SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) and Regulation (EU) 2020/878

Gasolines, unleaded

Material number O001

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

1.1 Product identifier

Trade name: Gasolines, unleaded
REACH registration No.: 01-2119471335-39-xxxx

- Normal Benzin
- Super Plus
- Super
- Eurosuper
- Ottokraftstoff unverbleit

CAS-Number: 86290-81-5
EC-number: 289-220-8

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

General use: Fuel

Identified uses: **Industrial use:**

1 01a - Distribution of naphtha Page 19
Classified as: H340, H350 and H361 (Contains benzene 0.1 - 1 %)
SU 3; PROC 1,2,3,8a,8b,15; ERC 4,5,6a,6b,6c,6d,7; SpERC 1.1bv1

1.3 Details of the supplier of the safety data sheet

Company name: Erdölbevorratungsverband
Street/POB-No.: Dammtorstr. 29-32
Postal Code, city: 20354 Hamburg
Germany
WWW: www.ebv-oil.org
Telephone: +49 (0)40-35 00 12-0
Telefax: +49 (0)40-35 00 12-149
Department responsible for information:
Telephone: +49 (0)40-35 00 12-44
E-mail: ebv-fuelsSDS@ebv-oil.org

1.4 Emergency telephone number

Giftinformationszentrum Göttingen (GIZ-Nord)
Telephone: +49 (0)551/19 24 0

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to EC regulation 1272/2008 (CLP)

Flam. Liq. 1; H224	Extremely flammable liquid and vapour.
Skin Irrit. 2; H315	Causes skin irritation.
Muta. 1B; H340	May cause genetic defects.
Carc. 1A; H350	May cause cancer.
Repr. 2; H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.
STOT SE 3; H336	May cause drowsiness or dizziness.
Asp. Tox. 1; H304	May be fatal if swallowed and enters airways.
Aquatic Chronic 2; H411	Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (CLP)

Signal word: **Danger**

Hazard statements:	H224	Extremely flammable liquid and vapour.
	H304	May be fatal if swallowed and enters airways.
	H315	Causes skin irritation.
	H336	May cause drowsiness or dizziness.
	H340	May cause genetic defects.
	H350	May cause cancer.
	H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.
	H411	Toxic to aquatic life with long lasting effects.
Precautionary statements:	P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
	P261	Avoid breathing vapours.
	P273	Avoid release to the environment.
	P280	Wear protective gloves/protective clothing/eye protection.
	P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
	P302+P352	IF ON SKIN: Wash with plenty of water/soap.
	P308+P313	IF exposed or concerned: Get medical advice/attention.
	P331	Do NOT induce vomiting.
	P370+P378	In case of fire: Use foam, atomized water, water mist, extinguishing powder, carbon dioxide or sand to extinguish.
	P391	Collect spillage.
	P403+P233	Store in a well-ventilated place. Keep container tightly closed.
	P501	Dispose of contents/container to hazardous or special waste collection point.

Special labelling

Text for labelling: Contains Gasoline; Low boiling point naphtha - unspecified
Contains benzene, toluene and methanol
Restricted to professional users.

2.3 Other hazards

Vapours form potentially explosive mixtures with air. Heavier than air, they proceed at floor level and may backflash over great distances when ignited.
Inhaling can lead to irritations of the respiratory tract and mucous membrane.
Higher doses may lead to a narcotic effect.
Special danger of slipping by leaking/spilling product.

Endocrine disrupting properties, Results of PBT and vPvB assessment:
This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical characterisation: Gasolines unleaded, like DIN EN 228.
Ottokraftstoffe nach DIN 51626-1.
Some product specifications contain biogenous components.

CAS-Number: 86290-81-5
EC-number: 289-220-8

UVCB substance - Information on ingredients:

Identifiers	Designation Classification	Content
REACH 01-2119471335-39-xxxx EC No. 289-220-8 CAS 86290-81-5	Gasoline; Low boiling point naphtha - unspecified Flam. Liq. 1; H224. Skin Irrit. 2; H315. Muta. 1B; H340. Carc. 1B; H350. Repr. 2; H361. STOT SE 3; H336. Asp. Tox. 1; H304. Aquatic Chronic 2; H411.	< 100 %
REACH 01-2119471310-51-xxxx EC No. 203-625-9 CAS 108-88-3	Toluene Flam. Liq. 2; H225. Skin Irrit. 2; H315. Repr. 2; H361d. STOT SE 3; H336. STOT RE 2; H373. Asp. Tox. 1; H304. Aquatic Chronic 3; H412.	< 30 %
EC No. 216-653-1 CAS 1634-04-4	tert-Butyl methyl ether Flam. Liq. 2; H225. Skin Irrit. 2; H315.	< 15 %
EC No. 200-578-6 CAS 64-17-5	Ethanol Flam. Liq. 2; H225.	< 10 %
EC No. 200-889-7 CAS 75-65-0	2-Methylpropan-2-ol Flam. Liq. 2; H225. Acute Tox. 4; H332. Eye Irrit. 2; H319. STOT SE 3; H335.	< 7 %
REACH 01-2119484609-23-xxxx EC No. 201-148-0 CAS 78-83-1	Isobutanol Flam. Liq. 3; H226. Skin Irrit. 2; H315. Eye Dam. 1; H318. STOT SE 3; H335, H336.	< 7 %
EC No. 200-661-7 CAS 67-63-0	Isopropyl alcohol Flam. Liq. 2; H225. Eye Irrit. 2; H319. STOT SE 3; H336.	< 5 %
EC No. 200-659-6 CAS 67-56-1	Methanol Flam. Liq. 2; H225. Acute Tox. 3; H301. Acute Tox. 3; H311. Acute Tox. 3; H331. STOT SE 1; H370. Specific concentration limits (SCL): STOT SE 1; H370: C ≥ 10 % / STOT SE 2; H371: 3 % ≤ C < 10 %	< 3 %
REACH 01-2119447106-44-xxxx EC No. 200-753-7 CAS 71-43-2	Benzene Flam. Liq. 2; H225. Skin Irrit. 2; H315. Eye Irrit. 2; H319. Muta. 1B; H340. Carc. 1A; H350. STOT RE 1; H372. Asp. Tox. 1; H304.	< 1 %

