persistent/very bioaccumulative).
Skin resorption hazard.

SECTION 3: Composition/Information on Ingredients

3.1. Substances

Chemical nature

Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction

Content (W/W): 100 %	Asp. Tox. 1
CAS Number: 94733-07-0	Flam. Liq. 3
EC-Number: 305-586-4	Skin Corr./Irrit. 2
	Eye Dam./Irrit. 2
	Muta. 1B
	Carc. 1A
	Repr. 2 (unborn child)
	STOT RE 2
	Aquatic Chronic 2
	H226, H319, H315, H304, H373, H350, H340, H361d, H411

Regulatory relevant ingredients

naphthalene

Content (W/W): > 5 % - < 20 %	Flam. Sol. 2
CAS Number: 91-20-3	Acute Tox. 4 (oral)
EC-Number: 202-049-5	Carc. 2
INDEX-Number: 601-052-00-2	Aquatic Acute 1
	Aquatic Chronic 1
Substance with EU occupational exposure limit	M-factor acute: 1
	M-factor chronic: 1
	H228, H302, H351, H400, H410

ethylbenzene

Content (W/W): > 1 % - < 10 %	Asp. Tox. 1
CAS Number: 100-41-4	Flam. Liq. 2
EC-Number: 202-849-4	Acute Tox. 4 (Inhalation - vapour)
INDEX-Number: 601-023-00-4	STOT RE (Auditory organ) 2
	Aquatic Chronic 3
	H225, H332, H304, H373, H412

xylene

Content (W/W): > 1 % - < 10 %	Asp. Tox. 1
CAS Number: 1330-20-7	Flam. Liq. 3
EC-Number: 215-535-7	Acute Tox. 4 (Inhalation - vapour)
INDEX-Number: 601-022-00-9	Acute Tox. 4 (dermal)
	Skin Corr./Irrit. 2
Substance with EU occupational exposure limit	Eye Dam./Irrit. 2
	STOT SE 3 (irr. to respiratory syst.)
	STOT RE (Central nervous system, Liver, Kidney) 2
	Aquatic Chronic 3
	H226, H319, H315, H312, H332, H304, H335, H373, H412

Ethyltoluene

Content (W/W): > 1 % - < 10 %	Flam. Liq. 3
CAS Number: 25550-14-5	Eye Dam./Irrit. 2
EC-Number: 247-093-6	Repr. 2 (fertility)
	Aquatic Chronic 2
	H226, H319, H315, H361f, H411

Trimethylbenzene

Content (W/W): > 1 % - < 10 %	Asp. Tox. 1
CAS Number: 25551-13-7	Flam. Liq. 3
EC-Number: 247-099-9	Acute Tox. 4 (Inhalation - vapour)
	Skin Corr./Irrit. 2
	Eye Dam./Irrit. 2
	STOT SE 3 (irr. to respiratory syst.)
	Aquatic Chronic 2
	H226, H319, H315, H332, H304, H335, H411

styrene

Content (W/W): > 0,01 % - < 5 %	Asp. Tox. 1
CAS Number: 100-42-5	Flam. Liq. 3
EC-Number: 202-851-5	Acute Tox. 4 (Inhalation - vapour)
	Skin Corr./Irrit. 2
	Eye Dam./Irrit. 2
	Repr. 2 (unborn child)
	STOT SE 3 (irr. to respiratory syst.)
	STOT RE (Auditory organ) 1
	Aquatic Chronic 3
	H226, H319, H315, H332, H304, H335, H361d, H372, H412

propylbenzene

Content (W/W): > 0,1 % - < 5 %	Asp. Tox. 1
CAS Number: 103-65-1	Flam. Liq. 3
EC-Number: 203-132-9	Skin Corr./Irrit. 2
INDEX-Number: 601-024-00-X	Eye Dam./Irrit. 2
	STOT SE 3 (irr. to respiratory syst.)
	Aquatic Chronic 2
	H226, H319, H315, H304, H335, H411

Indene

Content (W/W): > 0,1 % - < 4 %	Flam. Liq. 3
CAS Number: 95-13-6	Skin Corr./Irrit. 2
EC-Number: 202-393-6	Eye Dam./Irrit. 2
	Aquatic Chronic 2
	H226, H319, H315, H411

toluene

Content (W/W): > 0,05 % - < 3 %	Asp. Tox. 1
CAS Number: 108-88-3	Flam. Liq. 2
EC-Number: 203-625-9	Skin Corr./Irrit. 2
INDEX-Number: 601-021-00-3	Repr. 2 (unborn child)
	STOT SE 3 (drowsiness and dizziness)
	STOT RE (Central nervous system) 2
	Aquatic Chronic 3
	H225, H315, H304, H336, H361d, H373, H412

Diethylbenzene

Content (W/W): > 0,1 % - < 3 % CAS Number: 25340-17-4 EC-Number: 246-874-9	Flam. Liq. 3 Skin Corr./Irrit. 2 Eye Dam./Irrit. 2 STOT SE 3 (irr. to respiratory syst.) Aquatic Acute 1 Aquatic Chronic 1 H226, H319, H315, H335, H400, H410

Vinyltoluene

Content (W/W): > 0,01 % - < 2 % CAS Number: 25013-15-4 EC-Number: 246-562-2	Flam. Liq. 3 Acute Tox. 4 (Inhalation - vapour) Skin Corr./Irrit. 2 Eye Dam./Irrit. 2 Aquatic Acute 1 Aquatic Chronic 1 Asp. Tox. 1 M-factor acute: 1 M-factor chronic: 1 H226, H319, H315, H332, H304, H400, H410

benzene

Content (W/W): > 0,01 % - < 1 % CAS Number: 71-43-2 EC-Number: 200-753-7 INDEX-Number: 601-020-00-8 Substance with EU occupational exposure limit	Asp. Tox. 1 Flam. Liq. 2 Skin Corr./Irrit. 2 Eye Dam./Irrit. 2 Muta. 1B Carc. 1A STOT RE (Blood) 1 Aquatic Chronic 3 H225, H319, H315, H304, H350, H340, H372, H412

2-phenylpropene

Content (W/W): > 0,01 % - < 0,5 % CAS Number: 98-83-9 EC-Number: 202-705-0 INDEX-Number: 601-027-00-6	Flam. Liq. 3 Eye Dam./Irrit. 2 STOT SE 3 (irr. to respiratory syst.) Aquatic Chronic 2 Asp. Tox. 1 Skin Sens. 1B Repr. 2 (unborn child) H226, H319, H317, H304, H335, H361d, H411 Specific concentration limit: STOT SE 3, irr. to respiratory syst.: >= 25 %

3a,4,7,7a-tetrahydro-4,7-methanoindene

Content (W/W): > 0,01 % - < 0,2 %	Asp. Tox. 1
CAS Number: 77-73-6	Flam. Liq. 2
EC-Number: 201-052-9	Acute Tox. 2 (Inhalation - vapour)
INDEX-Number: 601-044-00-9	Acute Tox. 4 (oral)
	Skin Corr./Irrit. 2
	Eye Dam./Irrit. 2
	Repr. 2 (unborn child)
	STOT SE 3 (irr. to respiratory syst.)
	STOT RE (Central nervous system) 2
	Aquatic Acute 1
	Aquatic Chronic 2
	M-factor acute: 1
	H225, H319, H315, H330, H302, H304, H335, H361d, H373, H411, H400

For the classifications not written out in full in this section, including the hazard classes and the hazard statements, the full text is listed in section 16.

3.2. Mixtures

Not applicable

SECTION 4: First-Aid Measures

4.1. Description of first aid measures

First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.

If inhaled:
Keep patient calm, remove to fresh air, seek medical attention.

On skin contact:
Immediately wash thoroughly with soap and water, seek medical attention.

On contact with eyes:
Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

On ingestion:
Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11.

Hazards: When inhaled (e.g. during vomiting) risk of pulmonary oedema and/or pneumonia.

4.3. Indication of any immediate medical attention and special treatment needed

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote. The presence of benzene in the body can be detected by determining the amount of this substance in the blood and/or urine.

SECTION 5: Fire-Fighting Measures

5.1. Extinguishing media

Suitable extinguishing media:
dry powder, water spray, carbon dioxide, foam

Unsuitable extinguishing media for safety reasons:
water jet

Additional information:
Use extinguishing measures to suit surroundings.

5.2. Special hazards arising from the substance or mixture

Advice: Flammable liquid Cool endangered containers with water-spray. See SDS section 7 - Handling and storage.

5.3. Advice for fire-fighters

Special protective equipment:
Wear a self-contained breathing apparatus. Special protective equipment for firefighters

Further information:
Evacuate area of all unnecessary personnel. Fight fire from maximum distance.

Extend fire extinguishing measures to the surroundings. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

SECTION 6: Accidental Release Measures

High risk of slipping due to leakage/spillage of product.

Release of substance/product can cause fire or explosion. Shut off or stop source of leak. Shut off or stop released substance/product under safe conditions.

Pack in tightly closed containers for disposal.

6.1. Personal precautions, protective equipment and emergency procedures

Handle in accordance with good industrial hygiene and safety practice.

Avoid all sources of ignition: heat, sparks, open flame. Use antistatic tools. Avoid contact with the skin, eyes and clothing.

Take off immediately all contaminated clothing.

6.2. Environmental precautions

Due to the pH-value of the product, neutralization is generally required before discharging sewage into treatment plants.

Discharge into the environment must be avoided.

6.3. Methods and material for containment and cleaning up

Pick up with suitable appliance and dispose of. Spills should be contained, solidified, and placed in suitable containers for disposal. Dispose of absorbed material in accordance with regulations.

6.4. Reference to other sections

Information regarding exposure controls/personal protection and disposal considerations can be found in section 8 and 13.

SECTION 7: Handling and Storage

7.1. Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice. Avoid all direct contact with the substance/product. Ensure thorough ventilation of stores and work areas. Change clothes immediately after contamination. Refill and handle product only in closed system.

Protection against fire and explosion:
Avoid all sources of ignition: heat, sparks, open flame. Ground all transfer equipment properly to prevent electrostatic discharge.

Electrical devices must meet the specified temperature class.

Temperature class: T2 (Autoignition temperature >300 °C).

7.2. Conditions for safe storage, including any incompatibilities

No applicable information available.
Further information on storage conditions: Keep container tightly closed in a cool, well-ventilated place.

Storage class according to TRGS 510 (originally VCI, Germany): (3) Flammable liquids

7.3. Specific end use(s)

See exposure scenario(s) in the attachment to this safety data sheet.

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

Components with occupational exposure limits

The surveillance of the workplace by exposure measurements may be necessary, in order to prove the efficiency of safety measures, for example ventilation or the need of respiratory protection. Since this requires a specific competency, only accredited laboratories should be contracted. Regarding suitable methods to assess inhalation exposure, the European Standards EN 482, 689 and 14042 are to be considered. In addition, the TRGS 402 has to be observed in Germany.