Full text of H- and EUH-statements: see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information: If medical advice is needed, have product container or label at hand. First aider: Pay attention to self-protection!
Take off immediately all contaminated clothing. Do not put any product-impregnated cleaning rags into your trouser pockets.

In case of inhalation: Remove the casualty into fresh air and keep them calm. No mouth-to-mouth or mouth-to-nose resuscitation. Use Ambu bag or ventilator. Immediately get medical attention.

Following skin contact: After contact with skin, wash immediately with soap and plenty of water. Take off immediately all contaminated clothing and wash it before reuse. In case of skin irritation, consult a physician.
If the product penetrates the skin under high pressure, call a physician immediately.

After eye contact: Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. Subsequently seek the immediate attention of an ophthalmologist.

After swallowing: Do not induce vomiting. If swallowed or in the event of vomiting, risk of entering the lungs. In case of vomiting, position victim on their side.
Keep airway open. Immediately get medical attention. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

May cause drowsiness or dizziness. May be fatal if swallowed and enters airways. Causes skin irritation.

4.3 Indication of any immediate medical attention and special treatment needed

Where appropriate artificial ventilation.
In the event of pulmonary irritation treat initially with dexamethasone - dosing aerosol.
When swallowed and vomited immediately, aspiration into the lungs may occur resulting in chemical pneumonia or suffocation.
Symptoms of poisoning may develop several hours following exposure. Victim should be under medical observation for at least 48 hours after exposure.
Dangerous reactions with Disulfiram.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:

Foam, atomized water, water mist.
Only in case of small fires: Extinguishing powder, carbon dioxide, sand.

Extinguishing media which must not be used for safety reasons:

Full water jet

5.2 Special hazards arising from the substance or mixture

Extremely flammable liquid and vapour. Air combined with vapours may form potentially explosive mixtures that are heavier than air. Vapours may proceed on the ground over great distances and cause fire and backflashes.
In case of fire may be liberated: Nitrogen oxides (NOx), sulphur oxides, carbon monoxide and carbon dioxide, carbon black.

5.3 Advice for firefighters

Special protective equipment for firefighters:

Wear self-contained positive pressure breathing apparatus and fire fighter's clothing conforming to European standard EN 469.

Additional information: Heating will lead to pressure increase: Danger of bursting and explosion. Use fine water spray to cool endangered containers.
Move undamaged containers from immediate hazard area if it can be done safely.
In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

Do not allow fire water to penetrate into surface or ground water.
Fire residuals and contaminated extinguishing water must be disposed of in accordance with the regulations of the local authorities.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid exposure. Provide adequate ventilation. Avoid breathing mist/vapours/spray.
Keep unprotected people away. Eliminate all ignition sources if safe to do so.
Avoid contact with the substance. Wear appropriate protective equipment. Take off immediately all contaminated clothing and wash it before reuse.
Do not put any product-impregnated cleaning rags into your trouser pockets.
Larger quantities (> 1 barrel), additionally: full protection suit, boots.
Wear self-contained breathing apparatus. Immediately get rescue workers.
Cordon off downwind area at risk and warn inhabitants.

6.2 Environmental precautions

Do not allow to penetrate into soil, waterbodies or drains. Danger of explosion! In case of release, notify competent authorities.
In case of spills of large quantities: Danger to drinking water.

6.3 Methods and material for containment and cleaning up

Beware of reignition. Thoroughly clean surrounding area.
Larger quantities (> 1 barrel): Take up mechanically, placing in appropriate containers for disposal. Do not remove residual product with water and detergent.
Small quantities (< 1 barrel): Absorb with appropriate liquid-binding material (e.g. universal binding agents, sand, diatomaceous earth, sawdust).

Additional information: Use explosion-proof equipment and non-sparking tools/utensils.

Vapours form potentially explosive mixtures with air. Heavier than air, they proceed at floor level and may backflash over great distances when ignited.
Special danger of slipping by leaking/spilling product.

6.4 Reference to other sections

Refer additionally to section 8 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advices on safe handling: Provide adequate ventilation. Avoid breathing mist/vapours/spray. Avoid spraying or spilling the product during use. Avoid exposure. Do not get in eyes, on skin, or on clothing. Wear appropriate protective equipment.
Larger quantities (> 1 barrel), additionally: full protection suit, boots.
Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Take off immediately all contaminated clothing and wash it before reuse.
Guarantee sufficient ventilation during and after use, in order to prevent vapour accumulation.
Have eye wash bottle or eye rinse ready at work place.

Precautions against fire and explosion:
Keep away from sources of ignition and heat.
Take precautionary measures against static discharge.
Avoid sparks. Avoid open flames. Do not weld. Use only antistatically equipped (spark-free) tools.
Use only explosion-protected equipment/instruments.
In partially filled containers explosive mixtures may form.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers:
Keep container tightly closed and in a well-ventilated place.
Keep container dry. Keep only in the original container.
Protect from heat and direct sunlight.
Store containers in upright position. Qualified materials: steel, HD polyethylene, polypropylene, Fluororubber (Viton), admitted spare canister.
Only trained personnel may be allowed to enter storage area.
Suitable material for containers/equipment: polyvinyl chloride, polytetrafluoroethylene (PTFE), polyvinylidene fluoride, polyamide (PA-11), steel.
Use FKM (fluoro rubber), Viton (A & B) and NBR (nitrile rubber) for seals and sealants.

Hints on joint storage: Do not store together with oxidizing agents.
Do not store together with combustible or self-igniting materials or any highly flammable solids.
Keep away from food, drink and animal feedingstuffs.

Further details: Keep locked up and out of the reach of children.

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
86290-81-5	Gasoline; Low boiling point naphtha - unspecified	Ireland: 15 minutes	500 ppm
		Ireland: 8 hours	300 ppm
108-88-3	Toluene	Europe: IOELV: STEL	384 mg/m³; 100 ppm (may be absorbed through the skin)
		Europe: IOELV: TWA	192 mg/m³; 50 ppm (may be absorbed through the skin)
		Ireland: 15 minutes	384 mg/m³; 100 ppm (may be absorbed through the skin)
		Ireland: 8 hours	192 mg/m³; 50 ppm (may be absorbed through the skin)
1634-04-4	tert-Butyl methyl ether	Europe: IOELV: STEL	367 mg/m³; 100 ppm
		Europe: IOELV: TWA	183.5 mg/m³; 50 ppm
		Ireland: 15 minutes	367 mg/m³; 100 ppm
		Ireland: 8 hours	183.5 mg/m³; 50 ppm
64-17-5	Ethanol	Ireland: 15 minutes	1,000 ppm
75-65-0	2-Methylpropan-2-ol	Ireland: 8 hours	300 mg/m³; 100 ppm
78-83-1	Isobutanol	Ireland: 15 minutes	225 mg/m³; 75 ppm
		Ireland: 8 hours	150 mg/m³; 50 ppm
67-63-0	Isopropyl alcohol	Ireland: 15 minutes	400 ppm (may be absorbed through the skin)
		Ireland: 8 hours	200 ppm (may be absorbed through the skin)
67-56-1	Methanol	Europe: IOELV: TWA	260 mg/m³; 200 ppm (may be absorbed through the skin)
		Ireland: 8 hours	260 mg/m³; 200 ppm (may be absorbed through the skin)
71-43-2	Benzene	Europe: BOELV: TWA	1.65 mg/m³; 0.5 ppm (may be absorbed through the skin)
		Ireland: 8 hours	1.65 mg/m³; 0.5 ppm (may be absorbed through the skin)

Biological limit values:

CAS No.	Designation	Type	Limit value	Parameter	Sampling
71-43-2	Benzene	Europe: BLV, blood	28 µg/L	benzene	end of exposure or end of shift
		Europe: BLV, urine	46 µg/g creatinine	Phenylmercapturic acid	end of exposure or end of shift

DNEL/DMEL:

Information about Gasoline; Low boiling point naphtha - unspecified:
DNEL Short-term, workers, inhalative: 1300 mg/m³ / 15 min
DNEL Short-term, workers, inhalative: 1110 mg/m³ / 15 min
DNEL Long-term, workers, inhalative: 840 mg/m³ / 8h
DNEL Short-term, consumers, inhalative: 1200 mg/m³ / 15 min
DNEL Short-term, consumers, inhalative: 640 mg/m³ / 15 min
DNEL Long-term, consumers, inhalative: 180 mg/m³ / 8h

Information about Ethanol:
DNEL Long-term, workers, inhalative: 950 mg/m³
DNEL Long-term, workers, dermal: 343 mg/kg
DNEL Long-term, consumers, inhalative: 114 mg/m³
DNEL Long-term, consumers, dermal: 206 mg/kg*d
DNEL Long-term, consumers, oral: 87 mg/kg*d

Information about benzene:
DNEL Long-term, workers, inhalative: 3,24 mg/m³ *8h

8.2 Exposure controls

Provide for good ventilation or exhaust system or work with completely self-contained equipment. Explosion protection required.
Natural ventilation is adequate outside and in open halls.

Personal protection equipment

Occupational exposure controls

Respiratory protection:

Respiratory protection must be worn whenever the WEL levels have been exceeded.
Use filter type A (= against vapours of organic substances) according to I.S. EN 14387.
Wear self-contained breathing apparatus if circumstances are indefinite or oxygen content is below 17%.

Hand protection:

Protective gloves according to I.S. EN ISO 374:1.
Glove material:
Short term effect: Nitrile rubber (or equivalent) (0.35 mm; max. 4h).
In case of prolonged exposure: Fluororubber (Viton) (or equivalent) (0.4 mm).
Breakthrough time: >= 480 min.
Unsuitable materials: natural rubber, butyl caoutchouc (butyl rubber), PVC, leather, textile material.
Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Eye protection:

Tightly sealed goggles according to I.S. EN ISO 16321-1:2022.
In case of increased risk, additionally Face protection shield.

Body protection: Wear flame-retardant, antistatic and electrostatically dissipative protective clothing.