71-43-2: benzene
Skin Designation (Directive 2004/37/EC)
The substance can be absorbed through the skin.
Skin Designation (TRGS 910)
The substance can be absorbed through the skin.
Excursion factor (TRGS 910)
Ceiling limit value/factor: 8
Factor by which the average shift value (SMW) can be exceeded four times per shift during a maximum. period of 15 minutes each.
Tolerance Concentration (risk 4:1000): 1,9 mg/m3 ; 0,6 ppm (TRGS 910)
Acceptance concentration (risk 4:10000): 0,2 mg/m3 ; 0,06 ppm (TRGS 910)
TWA value 3,25 mg/m3 ; 1 ppm (Directive 2004/37/EC)
TWA value 0,66 mg/m3 ; 0,2 ppm (Directive 2004/37/EC)
The expiration date of this limit: 05 April 2026
TWA value 1,65 mg/m3 ; 0,5 ppm (Directive 2004/37/EC)
The expiration date of this limit: 05 April 2024

77-73-6: 3a,4,7,7a-tetrahydro-4,7-methanoindene
Short Term Exposure Classification: (TRGS 900 (DE))
Category I: Substances for which the localized effect has an assigned exposure limit or for substances with a sensitizing effect in respiratory passages
OEL 2,7 mg/m3 ; 0,5 ppm (TRGS 900 (DE))
Ceiling limit value/factor: 1

91-20-3: naphthalene
Skin Designation (Directive 2004/37/EC)
The substance can be absorbed through the skin.
TWA value 50 mg/m3 ; 10 ppm (OEL (EU))
indicative
OEL 2 mg/m3 ; 0,4 ppm (TRGS 900 (DE)), Vapor and aerosol
Ceiling limit value/factor: 4
If the occupational exposure limit value (AGW) and the biological limit value (BGW) are complied with, there should be no risk of damage for the unborn child (see TRGS 900, Number 2.7)
Skin Designation (TRGS 900 (DE)), Vapor and aerosol
The substance can be absorbed through the skin.

Short Term Exposure Classification: (TRGS 900 (DE)), Vapor and aerosol
Category I: Substances for which the localized effect has an assigned exposure limit or for substances with a sensitizing effect in respiratory passages

98-83-9: 2-phenylpropene
STEL value 492 mg/m3 ; 100 ppm (OEL (EU))
indicative
TWA value 246 mg/m3 ; 50 ppm (OEL (EU))
indicative
Short Term Exposure Classification: (TRGS 900 (DE))
Category I: Substances for which the localized effect has an assigned exposure limit or for substances with a sensitizing effect in respiratory passages
OEL 250 mg/m3 ; 50 ppm (TRGS 900 (DE))
Ceiling limit value/factor: 2

100-41-4: ethylbenzene
Skin Designation (OEL (EU))
The substance can be absorbed through the skin.
STEL value 884 mg/m3 ; 200 ppm (OEL (EU))
indicative
TWA value 442 mg/m3 ; 100 ppm (OEL (EU))
indicative
Short Term Exposure Classification: (TRGS 900 (DE))
Category II: Substances with a resorptive effect
Skin Designation (TRGS 900 (DE))
The substance can be absorbed through the skin.
OEL 88 mg/m3 ; 20 ppm (TRGS 900 (DE))
Ceiling limit value/factor: 2
If the occupational exposure limit value (AGW) and the biological limit value (BGW) are complied with, there should be no risk of damage for the unborn child (see TRGS 900, Number 2.7)

100-42-5: styrene
OEL 86 mg/m3 ; 20 ppm (TRGS 900 (DE))
Ceiling limit value/factor: 2
If the occupational exposure limit value (AGW) and the biological limit value (BGW) are complied with, there should be no risk of damage for the unborn child (see TRGS 900, Number 2.7)
Short Term Exposure Classification: (TRGS 900 (DE))
Category II: Substances with a resorptive effect

103-65-1: propylbenzene
OEL 100 mg/m3 (TRGS 900 (DE))
Ceiling limit value/factor: 2
Short Term Exposure Classification: (TRGS 900 (DE))
Category II: Substances with a resorptive effect

108-88-3: toluene
Skin Designation (OEL (EU))
The substance can be absorbed through the skin.
STEL value 384 mg/m3 ; 100 ppm (OEL (EU))
indicative
TWA value 192 mg/m3 ; 50 ppm (OEL (EU))
indicative

Short Term Exposure Classification: (TRGS 900 (DE))
Category II: Substances with a resorptive effect
Skin Designation (TRGS 900 (DE))
The substance can be absorbed through the skin.
OEL 190 mg/m3 ; 50 ppm (TRGS 900 (DE))
Ceiling limit value/factor: 2
If the occupational exposure limit value (AGW) and the biological limit value (BGW) are complied with, there should be no risk of damage for the unborn child (see TRGS 900, Number 2.7)

1330-20-7: xylene

STEL value 442 mg/m3 ; 100 ppm (OEL (EU))
indicative
Skin Designation (OEL (EU))
The substance can be absorbed through the skin.
TWA value 221 mg/m3 ; 50 ppm (OEL (EU))
indicative
Skin Designation (TRGS 900 (DE))
The substance can be absorbed through the skin.
Short Term Exposure Classification: (TRGS 900 (DE))
Category II: Substances with a resorptive effect
OEL 220 mg/m3 ; 50 ppm (TRGS 900 (DE))
Ceiling limit value/factor: 2

25013-15-4: Vinyltoluene

Short Term Exposure Classification: (TRGS 900 (DE))
Category I: Substances for which the localized effect has an assigned exposure limit or for substances with a sensitizing effect in respiratory passages
OEL 98 mg/m3 ; 20 ppm (TRGS 900 (DE))
Ceiling limit value/factor: 2

25340-17-4: Diethylbenzene

Skin Designation (TRGS 900 (DE))
The substance can be absorbed through the skin.
OEL 11 mg/m3 ; 2 ppm (TRGS 900 (DE))
Ceiling limit value/factor: 2
If the occupational exposure limit value (AGW) and the biological limit value (BGW) are complied with, there should be no risk of damage for the unborn child (see TRGS 900, Number 2.7)
Short Term Exposure Classification: (TRGS 900 (DE))
Category II: Substances with a resorptive effect

25550-14-5: Ethyltoluene

Short Term Exposure Classification: (TRGS 900 (DE))
Category II: Substances with a resorptive effect
OEL 100 mg/m3 (TRGS 900 (DE))
Ceiling limit value/factor: 2

25551-13-7: Trimethylbenzene

Short Term Exposure Classification: (TRGS 900 (DE))
Category II: Substances with a resorptive effect
OEL 100 mg/m3 (TRGS 900 (DE))
Ceiling limit value/factor: 2

Components with biological limit values

100-41-4: ethylbenzene
TRGS 903 (DE)
Determinant: mandelic acid and phenyl glyoxylic acid
Biological Specimen: Creatinine in urine
Sampling time: End of shift
Concentration: 250 mg/g Creatinine

100-42-5: styrene
TRGS 903 (DE)
Determinant: mandelic acid and phenyl glyoxylic acid
Biological Specimen: Creatinine in urine
Sampling time period is for long-term exposures, at the end of the shift after several preceding ones./ Sampling time period is at end of exposure or at end of shift.
Concentration: 600 mg/g Creatinine

108-88-3: toluene
TRGS 903 (DE)
Determinant: aromatic hydrocarbons
Biological Specimen: Blood
Sampling time: End of shift
Concentration: 600 µg/l
TRGS 903 (DE)
Determinant: aromatic hydrocarbons
Biological Specimen: Blood
Sampling time period is immediately after exposure.
Concentration: 600 µg/l
TRGS 903 (DE)
Determinant: aromatic hydrocarbons
Biological Specimen: Urine
Sampling time: End of shift
Concentration: 75 µg/l
TRGS 903 (DE)
Determinant: o-Cresol, with hydrolysis
Biological Specimen: Urine
Sampling time period is for long-term exposures, at the end of the shift after several preceding ones./ Sampling time period is at end of exposure or at end of shift.
Concentration: 1,5 mg/l

1330-20-7: xylene
TRGS 903 (DE)
Determinant: aromatic hydrocarbons
Biological Specimen: Blood
Sampling time: End of shift
Concentration: 1,5 mg/l
TRGS 903 (DE)

Determinant: methylhippuric (toluric) acid
Biological Specimen: Urine
Sampling time: End of shift
Concentration: 2.000 mg/l

25551-13-7: Trimethylbenzene

TRGS 903 (DE)

Determinant: Dimethylbenzoic acids (sum of isomers with hydrolysis)
Biological Specimen: Creatinine in urine
Sampling time period is for long-term exposures, at the end of the shift after several preceding ones./ Sampling time period is at end of exposure or at end of shift.
Concentration: 400 mg/g Creatinine

PNEC

Hazard assessment based on constituents, therefore no PNEC was derived for the multicomponent substance itsself.

DNEL

worker:
Long-term exposure- systemic effects, dermal: 23,4 mg/kg
The value corresponds to a DMEL.

worker:
Long-term exposure- systemic effects, Inhalation: 3,25 mg/m3, 1 ppm
The value corresponds to a DMEL. The value corresponds to a BOELV

consumer:
Long-term exposure- systemic effects, dermal: 42,4 mg/kg

consumer:
Long-term exposure- systemic effects, Inhalation: 10,2 mg/m3

consumer:
Long-term exposure- systemic effects, oral: 2,1 mg/kg

8.2. Exposure controls

Personal protective equipment

Respiratory protection:
Wear respiratory protection if ventilation is inadequate.

Suitable respiratory protection for lower concentrations or short-term effect: Gas filter for gases/vapours of organic compounds (boiling point >65 °C, e. g. EN 14387 Type A)

Suitable respiratory protection for higher concentrations or long-term effect: Self-contained breathing apparatus.

Hand protection:
Chemical resistant protective gloves (EN ISO 374-1)
Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN ISO 374-1):
fluoroelastomer (FKM) - 0.7 mm coating thickness
Manufacturer's directions for use should be observed because of great diversity of types.
Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.

Eye protection:
Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures

Ensure adequate ventilation. Avoid contact with the skin, eyes and clothing. Avoid inhalation of vapour. Wearing of closed work clothing is required additionally to the stated personal protection equipment.

Environmental exposure controls

All appropriate measures must be taken to prevent the release of this product to the environment and to limit the dispersion of any release when it occurs. Suitable risk management measures should be in place.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

State of matter:	liquid	
Form:	liquid	
Colour:	colourless	
Odour:	benzene-like	
Odour threshold:	not determined	
Melting point:	4 °C	(OECD Guideline 102)

Boiling point:	170 °C (1.013,25 hPa)	(OECD Guideline 103)
Flammability:	Flammable.	(derived from flash - and boiling point)
Lower explosion limit:	0,4 %(V) (33 °C)	(air)
Upper explosion limit:	For liquids not relevant for classification and labelling.	
Flash point:	44,5 °C	(ISO 13736, closed cup)
Auto-ignition temperature:	409 °C	(DIN EN 14522)
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.	
pH value:	The substance does not dissociate.	
Viscosity, kinematic:	1,81 mm2/s (20 °C)	(OECD 114)
	1,33 mm2/s (40 °C)	(OECD 114)
Viscosity, dynamic:	1,71 mPa.s (20 °C) The value was determined by calculation from the detected kinematic viscosity.	(OECD 114)
	1,23 mPa.s (40 °C) The value was determined by calculation from the detected kinematic viscosity.	(OECD 114)
Thixotropy:	not thixotropic	
Solubility in water:	5 - 24 mg/l (20 °C)	(OECD Guideline 105)
Partitioning coefficient n-octanol/water (log Kow):	2,8 - 6,5 (23 °C)	(OECD Guideline 117)
Vapour pressure:	9,1 hPa (20 °C)	(OECD Guideline 104)
	11,19 hPa (25 °C)	(OECD Guideline 104)
	29,48 hPa (50 °C)	(OECD Guideline 104)
Relative density:	0,94 (20 °C)	(OECD Guideline 109)
Density:	0,94 g/cm3 (20 °C)	(OECD Guideline 109)
Relative vapour density (air):	> 1 (20 °C) Heavier than air.	(estimated)

9.2. Other information

Information with regard to physical hazard classes

Explosives

Explosion hazard: Based on the chemical structure there is no indication of explosive properties.