General protection and hygiene measures:
Avoid exposure. Avoid breathing mist/vapours/spray. Do not get in eyes, on skin, or on clothing.
When using do not eat, drink or smoke. Wash hands before breaks and after work.
Take off immediately all contaminated clothing and wash it before reuse.
Have eye wash bottle or eye rinse ready at work place.
Larger quantities (> 1 barrel), additionally: full protection suit, boots.

Environmental exposure controls

Refer to "6.2 Environmental precautions".

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state at 20 °C and 101.3 kPa	liquid
Colour:	colourless up to yellow
Odour:	characteristic
Odour threshold:	No data available
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	<=35 °C - 210 °C
Flammability:	Extremely flammable liquid and vapour.
Upper/lower flammability or explosive limits:	LEL (Lower Explosion Limit): 0.60 Vol-% UEL (Upper Explosive Limit): 8.00 Vol-%
Flash point/flash point range:	<= -40 °C
Auto-ignition temperature:	>= 210 °C
Decomposition temperature:	No data available
pH:	No data available
Viscosity, kinematic:	at 20 °C: approx. 0.5 mm²/s
Water solubility:	at 20 °C: low
Partition coefficient: n-octanol/water:	approx. -0.3 - 7.0 log P(o/w) Based on the n-octanol/water partition coefficient accumulation in organisms is possible.
Vapour pressure:	at 38 °C: Summer: 45,0 - 60,0 kPa - winter: 60 - 90 kPa (DIN EN 13016-1) at 50 °C:
Density:	at 15 °C: 720.0 - 775 kg/m³ (DIN ISO 3675/12185)
Vapour density:	No data available
Particle characteristics:	Not applicable

9.2 Other information

Explosive properties:	Vapours can form explosive mixtures with air.
Oxidizing characteristics:	No data available
Auto-ignition temperature:	No data available
Evaporation rate:	No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Extremely flammable liquid and vapour. Can form a highly explosive mixture with air.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Vapours are heavier than air and will spread at floor level.
Heating will lead to pressure increase: Danger of bursting and explosion.
In case of warming: Risk of fire/Danger of spontaneous combustion.
Potentially explosive vapour/air mixtures may form.
Reacts with oxidizing agents.

10.4 Conditions to avoid

Keep away from heat sources, sparks and open flames. Protect from direct sunlight.

10.5 Incompatible materials

Oxidizing agents

10.6 Hazardous decomposition products

No hazardous decomposition products when regulations for storage and handling are observed.

Thermal decomposition: No data available

SECTION 11: Toxicological information

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

Acute toxicity:

LD50 Rat, oral:	> 5,000 mg/kg (OECD TG 401)
LC50 Rat, inhalative:	> 5 mg/L (OECD TG 403)
LD50 Rabbit, dermal:	> 2,000 mg/kg (OECD TG 402)

Toxicological effects:

Acute toxicity (oral): Based on available data, the classification criteria are not met.

Acute toxicity (dermal): Based on available data, the classification criteria are not met.

Acute toxicity (inhalative): Based on available data, the classification criteria are not met.

Skin corrosion/irritation: Skin Irrit. 2; H315 = Causes skin irritation.
Information about Gasoline; Low boiling point naphtha - unspecified:
Specific symptoms in animal studies (Rabbit): irritant (OECD TG 404)

Serious eye damage/irritation: Lack of data.

Sensitisation to the respiratory tract: Lack of data.

Skin sensitisation: Based on available data, the classification criteria are not met.
Information about Gasoline; Low boiling point naphtha - unspecified:
test result for Sensitisation (Guinea pig): negative (OECD TG 406)

Germ cell mutagenicity/Genotoxicity: Muta. 1B; H340 = May cause genetic defects.
Contents of benzene >=0,1 %

Carcinogenicity: Carc. 1A; H350 = May cause cancer.
Contents of benzene >=0,1 %

Reproductive toxicity: Repr. 2; H361fd = Suspected of damaging fertility. Suspected of damaging the unborn child.
Contents of toluene or n-Hexane >=3 %
Information about Methanol
Contents of Methanol >= 0.3 %. May damage fertility or the unborn child.

Effects on or via lactation: Lack of data.

Specific target organ toxicity (single exposure): STOT SE 3; H336 = May cause drowsiness or dizziness. symptoms: CNS disorders.

Specific target organ toxicity (repeated exposure): Based on available data, the classification criteria are not met.
NOAEL Rat, dermal: 3750 mg/kg/28d (OECD TG 410)
NOAEC chronic inhalation toxicity: 1400 mg/m³ (OECD TG 453)

Aspiration hazard: Asp. Tox. 1; H304 = May be fatal if swallowed and enters airways.