Impact sensitivity:

Based on the chemical structure there is no shock-sensitivity.

Oxidizing properties

Fire promoting properties: Based on its structural properties the product is not classified as oxidizing.

Flammable liquids

Sustained combustibility:

not determined

Pyrophoric properties

Self-ignition temperature: Test type: Spontaneous self-ignition at room-temperature.

Based on its structural properties the product is not classified as self-igniting.

Self-heating substances and mixtures

Self heating ability: It is not a substance capable of spontaneous heating.

Substances and mixtures, which emit flammable gases in contact with water

Formation of flammable gases:

Forms no flammable gases in the presence of water.

Corrosion to metals

No corrosive effect on metal.

Other safety characteristics

Radioactivity:

not radioactive for transport purposes

pKA:

The substance does not dissociate.

:

No data available.

Surface tension:

Based on chemical structure, surface activity is not to be expected.

Evaporation rate:

Value can be approximated from Henry's Law Constant or vapor pressure.

SECTION 10: Stability and Reactivity

10.1. Reactivity

No hazardous reactions if stored and handled as prescribed/indicated., When heated can give off ignitable vapours., Vapours may form explosive mixture with air.

Corrosion to metals:	No corrosive effect on metal.	
Formation of flammable gases:	Remarks:	Forms no flammable gases in the presence of water.

10.2. Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Peroxides:	The product does not contain peroxides.

10.3. Possibility of hazardous reactions

No hazardous reactions if stored and handled as prescribed/indicated.

10.4. Conditions to avoid

No special precautions other than good housekeeping of chemicals.

10.5. Incompatible materials

Substances to avoid:
strong oxidizing agents

10.6. Hazardous decomposition products

No hazardous decomposition products if stored and handled as prescribed/indicated.

SECTION 11: Toxicological Information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Assessment of acute toxicity:

Virtually nontoxic after a single ingestion. Virtually nontoxic by inhalation. Virtually nontoxic after a single skin contact. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Experimental/calculated data:

LD50 rat (oral): > 2.000 mg/kg (BASF-Test)
LC50 rat (by inhalation): > 4,74 mg/l 4 h (OECD Guideline 403)
Highest concentration capable of testing. The vapour was tested.
LD50 rat (dermal): > 2.000 mg/kg (other)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. Analogous: Assessment derived from products with similar chemical character.

Irritation

Assessment of irritating effects:

May cause slight irritation to the eyes. The statements are based on the properties of the individual components. Skin contact causes irritation.

Experimental/calculated data:

Skin corrosion/irritation

rabbit: Irritant. (OECD Guideline 404)

Serious eye damage/irritation

rabbit: non-irritant (OECD Guideline 405)

Respiratory/Skin sensitization

Assessment of sensitization:

The chemical structure does not suggest a sensitizing effect. The product has not been tested. The statement has been derived from the properties of the individual components.

Germ cell mutagenicity

Assessment of mutagenicity:

Capable of causing genetic defects. The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: benzene
Assessment of mutagenicity:
Capable of causing genetic defects.

Carcinogenicity

Assessment of carcinogenicity:

The substance caused cancer in animal studies. The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: benzene
Assessment of carcinogenicity:
The substance caused cancer in animal studies.

Reproductive toxicity

Assessment of reproduction toxicity:
The chemical structure does not suggest a specific alert for such an effect. The product has not been tested. The statement has been derived from the properties of the individual components.

Developmental toxicity

Assessment of teratogenicity:

Indications of possible developmental toxicity/teratogenicity were seen in animal studies. The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: toluene
Assessment of teratogenicity:
Indications of possible developmental toxicity/teratogenicity were seen in animal studies.

Specific target organ toxicity (single exposure)

Assessment of STOT single:
Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated dose toxicity:

Repeated exposure may affect certain organs. The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: benzene
Assessment of repeated dose toxicity:
Repeated exposure to small quantities may affect certain organs. Damages blood cells.

Aspiration hazard

Aspiration hazard

Interactive effects

No data available.

11.2. Information on other hazards

Endocrine disrupting properties

The substance is not identified to have endocrine disrupting properties according to Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 nor is included in the Candidate List of substances of very high concern according to EU REACh Article 59 for having endocrine disrupting properties.

SECTION 12: Ecological Information

12.1. Toxicity

Assessment of aquatic toxicity:
Acutely toxic for aquatic organisms. Depending on local conditions and existing concentrations, disturbances in the biodegradation process of activated sludge are possible.

Toxicity to fish:
LC50 (96 h) 6,1 mg/l, Oncorhynchus mykiss (OECD Guideline 203, static)
The statement of the toxic effect relates to the analytically determined concentration. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Aquatic invertebrates:
EC50 (48 h) 2,9 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)
The statement of the toxic effect relates to the analytically determined concentration. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Aquatic plants:
EC50 (72 h) 1,4 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201, static)
The statement of the toxic effect relates to the analytically determined concentration. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Microorganisms/Effect on activated sludge:
(72 h) 17,25 mg/l, Tetrahymena pyriformis (other)
The product has not been tested. The statement has been derived from the structure of the product.

Chronic toxicity to fish:
No data available.

Chronic toxicity to aquatic invertebrates:
No data available.

Assessment of terrestrial toxicity:
No data available.

12.2. Persistence and degradability

Assessment biodegradation and elimination (H2O):
Not readily biodegradable (by OECD criteria).

Elimination information:
6,48 % BOD of the ThOD (41 d) (OECD 301F; ISO 9408; 92/69/EEC, C.4-D) (aerobic, activated sludge, domestic, adapted)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Assessment of stability in water:
According to structural properties, hydrolysis is not expected/probable.

Information on Stability in Water (Hydrolysis):
No data available.

12.3. Bioaccumulative potential

Assessment bioaccumulation potential:
The product contains components with potential for bioaccumulation

Bioaccumulation potential:

Bioconcentration factor(BCF): 26 - 18.000, Fish (calculated)

12.4. Mobility in soil

Assessment transport between environmental compartments:
Volatility: No data available.
Adsorption in soil: No data available.

12.5. Results of PBT and vPvB assessment

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): The product does not fulfill the criteria for PBT (Persistent/bioaccumulative/toxic) and vPvB (very persistent/very bioaccumulative).

12.6. Endocrine disrupting properties

The substance is not identified to have endocrine disrupting properties according to Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 nor is included in the Candidate List of substances of very high concern according to EU REACh Article 59 for having endocrine disrupting properties.

12.7. Other adverse effects

The substance is not listed in Regulation (EC) 1005/2009 on substances that deplete the ozone layer.

12.8. Additional information

Other ecotoxicological advice:
Do not allow to enter soil, waterways or waste water channels. The product should not be allowed to reach either ground or open waters.

SECTION 13: Disposal Considerations

13.1. Waste treatment methods

Dispose of in accordance with national, state and local regulations.

Contaminated packaging:
Disposal must be made according to official regulations.

SECTION 14: Transport Information

Land transport

ADR

UN number or ID number:	UN3295
UN proper shipping name:	HYDROCARBONS, LIQUID, N.O.S. (SOLVENT NAPHTHA, BENZENE, NAPHTHALENE)
Transport hazard class(es):	3, EHSM
Packing group:	III
Environmental hazards:	yes
Special precautions for user:	Tunnel code: D/E

RID

UN number or ID number:	UN3295
UN proper shipping name:	HYDROCARBONS, LIQUID, N.O.S. (SOLVENT NAPHTHA, BENZENE, NAPHTHALENE)
Transport hazard class(es):	3, EHSM

Packing group:	III
Environmental hazards:	yes
Special precautions for user:	None known

Inland waterway transport

ADN

UN number or ID number:	UN3295
UN proper shipping name:	HYDROCARBONS, LIQUID, N.O.S. (SOLVENT NAPHTHA, BENZENE, NAPHTHALENE)
Transport hazard class(es):	3, EHSM
Packing group:	III
Environmental hazards:	yes
Special precautions for user:	None known

Transport in inland waterway vessel

UN number or ID number:	UN3295
UN proper shipping name:	HYDROCARBONS, LIQUID, N.O.S. (SOLVENT NAPHTHA, BENZENE, NAPHTHALENE)
Transport hazard class(es):	3, N2, CMR
Packing group:	III
Environmental hazards:	yes
Type of inland waterway vessel:	N
Cargo tank design:	2
Cargo tank type:	3

Sea transport

IMDG

UN number or ID number:	UN 3295
UN proper shipping name:	HYDROCARBONS, LIQUID, N.O.S. (SOLVENT NAPHTHA, BENZENE, NAPHTHALENE)
Transport hazard class(es):	3, EHSM
Packing group:	III
Environmental hazards:	yes Marine pollutant: YES
Special precautions for user:	EmS: F - E; S - D

Air transport

IATA/ICAO

UN number or ID number:	UN 3295
UN proper shipping name:	HYDROCARBONS, LIQUID, N.O.S.
Transport hazard class(es):	3
Packing group:	III
Environmental hazards:	No Mark as dangerous for the environment is needed
Special precautions for user:	None known

14.1. UN number or ID number
See corresponding entries for “UN number or ID number” for the respective regulations in the tables above.

14.2. UN proper shipping name
See corresponding entries for “UN proper shipping name” for the respective regulations in the tables above.

14.3. Transport hazard class(es)
See corresponding entries for “Transport hazard class(es)” for the respective regulations in the tables above.

14.4. Packing group
See corresponding entries for “Packing group” for the respective regulations in the tables above.

14.5. Environmental hazards
See corresponding entries for “Environmental hazards” for the respective regulations in the tables above.

14.6. Special precautions for user
See corresponding entries for “Special precautions for user” for the respective regulations in the tables above.

14.7. Maritime transport in bulk according to IMO instruments

Maritime transport in bulk is not intended.

SECTION 15: Regulatory Information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Prohibitions, Restrictions and Authorizations

Chemical Prohibition Ordinance (DE): Annex 2
Restriction Type: Restricted substance

Annex XVII of Regulation (EC) No 1907/2006: Number on List: 28, 48, 5, 75, 3, 40

Hazardous Incident Ordinance (Germany):
List entry in regulation: 1.2.5.3
List entry in regulation: 1.3.2

Directive 2012/18/EU - Control of Major Accident Hazards involving dangerous substances (EU):
List entry in regulation: E2
List entry in regulation: P5c

Water hazard class (§6 AwSV para.4 (Legal binding announcement of the substance in the Federal Gazette)): (3) Strongly water polluting. ID-No.: 8473

Regulation on prohibitions and restrictions on the marketing of dangerous substances, preparations and goods in accordance with the chemical law (Germany)
Observe TRGS 910 on cmr substances (German Technical Rule for Hazardous Substances)
The specifications of the Technical Rule for Hazardous Substances (TRGS) 401 must be observed (TRGS 401: Risks resulting from skin contact - identification, assessment, measures).
List of carcinogenic, mutagenic or reprotoxic substances (TRGS 905)
German Regulation TA Luft (Technical Instruction on Air Quality Control, i.e. first Directive to the Federal Immission Control Ordinance)
Law on the Protection of Working Youth
The Maternity Protection Act needs to be considered.

15.2. Chemical Safety Assessment

Assessment of safe use has been performed for the mixture and the result is attached as an annex to the SDS

SECTION 16: Other Information

Assessment of the hazard classes according to UN GHS criteria (most recent version)

Aquatic Acute 2
Aquatic Chronic 2
STOT RE 2

Carc. 1A
Muta. 1B
Skin Corr./Irrit. 2
Flam. Liq. 3
Repr. 2 (unborn child)
Asp. Tox. 1
Eye Dam./Irrit. 2B

Full text of the classifications, including the hazard classes and the hazard statements, if mentioned in section 2 or 3:

Asp. Tox.	Aspiration hazard
Flam. Liq.	Flammable liquids
Skin Corr./Irrit.	Skin corrosion/irritation
Eye Dam./Irrit.	Serious eye damage/eye irritation
Muta.	Germ cell mutagenicity
Carc.	Carcinogenicity
Repr.	Reproductive toxicity
STOT RE	Specific target organ toxicity — repeated exposure
Aquatic Chronic	Hazardous to the aquatic environment - chronic
Flam. Sol.	Flammable solids
Acute Tox.	Acute toxicity
Aquatic Acute	Hazardous to the aquatic environment - acute
STOT SE	Specific target organ toxicity — single exposure
Skin Sens.	Skin sensitization
H226	Flammable liquid and vapour.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H304	May be fatal if swallowed and enters airways.
H373	May cause damage to organs through prolonged or repeated exposure.
H350	May cause cancer.
H340	May cause genetic defects.
H361d	Suspected of damaging the unborn child.
H411	Toxic to aquatic life with long lasting effects.
H228	Flammable solid.
H302	Harmful if swallowed.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H225	Highly flammable liquid and vapour.
H332	Harmful if inhaled.
H373	May cause damage to organs (Auditory organ) through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.
H312	Harmful in contact with skin.
H335	May cause respiratory irritation.
H361f	Suspected of damaging fertility.
H372	Causes damage to organs (Auditory organ) through prolonged or repeated exposure.
H336	May cause drowsiness or dizziness.

H317	May cause an allergic skin reaction.
H330	Fatal if inhaled.

Abbreviations
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road. ADN = The European Agreement concerning the International Carriage of Dangerous Goods by Inland waterways. ATE = Acute Toxicity Estimates. CAO = Cargo Aircraft Only. CAS = Chemical Abstract Service. CLP = Classification, Labelling and Packaging of substances and mixtures. DIN = German national organization for standardization. DNEL = Derived No Effect Level. EC50 = Effective concentration median for 50% of the population. EC = European Community. EN = European Standards. IARC = International Agency for Research on Cancer. IATA = International Air Transport Association. IBC-Code = Intermediate Bulk Container code. IMDG = International Maritime Dangerous Goods Code. ISO = International Organization for Standardization. STEL = Short-Term Exposure Limit. LC50 = Lethal concentration median for 50% of the population. LD50 = Lethal dose median for 50% of the population. TLV = Threshold Limit Value. MARPOL = The International Convention for the Prevention of Pollution from Ships. NEN = Dutch Norm. NOEC = No Observed Effect Concentration. OEL = Occupational Exposure Limit. OECD = Organization for Economic Cooperation and Development. PBT = Persistent, Bioaccumulative and Toxic. PNEC = Predicted No Effect Level. PPM = Parts per million. RID = The European Agreement concerning the International Carriage of Dangerous Goods by Rail. TWA = Time Weight Average. UN-number = UN number at transport. vPvB = very Persistent and very Bioaccumulative.

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. This safety data sheet is neither a Certificate of Analysis (CoA) nor technical data sheet and shall not be mistaken for a specification agreement. Identified uses in this safety data sheet do neither represent an agreement on the corresponding contractual quality of the substance/mixture nor a contractually designated use. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

Annex: Exposure Scenarios

Index
1. General measures applicable to all activities
2. Manufacture of substance
IS; SU8, SU9; ERC1, ERC4; PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15

3. Use as an intermediate
IS; SU8, SU9; ERC6a; PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15

4. Distribution of substance
IS; SU8, SU9; ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7; PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15

5. Formulation & (re)packing of substances and mixtures
IS; SU10; ERC2; PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15

6. Use in Coatings, Industrial applications
IS; ERC4; PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15

7. Use as a Fuel, Industrial applications
IS; SU10; ERC7; PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC16

8. Use as a Fuel, Professional applications
PW; ERC9a, ERC9b; PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC16

9. Use as a Fuel, (consumer use)
C; ERC9a, ERC9b; PC13

10. Rubber production and processing, Industrial applications
IS; SU10; ERC1, ERC4, ERC6d; PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC14, PROC15

11. Polymer production, Industrial applications
IS; SU10; ERC6a, ERC6c; PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC14

12. Polymer processing, Industrial applications
IS; SU10; ERC6d; PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC13, PROC14

****

1. Short title of exposure scenario
General measures applicable to all activities

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	All relevant process categories Use domain: industrial and professional
Risk Management Measures	
Engineering controls have to be used to reduce exposures.	
Drain down and flush system prior to equipment break-in or maintenance.	
Restrict access to authorised persons. Provide specific employee training to prevent/minimize exposures. Clean up contamination as soon as they occur.	
Disposal - This material and its container must be disposed of in a safe manner.	
Use suitable chemically resistant gloves. Wear suitable coveralls to prevent exposure to the skin.	
Protective measures have to be applied in case of potential exposure only.	
Ensure good work practices are implemented. Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Consider the need for risk based health surveillance.	

****

2. Short title of exposure scenario

Manufacture of substance
IS; SU8, SU9; ERC1, ERC4; PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ESVOC SpERC 1.1.v1: ESVOC SpERC 1.1.v1
Operational conditions	
Daily amount per site	2.000.000 kg

Minimum emission days per year Continuous	300
Emission factor air	0,005 %
Emission factor water	0,001 %
Emission factor soil	0,01 %
	According to EU directive 2000/69/EC Local air concentration for benzene must not exceed 5 ug/m3, 16 Nov 2000, release fraction to air adjusted accordingly
Dilution factor river	40
Dilution factor coast	100

Risk Management Measures	
Treat air emissions to provide a typical removal efficiency of (%)	90 %
Soil treatment measures considered suitable are, e.g.	No application of sludge to soil
Prevent discharge of undissolved substance to or recover from wastewater	
Type of STP	Municipal STP
Estimated subst. removal from wastewater via sewage treatm. (%)	94,9 %
Total effic. of removal from wastewater after RMMs and STP(%)	94,9 %
Assumed sewage treatment plant flow (m3/d)	10.000 m3/d
Sludge Treatment	sludge should be incinerated, contained or reclaimed

Waste-Related Measures	
	No waste from process
Exposure estimate and reference to its source	
Risk Characterization Ratio (RCR)	0,41
	Risk from environmental exposure is driven by humans via indirect exposure (primarily inhalation).

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. General exposures (closed systems) Bulk transfer Bulk weighing Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year

	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,01 ppm
Risk Characterization Ratio (RCR)	0,01
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,34 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Additional good practice advice	
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,60 ppm
Risk Characterization Ratio (RCR)	0,6
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	

For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Storage Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Store substance within a closed system.	
Provide extract ventilation to material transfer points and other openings.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,42 ppm
Risk Characterization Ratio (RCR)	0,42
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Additional good practice advice	
Avoid dip sampling. Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario

Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,35 ppm
Risk Characterization Ratio (RCR)	0,35
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,03 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %

Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,84 ppm
Risk Characterization Ratio (RCR)	0,84
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Equipment maintenance Cleaning Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Both hands (960 cm²)
Risk Management Measures	
Provide extract ventilation to points	Effectiveness: 90 %

where emissions occur (LEV).	
Wear a half face respirator conforming to EN140 Type A filter or better.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Drain down and flush system prior to equipment break-in or maintenance.	
Retain drain downs in sealed storage pending disposal or for subsequent recycle.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,35 ppm
Risk Characterization Ratio (RCR)	0,35
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Additional good practice advice	
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Process sampling Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %

Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Sample via a closed loop or other system to avoid exposure.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,7 ppm
Risk Characterization Ratio (RCR)	0,7
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Bulk transfer (open systems) With potential for aerosol generation Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 97 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	

Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,63 ppm
Risk Characterization Ratio (RCR)	0,63
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Bulk transfer (closed systems) Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 97 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,90 ppm
Risk Characterization Ratio (RCR)	0,90
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Additional good practice advice	
Clear transfer lines prior to de-coupling Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC15: Use a laboratory reagent. Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Handle in a fume cupboard or under extract ventilation	Effectiveness: 90 %
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,3 ppm
Risk Characterization Ratio (RCR)	0,3
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,03 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

****

3. Short title of exposure scenario

Use as an intermediate
IS; SU8, SU9; ERC6a; PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ESVOC SpERC 6.1a.v1: ESVOC SpERC 6.1a.v1
Operational conditions	
Daily amount per site	50.000 kg

Minimum emission days per year Continuous	300
Emission factor air	0,050 %
Emission factor water	0,010 %
Emission factor soil	0,10 %
	According to EU directive 2000/69/EC Local air concentration for benzene must not exceed 5 ug/m3, 16 Nov 2000, release fraction to air adjusted accordingly
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Treat air emissions to provide a typical removal efficiency of (%)	80 %
Soil treatment measures considered suitable are, e.g.	No application of sludge to soil
	Prevent discharge of undissolved substance to or recover from wastewater
Type of STP	Municipal STP
Estimated subst. removal from wastewater via sewage treatm. (%)	94,9 %
Total effic. of removal from wastewater after RMMs and STP(%)	94,9 %
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Sludge Treatment	sludge should be incinerated, contained or reclaimed
Waste-Related Measures	
Waste treatment	This substance is consumed during use and no waste of the substance is generated.
Exposure estimate and reference to its source	
Risk Characterization Ratio (RCR)	0,51
	Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion).

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. General exposures (closed systems) Bulk transfer Bulk weighing Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %

Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,01 ppm
Risk Characterization Ratio (RCR)	0,01
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,34 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Additional good practice advice	
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,60 ppm
Risk Characterization Ratio (RCR)	0,6
Assessment method	ESIG GES tool, Worker

	Worker - dermal, long-term - systemic
Exposure estimate	0,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Storage Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Store substance within a closed system.	
Provide extract ventilation to material transfer points and other openings.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,42 ppm
Risk Characterization Ratio (RCR)	0,42
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Additional good practice advice	
Avoid dip sampling. Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	
Guidance to Downstream Users	

For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,35 ppm
Risk Characterization Ratio (RCR)	0,35
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,03 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises Use domain: industrial

Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,84 ppm
Risk Characterization Ratio (RCR)	0,84
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Equipment maintenance Cleaning Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient

	temperature.
Exposed skin area	Both hands (960 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Wear a half face respirator conforming to EN140 Type A filter or better.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Drain down and flush system prior to equipment break-in or maintenance.	
Retain drain downs in sealed storage pending disposal or for subsequent recycle.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,35 ppm
Risk Characterization Ratio (RCR)	0,35
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Additional good practice advice	
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Process sampling Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.

Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Sample via a closed loop or other system to avoid exposure.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,7 ppm
Risk Characterization Ratio (RCR)	0,7
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Bulk transfer (open systems) With potential for aerosol generation Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 97 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %

In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,63 ppm
Risk Characterization Ratio (RCR)	0,63
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Bulk transfer (closed systems) Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 97 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,90 ppm
Risk Characterization Ratio (RCR)	0,90
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Additional good practice advice	
Clear transfer lines prior to de-coupling Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	

Guidance to Downstream Users
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3

Contributing exposure scenario	
Use descriptors covered	PROC15: Use a laboratory reagent. Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Handle in a fume cupboard or under extract ventilation	Effectiveness: 90 %
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,3 ppm
Risk Characterization Ratio (RCR)	0,3
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,03 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

****

4. Short title of exposure scenario

Distribution of substance
IS; SU8, SU9; ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7; PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15

Control of exposure and risk management measures

Contributing exposure scenario		
Use descriptors covered	ESVOC SpERC 1.1b.v1: ESVOC SpERC 1.1b.v1	
Operational conditions		
Daily amount per site	50.000 kg	
Minimum emission days per year Continuous	100	
Emission factor air	0,100 %	
Emission factor water	0,001 %	
Emission factor soil	0,001 %	
Receive Surf. Water (Flow Rate).	18.000 m3/d	
Dilution factor river	10	
Dilution factor coast	100	
Risk Management Measures		
Treat air emissions to provide a typical removal efficiency of (%)		90 %
Soil treatment measures considered suitable are, e.g.		No application of sludge to soil
	Prevent discharge of undissolved substance to or recover from wastewater	
Type of STP		Municipal STP
Estimated subst. removal from wastewater via sewage treatm. (%)		94,9 %
Total effic. of removal from wastewater after RMMs and STP(%)		94,9 %
Assumed sewage treatment plant flow (m3/d)		2.000 m3/d
Sludge Treatment		sludge should be incinerated, contained or reclaimed
Waste-Related Measures		
Waste treatment	This substance is consumed during use and no waste of the substance is generated.	
Exposure estimate and reference to its source		
Risk Characterization Ratio (RCR)	0,06	
	Risk from environmental exposure is driven by humans via indirect exposure (primarily inhalation).	

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. General exposures (closed systems) Bulk transfer Bulk weighing Use domain: industrial
Operational conditions	

Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,01 ppm
Risk Characterization Ratio (RCR)	0,01
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,34 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Additional good practice advice	
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken	

outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,70 ppm
Risk Characterization Ratio (RCR)	0,7
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Storage Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Store substance within a closed system.	
Transfer via enclosed lines	Effectiveness: 80 %
Ensure operation is undertaken outdoors.	Effectiveness: 30 %
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,14 ppm
Risk Characterization Ratio (RCR)	0,14
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	1,37 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,06
Additional good practice advice	
Avoid dip sampling.	

Guidance to Downstream Users
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,35 ppm
Risk Characterization Ratio (RCR)	0,35
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,03 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises Use domain: industrial

Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,84 ppm
Risk Characterization Ratio (RCR)	0,84
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Additional good practice advice	
Clear transfer lines prior to de-coupling	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Equipment maintenance Cleaning Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year

Exposed skin area	Both hands (960 cm²)
Risk Management Measures	
Drain down and flush system prior to equipment break-in or maintenance.	
Clear transfer lines prior to de-coupling	Effectiveness: 90 %
Wear a half face respirator conforming to EN140 Type A filter or better.	Effectiveness: 90 %
Retain drain downs in sealed storage pending disposal or for subsequent recycle.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,50 ppm
Risk Characterization Ratio (RCR)	0,50
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	1,37 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,06
Additional good practice advice	
Transfer via enclosed lines Apply vessel entry procedures including use of forced supplied air.	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Bulk transfer (open systems) (closed systems) Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 97 %
Ensure operation is undertaken outdoors.	Effectiveness: 30 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker

	Worker - inhalation, long-term - systemic
Exposure estimate	0,63 ppm
Risk Characterization Ratio (RCR)	0,63
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Additional good practice advice	
Clear transfer lines prior to de-coupling	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Drum and small package filling Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.	Effectiveness: 95 %
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,75 ppm
Risk Characterization Ratio (RCR)	0,75
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Additional good practice advice	

Put lids on containers immediately after use.
Guidance to Downstream Users
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3

Contributing exposure scenario	
Use descriptors covered	PROC15: Use a laboratory reagent. Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Handle in a fume cupboard or under extract ventilation	Effectiveness: 97 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,3 ppm
Risk Characterization Ratio (RCR)	0,3
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,03 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

****

5. Short title of exposure scenario

Formulation & (re)packing of substances and mixtures
IS; SU10; ERC2; PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ESVOC SpERC 2.2.v1: ESVOC SpERC 2.2.v1

Operational conditions	
Daily amount per site	100.000 kg
Minimum emission days per year Continuous	300
Emission factor air	0,010 %
Emission factor water	0,005 %
Emission factor soil	0,010 %
	According to EU directive 2000/69/EC Local air concentration for benzene must not exceed 5 ug/m3, 16 Nov 2000, release fraction to air adjusted accordingly
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100

Risk Management Measures	
Soil treatment measures considered suitable are, e.g.	No application of sludge to soil
Prevent discharge of undissolved substance to or recover from wastewater	
Type of STP	Municipal STP
Estimated subst. removal from wastewater via sewage treatm. (%)	94,9 %
Total effic. of removal from wastewater after RMMs and STP(%)	94,9 %
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Sludge Treatment	sludge should be incinerated, contained or reclaimed

Waste-Related Measures	
Prescribed disposal method	Product residual disposal complies with applicable regulations.
External Recovery of Waste	
Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Exposure estimate and reference to its source	
Risk Characterization Ratio (RCR)	0,51
	Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion).

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. General exposures (closed systems) Bulk transfer Bulk weighing Use domain: industrial

Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,01 ppm
Risk Characterization Ratio (RCR)	0,01
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,34 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Additional good practice advice	
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Provide a good standard of general	Effectiveness: 30 %

ventilation (not less than 3 - 5 air changes per hour)	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,70 ppm
Risk Characterization Ratio (RCR)	0,70
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	1,37 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,06
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Storage Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Store substance within a closed system.	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 90 %
Use suitable chemically resistant gloves.	Effectiveness: 80 %
Ensure operation is undertaken outdoors.	Effectiveness: 30 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,70 ppm
Risk Characterization Ratio (RCR)	0,7
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic

Exposure estimate	0,27 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Additional good practice advice	
Avoid dip sampling.	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,35 ppm
Risk Characterization Ratio (RCR)	0,35
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,34 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Batch processes at elevated temperatures Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	15 min < 240 days per year
	Operation is carried out at elevated temperature (> 20°C above ambient temperature).
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,70 ppm
Risk Characterization Ratio (RCR)	0,70
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,03 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001
Additional good practice advice	
Formulate in enclosed or ventilated mixing vessels	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Process sampling

	Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Sample via a closed loop or other system to avoid exposure.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,35 ppm
Risk Characterization Ratio (RCR)	0,35
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,34 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Additional good practice advice	
Avoid dip sampling.	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises With potential for aerosol generation Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity

Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,64 ppm
Risk Characterization Ratio (RCR)	0,64
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC5: Mixing or blending in batch processes With potential for aerosol generation Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air	Effectiveness: 30 %

changes per hour)	
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,7 ppm
Risk Characterization Ratio (RCR)	0,7
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,07 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,003
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Equipment maintenance Cleaning Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Both hands (960 cm²)
Risk Management Measures	
Drain down and flush system prior to equipment break-in or maintenance.	
Clear transfer lines prior to de-coupling	Effectiveness: 90 %
Wear suitable coveralls to prevent exposure to the skin.	
Retain drain downs in sealed storage pending disposal or for subsequent recycle.	
Wear a half face respirator conforming to EN140 Type A filter or better.	Effectiveness: 90 %
Use suitable chemically resistant gloves.	Effectiveness: 80 %

Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,50 ppm
Risk Characterization Ratio (RCR)	0,50
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	2,74 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,12
Additional good practice advice	
Transfer via enclosed lines Apply vessel entry procedures including use of forced supplied air.	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Transfer from/pouring from containers (manual) Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Both hands (960 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 97 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,63 ppm
Risk Characterization Ratio (RCR)	0,63
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic

Exposure estimate	0,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Bulk transfer Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 97 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,90 ppm
Risk Characterization Ratio (RCR)	0,90
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Additional good practice advice	
Clear transfer lines prior to de-coupling Return IBCs or tanks to supplier for re-use.	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Drum/Batch transfers Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction

	Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 97 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,63 ppm
Risk Characterization Ratio (RCR)	0,63
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Additional good practice advice	
Avoid spillage when withdrawing pump.	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Drum and small package filling Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.

Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.	Effectiveness: 95 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,35 ppm
Risk Characterization Ratio (RCR)	0,35
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Additional good practice advice	
Put lids on containers immediately after use.	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC14: Tabletting, compression, extrusion, pelletisation, granulation Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.	Effectiveness: 90 %

Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,70 ppm
Risk Characterization Ratio (RCR)	0,70
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,34 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC15: Use a laboratory reagent. Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Handle in a fume cupboard or under extract ventilation	Effectiveness: 97 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,3 ppm
Risk Characterization Ratio (RCR)	0,3
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,03 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-	

library/ges-library-3

****

6. Short title of exposure scenario

Use in Coatings, Industrial applications
IS; ERC4; PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15

Control of exposure and risk management measures

Contributing exposure scenario		
Use descriptors covered	ESVOC SpERC 4.3a.v1: ESVOC SpERC 4.3a.v1	
Operational conditions		
Daily amount per site	25.000 kg	
Minimum emission days per year Continuous	100	
Emission factor air	0,100 %	
Emission factor water	0,100 %	
Emission factor soil	0,000 %	
	According to EU directive 2000/69/EC Local air concentration for benzene must not exceed 5 ug/m3, 16 Nov 2000, release fraction to air adjusted accordingly	
Receive Surf. Water (Flow Rate).	18.000 m3/d	
Dilution factor river	10	
Dilution factor coast	100	
Risk Management Measures		
Treat air emissions to provide a typical removal efficiency of (%)		90 %
Treat wastewater (prior to discharge to STP) to provide the required removal efficiency of (%)		70,3 %
Soil treatment measures considered suitable are, e.g.		No application of sludge to soil
	Prevent discharge of undissolved substance to or recover from wastewater	
Type of STP		Municipal STP
Estimated subst. removal from wastewater via sewage treatm. (%)		94,9 %
Total effic. of removal from wastewater after RMMs and STP(%)		98,5 %
Assumed sewage treatment plant flow (m3/d)		2.000 m3/d
Sludge Treatment		sludge should be incinerated, contained or reclaimed

Waste-Related Measures	
Prescribed disposal method	Product residual disposal complies with applicable regulations.
External Recovery of Waste	
Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Exposure estimate and reference to its source	
Risk Characterization Ratio (RCR)	0,84
	Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion).