11.2 Information on other hazards

Endocrine disrupting properties:

No data available

Symptoms

In case of inhalation:
Headache, intoxication, nausea, drowsiness, dizziness, shortage of breath, Cough.
If higher concentrations occur: CNS disorders, unconsciousness, narcosis, apnea.
In case of ingestion:
gastrointestinal complaints, diarrhoea, Cough, shortness of breath, fever.
After contact with skin: Has degreasing effect on the skin.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity:

Toxic to aquatic life with long lasting effects.
Information about Gasoline; Low boiling point naphtha - unspecified:

Acute effects:
algae toxicity freshwater species:
EL50 Pseudokirchneriella subcapitata (green algae): 3.1 mg/L/72h (OEDC 201, based on: growth rate) (source: CONCAWE 1995o)
NOELR Pseudokirchneriella subcapitata (green algae): 0.5 mg/L/72h (OEDC 201, based on: growth rate) (source: CONCAWE 1996a)

fish toxicity freshwater species:
LC50 Oncorhynchus mykiss: 10 mg/L/96h (OEDC 203) (source: CONCAWE 1995a, 1996a,b)
LC50 Pimephales promelas (fathead minnow): 8.2 mg/L/96h (EPA 66013-75-009) (source: PPSC 1995a)

Invertebrate toxicity:
freshwater species EC50 Daphnia magna (Big water flea): 4.5 mg/L/48h (OEDC 202, based on: Mobility) (source: CONCAWE 1995h, 1996j,k)

Bacterial toxicity:
freshwater species LL50 Tetrahymena pyriformis: 15.41 mg/L/72h (Method: QSAR PETROTOX) (source: Redman et al. 2010b)

Long-term effects:
freshwater species NOEL Daphnia magna (Big water flea): 2.6 mg/L/21d (OEDC 211, based on: reproduction) (source: Springborn Laboratories Inc. 1999d)

12.2 Persistence and degradability

Further details:

Information about Gasoline; Low boiling point naphtha - unspecified:

Inherently biodegradable (Solano-Serena, F. et al (1999)).
Hydrolysis is not expected to occur. (Neely, W.B., Blau, G.E. (1985))

Environmental distribution like calculation model (PETRORISK):
Air: 93.02 %
Water: 5.83 %
Soil: 0.34 %
Sediment: 0.81 %
(source: Redman et al., 2010a)

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water:

approx. -0.3 - 7.0 log P(o/w)
Based on the n-octanol/water partition coefficient accumulation in organisms is possible.

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

General information: Discharge into the environment must be avoided. Formation of an oil film on water impairs the oxygen exchange and may cause significant adverse effects in the aquatic environment.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste key number: 13 07 02* = Wastes of liquid fuels: Petrol
* = Evidence for disposal must be provided.

Recommendation: Delivery to an approved waste disposal company.
Incinerate according to applicable local, state and federal regulations.

Package

Recommendation: Completely emptied packages can be recycled.

Additional information

Discharge into the environment must be avoided.
Handle empty containers with care. Incineration may cause explosion.

Section 14. Transport information

14.1 UN number or ID number

ADR/RID, IMDG, IATA-DGR:
UN 1203

14.2 UN proper shipping name

ADR/RID: UN 1203, GASOLINE

IMDG: UN 1203,
MOTOR SPIRIT or GASOLINE or PETROL (Gasoline; Low boiling point naphtha - unspecified), MARINE POLLUTANT

IATA-DGR: UN 1203, MOTOR SPIRIT

14.3 Transport hazard class(es)

ADR/RID: Class 3, Code: F1
IMDG: Class 3, Subrisk -
IATA-DGR: Class 3

14.4 Packing group

ADR/RID, IMDG, IATA-DGR:
II

14.5 Environmental hazards

Dangerous for the environment:
Substance/mixture is environmentally hazardous according to the criteria of the UN model regulations.
Marine pollutant: yes

14.6 Special precautions for user

Land transport (ADR/RID)

Warning board:	ADR/RID: Kemmler-number 33, UN number UN 1203
Hazard label:	3
Special Provisions:	243 534 ADR664
Limited quantities:	1 L
EQ:	E2
Package - Instructions:	P001 IBC02 R001
Package - Special Provisions:	BB2
Special provisions for packing together:	MP19
Portable tanks - Instructions:	T4
Portable tanks - Special Provisions:	TP1
Tank coding:	LGBF
Tunnel restriction code:	D/E

Sea transport (IMDG)

EmS:	F-E, S-E
Special Provisions:	243
Limited quantities:	1 L
Excepted quantities:	E2
Package - Instructions:	P001
Package - Provisions:	-
IBC - Instructions:	IBC02
IBC - Provisions:	-
Tank instructions - IMO:	-
Tank instructions - UN:	T4
Tank instructions - Provisions:	TP1
Stowage and handling:	Category E.
Properties and observations:	Immiscible with water.
Segregation group:	none

Air transport (IATA)

Hazard label:	Flamm. liquid
Excepted Quantity Code:	E2
Passenger and Cargo Aircraft: Ltd.Qty.:	Pack.Instr. Y341 - Max. Net Qty/Pkg. 1 L
Passenger and Cargo Aircraft:	Pack.Instr. 353 - Max. Net Qty/Pkg. 5 L
Cargo Aircraft only:	Pack.Instr. 364 - Max. Net Qty/Pkg. 60 L
Special Provisions:	A100
Emergency Response Guide-Code (ERG):	3H

14.7 Maritime transport in bulk according to IMO instruments

No data available

SECTION 15: Regulatory information

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

National regulations - EC member states

Volatile organic compounds (VOC):

100 % by weight = 775 g/L

Further regulations, limitations and legal requirements:

Product:	Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances [Seveso-III-Directive]: Physical hazards: Code P5c, Quantity threshold 5 000 000 kg / 50 000 000 kg Environmental hazards: Code E2, Quantity threshold 200 000 kg / 500 000 kg Use restriction according to REACH annex XVII, no.: 3, 28, 29, 40 Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances [Seveso-III-Directive]: annex I, part 1: P5a, E2, 34a.
Toluene:	REGULATION (EC) 273/2004 (Drug precursors): Category 3 REGULATION (EC) 111/2005 (Trade with drug precursors): Category 3
Benzene:	Regulation (EU) No 649/2012 (PIC): annex I part 1

15.2 Chemical Safety Assessment

For this substance a chemical safety assessment has been carried out.