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. General exposures (closed systems) Bulk transfer Bulk weighing Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,01 ppm
Risk Characterization Ratio (RCR)	0,01
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,34 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Additional good practice advice	
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Storage

	Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Store substance within a closed system.	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,70 ppm
Risk Characterization Ratio (RCR)	0,7
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	1,37 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,06
Additional good practice advice	
Avoid dip sampling.	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction

	Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,70 ppm
Risk Characterization Ratio (RCR)	0,7
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Film formation - force drying, stoving or UV/EB radiation curing. Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Operation is carried out at ambient or elevated temperatures
Exposed skin area	Palm of both hands (480 cm²)

Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,70 ppm
Risk Characterization Ratio (RCR)	0,7
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker

	Worker - inhalation, long-term - systemic
Exposure estimate	0,75 ppm
Risk Characterization Ratio (RCR)	0,75
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,03 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises Film formation - air drying Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Wear a half face respirator conforming to EN140 Type A filter or better.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,08 ppm
Risk Characterization Ratio (RCR)	0,08
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Additional good practice advice	

Avoid manual contact with wet work pieces
Guidance to Downstream Users
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3

Contributing exposure scenario	
Use descriptors covered	PROC5: Mixing or blending in batch processes (open systems) Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Wear a half face respirator conforming to EN140 Type A filter or better.	Effectiveness: 90 %
Alternatively:, Wear a full face respirator conforming to EN 136 with type A filter or better., Reduction of duration of activity is not required	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,07 ppm
Risk Characterization Ratio (RCR)	0,07
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,07 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,003
Additional good practice advice	
Avoid manual contact with wet work pieces	
Guidance to Downstream Users	

For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3

Contributing exposure scenario	
Use descriptors covered	PROC7: Industrial spraying Spraying (automatic/robotic) Aerosol formation is not covered within the CES Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Hands and forearms (1500 cm²)
Risk Management Measures	
Carry out in a vented booth provided with laminar airflow.	Effectiveness: 99 %
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,75 ppm
Risk Characterization Ratio (RCR)	0,75
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	2,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,09
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC7: Industrial spraying Spraying (manual) Aerosol formation is not covered within the CES Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %

Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Hands and forearms (1500 cm²)
Risk Management Measures	
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.	Effectiveness: 90 %
Wear a full face respirator conforming to EN 136 with type A filter or better.	Effectiveness: 95 %
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,38 ppm
Risk Characterization Ratio (RCR)	0,38
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	2,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,09
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Equipment maintenance Cleaning Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Both hands (960 cm²)
Risk Management Measures	
Drain down and flush system prior to	

equipment break-in or maintenance.	
Clear transfer lines prior to de-coupling	Effectiveness: 90 %
Wear a half face respirator conforming to EN140 Type A filter or better.	Effectiveness: 90 %
Retain drain downs in sealed storage pending disposal or for subsequent recycle.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,50 ppm
Risk Characterization Ratio (RCR)	0,50
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Additional good practice advice	
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Material transfers Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Both hands (960 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 90 %
Wear a half face respirator conforming to EN140 Type A filter or better.	Effectiveness: 90 %
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	

Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,09 ppm
Risk Characterization Ratio (RCR)	0,09
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Additional good practice advice	
Clear transfer lines prior to de-coupling Provide extract ventilation to points where emissions occur (LEV).	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 97 %
Wear a half face respirator conforming to EN140 Type A filter or better.	Effectiveness: 90 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,09 ppm
Risk Characterization Ratio (RCR)	0,09
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Additional good practice advice	
Clear transfer lines prior to de-coupling	
Guidance to Downstream Users	

For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3

Contributing exposure scenario	
Use descriptors covered	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Drum/Batch transfers Pouring from small containers Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Use container to collect drips.	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 90 %
Wear a full face respirator conforming to EN 136 with type A filter or better.	Effectiveness: 95 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,04 ppm
Risk Characterization Ratio (RCR)	0,04
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC10: Roller application or brushing Use domain: industrial

Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Both hands (960 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Wear a half face respirator conforming to EN140 Type A filter or better.	Effectiveness: 90 %
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,03 ppm
Risk Characterization Ratio (RCR)	0,03
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	1,37 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,06
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC13: Treatment of articles by dipping and pouring. Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)

Risk Management Measures	
Avoid manual contact with wet work pieces	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Wear a half face respirator conforming to EN140 Type A filter or better.	Effectiveness: 90 %
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,09 ppm
Risk Characterization Ratio (RCR)	0,09
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Additional good practice advice	
Disposal - This material and its container must be disposed of in a safe manner.	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC14: Tabletting, compression, extrusion, pelletisation, granulation Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Use container to collect drips.	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 90 %
Wear a half face respirator conforming to EN140 Type A filter or better.	Effectiveness: 90 %
Provide a good standard of general	Effectiveness: 30 %

ventilation (not less than 3 - 5 air changes per hour)	
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,07 ppm
Risk Characterization Ratio (RCR)	0,07
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,34 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC15: Use a laboratory reagent. Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Handle in a fume cupboard or under extract ventilation	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,7 ppm
Risk Characterization Ratio (RCR)	0,7
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,03 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001

Additional good practice advice
Avoid manual contact with wet work pieces
Guidance to Downstream Users
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3

* * * * * * * * * * * * * * * * *

7. Short title of exposure scenario

Use as a Fuel, Industrial applications
IS; SU10; ERC7; PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC16

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ESVOC SpERC 7.12a.v1: ESVOC SpERC 7.12a.v1
Operational conditions	
Daily amount per site	4.200.000 kg
Minimum emission days per year Continuous	300
Emission factor air	0,002 %
Emission factor water	0,000 %
Emission factor soil	0,000 %
	According to EU directive 2000/69/EC Local air concentration for benzene must not exceed 5 ug/m3, 16 Nov 2000, release fraction to air adjusted accordingly
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Treat air emissions to provide a typical removal efficiency of (%)	95 %
Soil treatment measures considered suitable are, e.g.	No application of sludge to soil
Type of STP	Municipal STP
Estimated subst. removal from wastewater via sewage treatm. (%)	94,9 %
Total effic. of removal from wastewater after RMMs and STP(%)	94,9 %
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Sludge Treatment	sludge should be incinerated, contained or reclaimed
Waste-Related Measures	

Waste treatment	This substance is consumed during use and no waste of the substance is generated.
Exposure estimate and reference to its source	
Risk Characterization Ratio (RCR)	0,15
	Risk from environmental exposure is driven by humans via indirect exposure (primarily inhalation).

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. General exposures (closed systems) Storage Bulk weighing Material transfers Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Store substance within a closed system.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,01 ppm
Risk Characterization Ratio (RCR)	0,01
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,03 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Storage Use domain: industrial
Operational conditions	

Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Store substance within a closed system.	
Sample via a closed loop or other system to avoid exposure.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,7 ppm
Risk Characterization Ratio (RCR)	0,7
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)

Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,70 ppm
Risk Characterization Ratio (RCR)	0,7
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Handle substance within a predominantly closed system provided with extract ventilation.	Effectiveness: 90 %
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,75 ppm

Risk Characterization Ratio (RCR)	0,75
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,03 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Handle substance within a predominantly closed system provided with extract ventilation.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,35 ppm
Risk Characterization Ratio (RCR)	0,35
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,03 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-	

library/ges-library-3

Contributing exposure scenario	
Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises Bulk transfer Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,84 ppm
Risk Characterization Ratio (RCR)	0,84
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Equipment maintenance Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-

	product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Both hands (960 cm²)
Risk Management Measures	
Drain down and flush system prior to equipment break-in or maintenance.	
Clear transfer lines prior to de-coupling	Effectiveness: 80 %
Wear a half face respirator conforming to EN140 Type A filter or better.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Retain drain downs in sealed storage pending disposal or for subsequent recycle.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,70 ppm
Risk Characterization Ratio (RCR)	0,70
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	2,74 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,12
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Vessel and container cleaning Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %

Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Both hands (960 cm²)
Risk Management Measures	
Drain down and flush system prior to equipment break-in or maintenance.	
Clear transfer lines prior to de-coupling	Effectiveness: 90 %
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Retain drain downs in sealed storage pending disposal or for subsequent recycle.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,5 ppm
Risk Characterization Ratio (RCR)	0,5
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Disposal/transfer Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Both hands (960 cm²)
Risk Management Measures	
Sample via a closed loop or other	Effectiveness: 95 %

system to avoid exposure.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,5 ppm
Risk Characterization Ratio (RCR)	0,5
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Drum/Batch transfers Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Use drum pumps.	Effectiveness: 80 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,7 ppm
Risk Characterization Ratio (RCR)	0,7
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day

Risk Characterization Ratio (RCR)	0,03
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC16: Use of fuels (open systems) (closed systems) Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Handle substance within a predominantly closed system provided with extract ventilation. Additionally: Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,5 ppm
Risk Characterization Ratio (RCR)	0,5
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,03 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

****

8. Short title of exposure scenario

Use as a Fuel, Professional applications
PW; ERC9a, ERC9b; PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC16

Control of exposure and risk management measures

Contributing exposure scenario		
Use descriptors covered	ESVOC SpERC 9.12b.v1: ESVOC SpERC 9.12b.v1	
Operational conditions		
Annual amount for wide disperse uses	150.000.000 kg	
Minimum emission days per year Dispersive use	365	
Emission factor air	1,000 %	
Emission factor water	0,001 %	
Emission factor soil	0,001 %	
Receive Surf. Water (Flow Rate).	18.000 m3/d	
Dilution factor river	10	
Dilution factor coast	100	
Risk Management Measures		
	No special measures are required.	
Type of STP		Municipal STP
Estimated subst. removal from wastewater via sewage treatm. (%)		94,9 %
Total effic. of removal from wastewater after RMMs and STP(%)		94,9 %
Assumed sewage treatment plant flow (m3/d)		2.000 m3/d
Waste-Related Measures		
Waste treatment	This substance is consumed during use and no waste of the substance is generated.	
Exposure estimate and reference to its source		
Risk Characterization Ratio (RCR)	0,031	
	Risk from environmental exposure is driven by humans via indirect exposure (primarily inhalation).	

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. General exposures (closed systems) Storage Use domain: professional
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity

Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Store substance within a closed system.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,01 ppm
Risk Characterization Ratio (RCR)	0,01
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,34 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Use domain: professional
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 80 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	

Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,56 ppm
Risk Characterization Ratio (RCR)	0,56
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (open systems) (closed systems) Use domain: professional
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,70 ppm
Risk Characterization Ratio (RCR)	0,70
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,34 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01

Guidance to Downstream Users
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3

Contributing exposure scenario	
Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises Bulk transfer Use domain: professional
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 80 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Clear transfer lines prior to de-coupling	Effectiveness: 80 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,84 ppm
Risk Characterization Ratio (RCR)	0,84
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Equipment maintenance Cleaning Vessel and container cleaning

	Use domain: professional
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Both hands (960 cm²)
Risk Management Measures	
Drain down and flush system prior to equipment break-in or maintenance.	
Clear transfer lines prior to de-coupling	Effectiveness: 90 %
Wear a half face respirator conforming to EN140 Type A filter or better.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 80 %
Retain drain downs in sealed storage pending disposal or for subsequent recycle.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,84 ppm
Risk Characterization Ratio (RCR)	0,84
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Drum/Batch transfers Use domain: professional

Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 1 % - <= 5 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Use drum pumps. Alternatively: Carefully pour from container.	Effectiveness: 80 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,84 ppm
Risk Characterization Ratio (RCR)	0,84
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,34 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Dipping, immersion and pouring Use domain: professional
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 1 % - <= 5 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year

	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Use drum pumps. Alternatively: Carefully pour from container.	Effectiveness: 80 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Ensure material transfers are under containment or extract ventilation	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,84 ppm
Risk Characterization Ratio (RCR)	0,84
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,34 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC16: Use of fuels (open systems) (closed systems) Use domain: professional
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Handle substance within closed system. Additionally: Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 80 %
Provide a good standard of general	Effectiveness: 30 %

ventilation (not less than 3 - 5 air changes per hour)	
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,28 ppm
Risk Characterization Ratio (RCR)	0,28
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,34 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

****

9. Short title of exposure scenario

Use as a Fuel, (consumer use)
C; ERC9a, ERC9b; PC13

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ESVOC SpERC 9.12c.v1: ESVOC SpERC 9.12c.v1
Operational conditions	
Annual amount for wide disperse uses	75.000.000 kg
Minimum emission days per year Dispersive use	365
Emission factor air	1,000 %
Emission factor water	0,001 %
Emission factor soil	0,000 %
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	

	No special measures are required.	
Type of STP		Municipal STP
Estimated subst. removal from wastewater via sewage treatm. (%)		94,9 %
Total effic. of removal from wastewater after RMMs and STP(%)		94,9 %
Assumed sewage treatment plant flow (m3/d)		2.000 m3/d
Waste-Related Measures		
Waste treatment	This substance is consumed during use and no waste of the substance is generated.	
Exposure estimate and reference to its source		
Risk Characterization Ratio (RCR)	0,031	
	Risk from environmental exposure is driven by humans via indirect exposure (primarily inhalation).	

Contributing exposure scenario	
Use descriptors covered	C: Consumer uses PC13: Fuels., PC13_1: Subcategory: Automotive Refuelling
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, high fugacity
Duration and Frequency of activity	Exposure duration: 3 min 1 days per week
Indoor/Outdoor	Outdoor
Exposed skin area	Palm of one hand (215 cm²)
Exposure estimate and reference to its source	
Assessment method	Other measured data
	Consumer - inhalation, long-term - systemic
Exposure estimate	1,11 mg/m³
Risk Characterization Ratio (RCR)	0,11
Assessment method	ESIG GES Consumer Tool, SkinPerm Model
	Consumer - dermal, long-term - systemic
Exposure estimate	0 mg/kg bw/day
Risk Characterization Ratio (RCR)	0
Guidance to Downstream Users	
For scaling see: http://www.esig.org/en/regulatory-information/reach/ges-library/consumer-gess	

Contributing exposure scenario	
Use descriptors covered	C: Consumer uses PC13: Fuels., PC13_2: Subcategory: Liquid Scooter Refuelling
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction

	Content: >= 0 % - <= 100 %
Physical state	Liquid, high fugacity
Duration and Frequency of activity	Exposure duration: 2 min 1 days per week
Indoor/Outdoor	Outdoor
Exposed skin area	Palm of one hand (215 cm²)
Exposure estimate and reference to its source	
Assessment method	Other measured data
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,73 mg/m³
Risk Characterization Ratio (RCR)	0,07
Assessment method	ESIG GES Consumer Tool, SkinPerm Model
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0 mg/kg bw/day
Risk Characterization Ratio (RCR)	0
Guidance to Downstream Users	
For scaling see: http://www.esig.org/en/regulatory-information/reach/ges-library/consumer-gess	

Contributing exposure scenario	
Use descriptors covered	C: Consumer uses PC13: Fuels., PC13_3: Subcategory: Liquid Garden Equipment - Use
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, high fugacity
Duration and Frequency of activity	Exposure duration: 120 min 26 days per year
Indoor/Outdoor	Outdoor
	Amount per use 750 g Relevant for dermal exposure estimates
Exposure estimate and reference to its source	
Assessment method	Other measured data
	Consumer - inhalation, long-term - systemic
Exposure estimate	5,75 mg/m³
Risk Characterization Ratio (RCR)	0,56
Assessment method	ESIG GES Consumer Tool
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0 mg/kg bw/day
Risk Characterization Ratio (RCR)	0
Guidance to Downstream Users	
For scaling see: http://www.esig.org/en/regulatory-information/reach/ges-library/consumer-gess	

Contributing exposure scenario

Use descriptors covered	C: Consumer uses PC13: Fuels., PC13_4: Subcategory: Liquid - Garden Equipment - Refueling
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, high fugacity
Duration and Frequency of activity	Exposure duration: 2 min 26 days per year
Exposed skin area	Palm of both hands (430 cm²)
Exposure estimate and reference to its source	
Assessment method	Other measured data
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,73 mg/m³
Risk Characterization Ratio (RCR)	0,07
Assessment method	ESIG GES Consumer Tool, SkinPerm Model
	Consumer - dermal, long-term - systemic
Exposure estimate	0,0 mg/kg bw/day
Risk Characterization Ratio (RCR)	0
Guidance to Downstream Users	
For scaling see: http://www.esig.org/en/regulatory-information/reach/ges-library/consumer-gess	

Contributing exposure scenario	
Use descriptors covered	C: Consumer uses PC13: Fuels., PC13_5: Subcategory: Liquid - Lamp oil
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, high fugacity
Duration and Frequency of activity	Exposure duration: 0,75 min 1 days per week
Indoor/Outdoor	Indoor
Room size	20 m3
Ventilation rate per hour	0,6
Exposed skin area	Palm of one hand (215 cm²)
	Amount per use 100 g
Exposure estimate and reference to its source	
Assessment method	ESIG GES Consumer Tool
	Consumer - inhalation, long-term - systemic
Exposure estimate	0,0 mg/m³
Risk Characterization Ratio (RCR)	0
Assessment method	ESIG GES Consumer Tool

	Consumer - dermal, long-term - systemic
Exposure estimate	40,6 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,96
Guidance to Downstream Users	
For scaling see: http://www.esig.org/en/regulatory-information/reach/ges-library/consumer-gess	

****

10. Short title of exposure scenario

Rubber production and processing, Industrial applications
IS; SU10; ERC1, ERC4, ERC6d; PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC14, PROC15

Control of exposure and risk management measures

Contributing exposure scenario		
Use descriptors covered	ESVOC SpERC 4.19.v1: ESVOC SpERC 4.19.v1	
Operational conditions		
Daily amount for wide disperse uses	25.000 kg	
Minimum emission days per year Continuous	100	
Emission factor air	0,100 %	
Emission factor water	0,050 %	
Emission factor soil	0,010 %	
	According to EU directive 2000/69/EC Local air concentration for benzene must not exceed 5 ug/m3, 16 Nov 2000, release fraction to air adjusted accordingly	
Receive Surf. Water (Flow Rate).	18.000 m3/d	
Dilution factor river	10	
Dilution factor coast	100	
Risk Management Measures		
Soil treatment measures considered suitable are, e.g.		No application of sludge to soil
	Prevent discharge of undissolved substance to or recover from wastewater	
Type of STP		Municipal STP
Estimated subst. removal from wastewater via sewage treatm. (%)		94,9 %
Total effic. of removal from wastewater after RMMs and STP(%)		94,9 %
Assumed sewage treatment plant flow (m3/d)		2.000 m3/d
Sludge Treatment		sludge should be incinerated,

	contained or reclaimed
Waste-Related Measures	
Prescribed disposal method	Product residual disposal complies with applicable regulations.
External Recovery of Waste	
Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Exposure estimate and reference to its source	
Risk Characterization Ratio (RCR)	0,42
	Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion).

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. General exposures (closed systems) Storage Bulk weighing Material transfers Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Store substance within a closed system.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,01 ppm
Risk Characterization Ratio (RCR)	0,01
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,03 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed

	continuous process with occasional controlled exposure or processes with equivalent containment conditions Material transfers Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,7 ppm
Risk Characterization Ratio (RCR)	0,7
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,01 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,0
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Bulk weighing Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction

	Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,7 ppm
Risk Characterization Ratio (RCR)	0,7
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,01 mg/kg bw/day
Risk Characterization Ratio (RCR)	0
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Additive premixing Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)

Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Handle substance carefully.	
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,75 ppm
Risk Characterization Ratio (RCR)	0,75
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,03 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises Additive premixing Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Handle substance carefully.	
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,60 ppm
Risk Characterization Ratio (RCR)	0,60

Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC5: Mixing or blending in batch processes Additive premixing Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Handle substance carefully.	
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,9 ppm
Risk Characterization Ratio (RCR)	0,9
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC6: Calendering operations Calendering (including Banburys) Vulcanisation Use domain: industrial

Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 1 % - <= 5 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Operation is carried out at elevated temperature (> 20°C above ambient temperature).
Exposed skin area	Both hands (960 cm²)
Risk Management Measures	
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.	Effectiveness: 95 %
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,75 ppm
Risk Characterization Ratio (RCR)	0,75
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	1,37 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,06
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC6: Calendering operations Cooling cured articles Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 1 % - <= 5 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Both hands (960 cm²)

Risk Management Measures	
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.	Effectiveness: 90 %
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,3 ppm
Risk Characterization Ratio (RCR)	0,3
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	1,37 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,06
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Equipment maintenance Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Both hands (960 cm²)
Risk Management Measures	
Drain down and flush system prior to equipment break-in or maintenance.	
Clear transfer lines prior to de-coupling	Effectiveness: 90 %
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Retain drain downs in sealed storage pending disposal or for subsequent	

recycle.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,9 ppm
Risk Characterization Ratio (RCR)	0,9
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	1,37 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,06
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Material transfers Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Handle substance within closed system. Additionally: Ensure material transfers are under containment or extract ventilation	Effectiveness: 97 %
Wear a half face respirator conforming to EN140 Type A filter or better.	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	

Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,63 ppm
Risk Characterization Ratio (RCR)	0,63
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Material transfers Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.	Effectiveness: 97 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,90 ppm
Risk Characterization Ratio (RCR)	0,90
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Additional good practice advice	
Transfer materials directly to mixing vessels	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Small scale weighing Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 90 %
Handle substance carefully.	
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,9 ppm
Risk Characterization Ratio (RCR)	0,9
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Material transfers Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %

Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Handle substance within a predominantly closed system provided with extract ventilation.	Effectiveness: 90 %
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,9 ppm
Risk Characterization Ratio (RCR)	0,9
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Additional good practice advice	
Transfer materials directly to mixing vessels	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC14: Tabletting, compression, extrusion, pelletisation, granulation Pressing uncured rubber blanks Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 1 % - <= 5 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Provide a good standard of controlled	Effectiveness: 70 %

ventilation (10 to 15 air changes per hour)	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,3 ppm
Risk Characterization Ratio (RCR)	0,3
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	3,43 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,15
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC15: Use a laboratory reagent. Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Handle in a fume cupboard or under extract ventilation	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,7 ppm
Risk Characterization Ratio (RCR)	0,7
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,03 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001
Additional good practice advice	
Avoid manual contact with wet work pieces	
Guidance to Downstream Users	

For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3

* * * * * * * * * * * * * * * * *

11. Short title of exposure scenario

Polymer production, Industrial applications
IS; SU10; ERC6a, ERC6c; PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC14

Control of exposure and risk management measures

Contributing exposure scenario		
Use descriptors covered	ESVOC SpERC 4.21a.v1: ESVOC SpERC 4.21a.v1	
Operational conditions		
Daily amount per site	25.000 kg	
Minimum emission days per year Continuous	100	
Emission factor air	0,050 %	
Emission factor water	0,010 %	
Emission factor soil	0,010 %	
	According to EU directive 2000/69/EC Local air concentration for benzene must not exceed 5 ug/m3, 16 Nov 2000, release fraction to air adjusted accordingly	
Receive Surf. Water (Flow Rate).	18.000 m3/d	
Dilution factor river	10	
Dilution factor coast	100	
Risk Management Measures		
Treat air emissions to provide a typical removal efficiency of (%)		80 %
Soil treatment measures considered suitable are, e.g.		No application of sludge to soil
	Prevent discharge of undissolved substance to or recover from wastewater	
Type of STP		Municipal STP
Estimated subst. removal from wastewater via sewage treatm. (%)		94,9 %
Total effic. of removal from wastewater after RMMs and STP(%)		94,9 %
Assumed sewage treatment plant flow (m3/d)		2.000 m3/d
Sludge Treatment		sludge should be incinerated, contained or reclaimed
Waste-Related Measures		

Prescribed disposal method	Product residual disposal complies with applicable regulations.
External Recovery of Waste	
Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Exposure estimate and reference to its source	
Risk Characterization Ratio (RCR)	0,084
	Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion).