SECTION 16: Other information

Wording of the H-phrases under paragraph 2 and 3:

H224 = Extremely flammable liquid and vapour.
H225 = Highly flammable liquid and vapour.
H226 = Flammable liquid and vapour.
H301 = Toxic if swallowed.
H304 = May be fatal if swallowed and enters airways.
H311 = Toxic in contact with skin.
H315 = Causes skin irritation.
H318 = Causes serious eye damage.
H319 = Causes serious eye irritation.
H331 = Toxic if inhaled.
H332 = Harmful if inhaled.
H335 = May cause respiratory irritation.
H336 = May cause drowsiness or dizziness.
H340 = May cause genetic defects.
H350 = May cause cancer.
H361 = Suspected of damaging fertility or the unborn child.
H361fd = Suspected of damaging fertility. Suspected of damaging the unborn child.
H361d = Suspected of damaging the unborn child.
H370 = Causes damage to organs.
H372 = Causes damage to organs through prolonged or repeated exposure.
H373 = May cause damage to central nervous system through prolonged or repeated exposure via inhalation.
H411 = Toxic to aquatic life with long lasting effects.
H412 = Harmful to aquatic life with long lasting effects.

Literature:
- CONCAWE Dossier 'Liquified Petroleum Gas', 92/102 (Madouplein 1, B-1030 Brussels, Belgium)
- CONCAWE Report 01/54 (Environmental Classification of Petroleum Substances - Summary data and Rationale)
- CONCAWE Report 01/53 (Classification and of Labelling of Petroleum Substances Directive)

Reason of change: Changes in section 1: details of the supplier of the safety data sheet (address)
Date of first version: 5/6/2013

Department issuing data sheet:
see section 1: Department responsible for information

Abbreviations and acronyms:

Acute Tox.: Acute toxicity
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
Aquatic Chronic: Hazardous to the aquatic environment - chronic
AS/NZS: Australian Standards/New Zealand Standards
Asp. Tox.: Aspiration toxicity
Carc.: Carcinogenicity
CAS: Chemical Abstracts Service
CFR: Code of Federal Regulations
CLP: Classification, Labelling and Packaging
CNS: Central Nervous System
DMEL: Derived minimal effect level
DNEL: Derived no-effect level
EC: European Community
EC50: Effective Concentration 50%
EN: European Standard
EQ: Excepted quantities
EU: European Union
Eye Dam.: Eye damage
Eye Irrit.: Eye irritation
Flam. Liq.: Flammable liquid
IATA: International Air Transport Association
IATA-DGR: International Air Transport Association – Dangerous Goods Regulations
IBC Code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IBC: Intermediate Bulk Container
IMDG Code: International Maritime Dangerous Goods Code
LC50: Median lethal concentration
LD50: Lethal dose 50%
LEL: Lower Explosion Limit
log P(o/w): Partition coefficient: octanol/water
MARPOL: Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
Muta.: Mutagenicity
NOAEL: No Observed Adverse Effect Level
OEL: Occupational Exposure Limit Value
OSHA: Occupational Safety and Health Administration
PBT: Persistent, bioaccumulative and toxic
PNEC: Predicted no-effect concentration
PVC: Polyvinyl chloride
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
Repr.: Reproductive toxicity
RID: Regulations Concerning the International Carriage of Dangerous Goods by Rail
RMM: Risk Management Measures
Skin Irrit.: Skin irritation
STOT RE: Specific target organ toxicity - repeated exposure
STOT SE: Specific target organ toxicity - single exposure
STP: Sewage Treatment Plant
STP: Standard temperature and pressure
TLV: Threshold Limit Value
TRGS: Technical Rules for Hazardous Substances
UN: United Nations
UVCB: Substance of unknown or variable composition, complex reaction products or biological materials
vPvB: Very persistent and very bioaccumulative
WEL: Workplace Exposure Limit

The information in this data sheet has been established to our best knowledge and was up-to-date at time of revision. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.

Exposure Scenario 1: 01a - Distribution of naphtha Classified as: H340, H350 and H361 (Contains benzene 0.1 - 1 %)

List of use descriptors

Sectors of use [SU]: SU 3: Industrial uses

Application

Activities and processes: Bulk loading (including marine vessel/barge, rail/road car and IBC loading) of substance within closed or contained systems, including incidental exposures during its sampling, storage, unloading, maintenance and associated laboratory activities.

Contributing Scenarios:

1	Distribution of naphtha (environment)	Page 19
2	General exposures (closed systems) (worker)	Page 20
3	General exposures (closed systems) with sample collection (worker)	Page 21
4	General exposures (closed systems), outdoor (worker)	Page 22
5	Process sampling (worker)	Page 23
6	Laboratory activities (worker)	Page 24
7	Bulk transfers (closed systems) (worker)	Page 25
8	Equipment cleaning and maintenance (worker)	Page 26
9	Storage (worker)	Page 27

Exposure Scenario 1 - Contributing exposure scenario 1

Distribution of naphtha (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC 4: Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
ERC 5: Use at industrial site leading to inclusion into/onto article
ERC 6a: Use of intermediate
ERC 6b: Use of reactive processing aid at industrial site (no inclusion into or onto article)
ERC 6c: Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article)
ERC 6d: Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)
ERC 7: Industrial use of substances in closed systems

Specific Environmental Release Categories [SPERC]:

SpERC 1.1bv1

Operational conditions

Product characteristics:

Predominantly hydrophobic
Substance is complex UVCB

Duration and frequency of use:

Emission days per year: 300
Continuous release

Environment factors not influenced by risk management:

Local marine water dilution factor: 100
Local freshwater dilution factor: 10

Release rate (initial release prior to RMM):
Air: 0.001
Waste water: 1E-05
Soil: 1E-05

Common practices vary across sites thus conservative process release estimates used.