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. General exposures (closed systems) Bulk transfer Bulk weighing Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,01 ppm
Risk Characterization Ratio (RCR)	0,01
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,34 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Additional good practice advice	
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Storage Use domain: industrial

Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 1 % - <= 5 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Store substance within a closed system.	
Sample via a closed loop or other system to avoid exposure.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,40 ppm
Risk Characterization Ratio (RCR)	0,40
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	1,37 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,06
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Polymerisation (bulk and batch) Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)

Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Ensure operation is undertaken outdoors.	Effectiveness: 30 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,42 ppm
Risk Characterization Ratio (RCR)	0,42
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Polymerisation (bulk and batch) Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Operation is carried out at ambient or elevated temperatures
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Ensure operation is undertaken outdoors.	Effectiveness: 30 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,35 ppm
Risk Characterization Ratio (RCR)	0,35
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic

Exposure estimate	0,03 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Finishing operations Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Ensure operation is undertaken outdoors.	Effectiveness: 30 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,35 ppm
Risk Characterization Ratio (RCR)	0,35
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,03 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Additivation and stabilisation Use domain: industrial

Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 1 % - <= 5 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Handle substance within a predominantly closed system provided with extract ventilation.	Effectiveness: 90 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,50 ppm
Risk Characterization Ratio (RCR)	0,50
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,03 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,001
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Bulk transfer Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 1 % - <= 5 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	

Ensure material transfers are under containment or extract ventilation	Effectiveness: 90 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,5 ppm
Risk Characterization Ratio (RCR)	0,5
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,34 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises Intermediate polymer storage Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 1 % - <= 5 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,40 ppm
Risk Characterization Ratio (RCR)	0,40
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario

Use descriptors covered	PROC5: Mixing or blending in batch processes Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 1 % - <= 5 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 95 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,35 ppm
Risk Characterization Ratio (RCR)	0,35
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,07 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,003
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC6: Calendering operations Pelletizing Extrusion and masterbatching Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 1 % - <= 5 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.

Exposed skin area	Both hands (960 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,70 ppm
Risk Characterization Ratio (RCR)	0,70
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	1,37 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,06
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Equipment maintenance Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Both hands (960 cm²)
Risk Management Measures	
Drain down and flush system prior to equipment break-in or maintenance.	
Clear transfer lines prior to de-coupling	Effectiveness: 90 %
Wear a half face respirator conforming to EN140 Type A filter or better.	Effectiveness: 90 %
Retain drain downs in sealed storage	

pending disposal or for subsequent recycle.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,5 ppm
Risk Characterization Ratio (RCR)	0,5
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Bulk transfer Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 97 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,63 ppm
Risk Characterization Ratio (RCR)	0,63
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day

Risk Characterization Ratio (RCR)	0,03
Additional good practice advice	
Clear transfer lines prior to de-coupling	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Pelletisation and pellet screening (open systems) transport with sample collection Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 1 % - <= 5 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 97 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,3 ppm
Risk Characterization Ratio (RCR)	0,3
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC14: Tabletting, compression, extrusion, pelletisation, granulation Pelletizing Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction

	Content: >= 1 % - <= 5 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,7 ppm
Risk Characterization Ratio (RCR)	0,7
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,34 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

****

12. Short title of exposure scenario

Polymer processing, Industrial applications
IS; SU10; ERC6d; PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC13, PROC14

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ESVOC SpERC 8.21b.v1: ESVOC SpERC 8.21b.v1
Operational conditions	
Daily amount per site	50.000 kg
Minimum emission days per year Continuous	100

Emission factor air	0,500 %
Emission factor water	0,000 %
Emission factor soil	0,001 %
	According to EU directive 2000/69/EC Local air concentration for benzene must not exceed 5 ug/m3, 16 Nov 2000, release fraction to air adjusted accordingly
Receive Surf. Water (Flow Rate).	18.000 m3/d
Dilution factor river	10
Dilution factor coast	100
Risk Management Measures	
Treat air emissions to provide a typical removal efficiency of (%)	80 %
Soil treatment measures considered suitable are, e.g.	No application of sludge to soil
Type of STP	Municipal STP
Estimated subst. removal from wastewater via sewage treatm. (%)	94,9 %
Total effic. of removal from wastewater after RMMs and STP(%)	94,9 %
Assumed sewage treatment plant flow (m3/d)	2.000 m3/d
Sludge Treatment	sludge should be incinerated, contained or reclaimed
Waste-Related Measures	
Prescribed disposal method	Product residual disposal complies with applicable regulations.
External Recovery of Waste	
Recovery Methods	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Exposure estimate and reference to its source	
Risk Characterization Ratio (RCR)	0,58
	Risk from environmental exposure is driven by humans via indirect exposure (primarily inhalation).

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. General exposures (closed systems) Bulk transfer Bulk weighing Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity

Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,01 ppm
Risk Characterization Ratio (RCR)	0,01
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,34 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Additional good practice advice	
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Storage Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 80 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker

	Worker - inhalation, long-term - systemic
Exposure estimate	0,84 ppm
Risk Characterization Ratio (RCR)	0,84
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,14 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Bulk weighing Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,60 ppm
Risk Characterization Ratio (RCR)	0,60
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	1,37 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,06
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed

	continuous process with occasional controlled exposure or processes with equivalent containment conditions Bulk transfer Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to material transfer points and other openings.	Effectiveness: 90 %
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,3 ppm
Risk Characterization Ratio (RCR)	0,3
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,01 mg/kg bw/day
Risk Characterization Ratio (RCR)	0
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Additive premixing Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity

Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of one hand (240 cm²)
Risk Management Measures	
Provide extract ventilation to points where emissions occur (LEV).	Effectiveness: 90 %
Handle substance carefully.	
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,35 ppm
Risk Characterization Ratio (RCR)	0,35
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,00 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,00
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises Additive premixing Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 90 %
Handle substance carefully.	

Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,84 ppm
Risk Characterization Ratio (RCR)	0,84
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,07 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,003
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC5: Mixing or blending in batch processes Additive premixing Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to material transfer points and other openings.	Effectiveness: 90 %
Handle substance carefully.	
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,9 ppm
Risk Characterization Ratio (RCR)	0,9
Assessment method	ESIG GES tool, Worker

	Worker - dermal, long-term - systemic
Exposure estimate	0,07 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,003
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC6: Calendering operations Calendering (including Banburys) Vulcanisation Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 1 % - <= 5 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Operation is carried out at elevated temperature (> 20°C above ambient temperature).
Exposed skin area	Both hands (960 cm²)
Risk Management Measures	
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.	Effectiveness: 95 %
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,75 ppm
Risk Characterization Ratio (RCR)	0,75
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	1,37 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,06
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Equipment maintenance

	Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Both hands (960 cm²)
Risk Management Measures	
Drain down and flush system prior to equipment break-in or maintenance.	
Clear transfer lines prior to de-coupling	Effectiveness: 90 %
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Retain drain downs in sealed storage pending disposal or for subsequent recycle.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,30 ppm
Risk Characterization Ratio (RCR)	0,30
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	1,37 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,06
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Bulk transfer Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity

Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 97 %
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,45 ppm
Risk Characterization Ratio (RCR)	0,45
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,07 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,003
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Bulk transfer Drum/Batch transfers Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 90 %
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	

Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,90 ppm
Risk Characterization Ratio (RCR)	0,90
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Small scale weighing Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	60 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 90 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
In case no general ventilation is used:, Ensure operation is undertaken outdoors.	
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,7 ppm
Risk Characterization Ratio (RCR)	0,7
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,07 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,003
Guidance to Downstream Users	

For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3

Contributing exposure scenario	
Use descriptors covered	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Small package filling Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 0 % - <= 100 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	240 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Ensure material transfers are under containment or extract ventilation	Effectiveness: 90 %
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,9 ppm
Risk Characterization Ratio (RCR)	0,9
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,07 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,003
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC13: Treatment of articles by dipping and pouring. Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 1 % - <= 5 %

Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.	Effectiveness: 90 %
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,3 ppm
Risk Characterization Ratio (RCR)	0,3
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,07 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,003
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC14: Tabletting, compression, extrusion, pelletisation, granulation Extrusion and masterbatching Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 1 % - <= 5 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.	Effectiveness: 90 %

Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,3 ppm
Risk Characterization Ratio (RCR)	0,3
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,69 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,03
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3	

Contributing exposure scenario	
Use descriptors covered	PROC14: Tabletting, compression, extrusion, pelletisation, granulation Injection moulding (of articles) Use domain: industrial
Operational conditions	
Concentration of the substance	Distillates (petroleum), cracked, ethylene manuf. by-product, C9-10 fraction Content: >= 1 % - <= 5 %
Physical state	Liquid, moderate fugacity
Duration and Frequency of activity	480 min < 240 days per year
	Assumes use at not more than 20°C above ambient temperature.
Exposed skin area	Palm of both hands (480 cm²)
Risk Management Measures	
Provide extract ventilation to material transfer points and other openings.	Effectiveness: 90 %
Provide a good standard of controlled ventilation (10 to 15 air changes per hour)	Effectiveness: 70 %
Exposure estimate and reference to its source	
Assessment method	ESIG GES tool, Worker
	Worker - inhalation, long-term - systemic
Exposure estimate	0,3 ppm
Risk Characterization Ratio (RCR)	0,3
Assessment method	ESIG GES tool, Worker
	Worker - dermal, long-term - systemic
Exposure estimate	0,34 mg/kg bw/day
Risk Characterization Ratio (RCR)	0,01
Guidance to Downstream Users	

For scaling see: http://www.ecetoc.org/tra http://www.esig.org/en/regulatory-information/reach/ges-library/ges-library-3

****