Other relevant operational conditions:

Fraction of EU tonnage used in region: 0.1 %
Regional use tonnage (tons/year): 11,000,000
Fraction of regional tonnage used locally: 0.002
Annual amount per site: <= 21,000 t/y
Maximum daily site tonnage (kg/day): <= 71,000

Exposure prediction

Risk characterisation ratio (RCR):

RCR Air: 0.0061
RCR Waste water (freshwater): 0.027

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Treat air emission to provide the required removal efficiency of (%): 90

Operational conditions and risk management measures:

Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Disposal considerations

Conditions and measures related to sewage treatment plant:

Domestic STP: yes (effectiveness water: 96.1 %)
Discharge rate: 2,000 m³/d

Conditions and measures related to external treatment of waste for disposal:

External treatment and disposal of waste should comply with applicable local and/or national regulations.

Exposure Scenario 1 - Contributing exposure scenario 2

General exposures (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC 1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions

Operational conditions

Product characteristics: Liquid, vapour pressure > 10 kPa at STP

Concentration of the substance in a mixture:

<= 100 %

Duration and frequency of use:

Use duration: <= 8 hours

Other information: Assumes use at not more than 20 °C above ambient temperature.

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.

Operational conditions and risk management measures:

Assumes a good basic standard of occupational hygiene is implemented.

Avoid contact with skin. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) if hand contact with substance likely. Wash off any skin contamination immediately. Clean up contamination/spills as soon as they occur. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and clear transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Restrict access to authorised persons; Provide specific activity training to operators to minimise exposures; Wear suitable gloves and coveralls to prevent skin contamination; Wear respiratory protection when its use is identified for certain contributing scenarios; Clear up spills and dispose of waste in accordance with regulatory requirements. Regularly inspect, test and maintain all control measures. Consider the need for health surveillance.

Exposure Scenario 1 - Contributing exposure scenario 3

General exposures (closed systems) with sample collection (worker)

List of use descriptors

Process categories [PROC]:

PROC 2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

Operational conditions

Product characteristics: Liquid, vapour pressure > 10 kPa at STP

Concentration of the substance in a mixture:

<= 100 %

Duration and frequency of use:

Use duration: <= 8 hours

Other information: Assumes use at not more than 20 °C above ambient temperature.

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.
Sample via a closed loop or other system to avoid exposure.

Operational conditions and risk management measures:

Assumes a good basic standard of occupational hygiene is implemented.

Avoid contact with skin. Identify potential areas for indirect skin contact. Wash off any skin contamination immediately. Clean up contamination/spills as soon as they occur. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and clear transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Restrict access to authorised persons; Provide specific activity training to operators to minimise exposures; Wear suitable gloves and coveralls to prevent skin contamination; Wear respiratory protection when its use is identified for certain contributing scenarios; Clear up spills and dispose of waste in accordance with regulatory requirements. Regularly inspect, test and maintain all control measures. Consider the need for health surveillance.

Conditions and measures related to personal protection, hygiene and health evaluation:

Hand protection: Wear suitable gloves tested to EN 374.

Exposure Scenario 1 - Contributing exposure scenario 4

General exposures (closed systems), outdoor (worker)

List of use descriptors

Process categories [PROC]:

PROC 3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions

Operational conditions

Product characteristics: Liquid, vapour pressure > 10 kPa at STP

Concentration of the substance in a mixture:

<= 100 %

Duration and frequency of use:

Use duration: <= 8 hours

Other information: Assumes use at not more than 20 °C above ambient temperature.

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle substance within a closed system.

Operational conditions and risk management measures:

Assumes a good basic standard of occupational hygiene is implemented.

Avoid contact with skin. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) if hand contact with substance likely. Wash off any skin contamination immediately. Clean up contamination/spills as soon as they occur. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and clear transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Restrict access to authorised persons; Provide specific activity training to operators to minimise exposures; Wear suitable gloves and coveralls to prevent skin contamination; Wear respiratory protection when its use is identified for certain contributing scenarios; Clear up spills and dispose of waste in accordance with regulatory requirements. Regularly inspect, test and maintain all control measures. Consider the need for health surveillance.

Exposure Scenario 1 - Contributing exposure scenario 5

Process sampling (worker)

List of use descriptors

Process categories [PROC]:

PROC 3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions

Operational conditions

Product characteristics: Liquid, vapour pressure > 10 kPa at STP

Concentration of the substance in a mixture:

<= 100 %

Duration and frequency of use:

Use duration: <= 8 hours

Other information: Assumes use at not more than 20 °C above ambient temperature.

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Sample via a closed loop or other system to avoid exposure.

Operational conditions and risk management measures:

Assumes a good basic standard of occupational hygiene is implemented.

Avoid contact with skin. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) if hand contact with substance likely. Wash off any skin contamination immediately. Clean up contamination/spills as soon as they occur. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and clear transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Restrict access to authorised persons; Provide specific activity training to operators to minimise exposures; Wear suitable gloves and coveralls to prevent skin contamination; Wear respiratory protection when its use is identified for certain contributing scenarios; Clear up spills and dispose of waste in accordance with regulatory requirements. Regularly inspect, test and maintain all control measures. Consider the need for health surveillance.

Exposure Scenario 1 - Contributing exposure scenario 6

Laboratory activities (worker)

List of use descriptors

Process categories [PROC]:

PROC 15: Use as laboratory reagent

Operational conditions

Product characteristics: Liquid, vapour pressure > 10 kPa at STP

Concentration of the substance in a mixture:

<= 100 %

Duration and frequency of use:

Use duration: <= 8 hours

Other information: Assumes use at not more than 20 °C above ambient temperature.

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Handle within a fume cupboard or implement suitable equivalent methods to minimise exposure.

Operational conditions and risk management measures:

Assumes a good basic standard of occupational hygiene is implemented.

Avoid contact with skin. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) if hand contact with substance likely. Wash off any skin contamination immediately. Clean up contamination/spills as soon as they occur. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and clear transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Restrict access to authorised persons; Provide specific activity training to operators to minimise exposures; Wear suitable gloves and coveralls to prevent skin contamination; Wear respiratory protection when its use is identified for certain contributing scenarios; Clear up spills and dispose of waste in accordance with regulatory requirements. Regularly inspect, test and maintain all control measures. Consider the need for health surveillance.

Exposure Scenario 1 - Contributing exposure scenario 7

Bulk transfers (closed systems) (worker)

List of use descriptors

Process categories [PROC]:

PROC 8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities

Operational conditions

Product characteristics: Liquid, vapour pressure > 10 kPa at STP

Concentration of the substance in a mixture:

<= 100 %

Duration and frequency of use:

Use duration: <= 8 hours

Other information: Assumes use at not more than 20 °C above ambient temperature.

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Ensure material transfers are under containment or extract ventilation.

Operational conditions and risk management measures:

Assumes a good basic standard of occupational hygiene is implemented.

Avoid contact with skin. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) if hand contact with substance likely. Wash off any skin contamination immediately. Clean up contamination/spills as soon as they occur. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and clear transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Restrict access to authorised persons; Provide specific activity training to operators to minimise exposures; Wear suitable gloves and coveralls to prevent skin contamination; Wear respiratory protection when its use is identified for certain contributing scenarios; Clear up spills and dispose of waste in accordance with regulatory requirements. Regularly inspect, test and maintain all control measures. Consider the need for health surveillance.

Exposure Scenario 1 - Contributing exposure scenario 8

Equipment cleaning and maintenance (worker)

List of use descriptors

Process categories [PROC]:

PROC 8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

Operational conditions

Product characteristics: Liquid, vapour pressure > 10 kPa at STP

Concentration of the substance in a mixture:

<= 100 %

Duration and frequency of use:

Use duration: <= 8 hours

Other information: Assumes use at not more than 20 °C above ambient temperature.

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Drain down and flush equipment where possible prior to maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle.

Operational conditions and risk management measures:

Clear spills immediately.

Assumes a good basic standard of occupational hygiene is implemented.

Avoid contact with skin. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) if hand contact with substance likely. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and clear transfer lines prior to breaking containment. Where there is potential for exposure: Restrict access to authorised persons; Provide specific activity training to operators to minimise exposures; Wear suitable gloves and coveralls to prevent skin contamination; Wear respiratory protection when its use is identified for certain contributing scenarios; Clear up spills and dispose of waste in accordance with regulatory requirements. Regularly inspect, test and maintain all control measures. Consider the need for health surveillance.

Conditions and measures related to personal protection, hygiene and health evaluation:

Hand protection: Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training.

Exposure Scenario 1 - Contributing exposure scenario 9

Storage (worker)

List of use descriptors

Process categories [PROC]:

PROC 1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions

Operational conditions

Product characteristics: Liquid, vapour pressure > 10 kPa at STP

Concentration of the substance in a mixture:

<= 100 %

Duration and frequency of use:

Use duration: <= 8 hours

Other information: Assumes use at not more than 20 °C above ambient temperature.

Risk management measures

Technical conditions and measures at process level (source) to prevent release:

Store substance within a closed system. Ensure operation is undertaken outdoors.

Operational conditions and risk management measures:

Assumes a good basic standard of occupational hygiene is implemented.

Avoid contact with skin. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) if hand contact with substance likely. Wash off any skin contamination immediately. Clean up contamination/spills as soon as they occur. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop.

Control any potential exposure using measures such as contained or enclosed systems, properly designed and maintained facilities and a good standard of general ventilation. Drain down systems and clear transfer lines prior to breaking containment. Drain down and flush equipment where possible prior to maintenance. Where there is potential for exposure: Restrict access to authorised persons; Provide specific activity training to operators to minimise exposures; Wear suitable gloves and coveralls to prevent skin contamination; Wear respiratory protection when its use is identified for certain contributing scenarios; Clear up spills and dispose of waste in accordance with regulatory requirements. Regularly inspect, test and maintain all control measures. Consider the need for health surveillance.

Guidance for downstream users to evaluate if their use is within the boundaries of the ES

Exposure assessment (workers): ECETOC TRA
Exposure assessment (environment): Hydrocarbon Block Method (Petrorisk)
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d): 2,600,000