SAFETY DATA SHEET

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

Jet Fuel A-1

Material number J001

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

1.1 Product identifier

Trade name: Jet Fuel A-1

CAS-Number: 8008-20-6
EC-number: 232-366-4

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

General use: Fuel

Identified uses: **Industrial use:**

1 Distribution of Kerosine (petroleum) (Industrial) Page 12
SU 3; PROC 1,2,3,4,8a,8b,9,15; ERC 1,2,3,4,5,6a,6b,6c,6d,7; SpERC 1.1bv1

1.3 Details of the supplier of the safety data sheet

Company name: Erdölbevorratungsverband
Street/POB-No.: Jungfernstieg 38
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. 3; H226	Flammable liquid and vapour.
Skin Irrit. 2; H315	Causes skin irritation.
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:	H226	Flammable liquid and vapour.
	H304	May be fatal if swallowed and enters airways.
	H315	Causes skin irritation.
	H336	May cause drowsiness or dizziness.
	H411	Toxic to aquatic life with long lasting effects.
Precautionary statements:	P102	Keep out of reach of children.
	P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
	P273	Avoid release to the environment.
	P280	Wear protective gloves/protective clothing/eye protection.
	P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
	P331	Do NOT induce vomiting.
	P391	Collect spillage.

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:
The product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances: not applicable

3.2 Mixtures

Chemical characterisation: Aviation turbine fuel auf Petroleumbasis.
A complex combination of hydrocarbons produced by the distillation of crude oil. Hydrocarbons range: C9 up to C16. Contains additives.

CAS-Number: 8008-20-6
EC-number: 232-366-4

Hazardous ingredients:

Identifiers	Designation Classification	Content
REACH 01-2119485517-27-xxxx EC No. 232-366-4 CAS 8008-20-6	Kerosine (petroleum) Flam. Liq. 3; H226. Skin Irrit. 2; H315. STOT SE 3; H336. Asp. Tox. 1; H304. Aquatic Chronic 2; H411.	< 100 % [mass]
REACH 01-2119462828-25-xxxx EC No. 265-184-9 CAS 64742-81-0	Kerosine (petroleum), hydrodesulfurized Flam. Liq. 3; H226. Skin Irrit. 2; H315. STOT SE 3; H336. Asp. Tox. 1; H304. Aquatic Chronic 2; H411.	< 100 % [mass]
EC No. 294-799-5 CAS 91770-15-9	Kerosine (petroleum), sweetened Flam. Liq. 3; H226. Skin Irrit. 2; H315. Asp. Tox. 1; H304. Aquatic Chronic 2; H411.	< 100 % [mass]

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 exposed or concerned: Get medical advice/attention.
If medical advice is needed, have product container or label at hand.
First aider: Pay attention to self-protection!
No mouth-to-mouth or mouth-to-nose resuscitation. Use Ambu bag or ventilator. Immediately remove any contaminated clothing, shoes or stockings.

In case of inhalation:
Move victim to fresh air, put at rest and loosen restrictive clothing. If the casualty has difficulty breathing, call a doctor immediately. No mouth-to-mouth or mouth-to-nose resuscitation. Use Ambu bag or ventilator. If victim is at risk of losing consciousness, position and transport on their side.

Following skin contact:
Take off immediately all contaminated clothing and wash it before reuse.
After contact with skin, wash immediately with soap and plenty of water.
In case of skin reactions, consult a physician.

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 consult an ophthalmologist.

After swallowing:
Do not induce vomiting. Danger of aspiration! Immediately get medical attention.
In case of vomiting, lay at least head on side. Keep airway open.
If victim is at risk of losing consciousness, position and transport on their side.

4.2 Most important symptoms and effects, both acute and delayed

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

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.
When swallowed and vomited immediately, aspiration into the lungs may occur resulting in chemical pneumonia or suffocation.
In the event of pulmonary irritation treat initially with dexamethasone - dosing aerosol.

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

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 breathing mist/vapours/spray. Avoid contact with the substance.
Eliminate all ignition sources if safe to do so. If possible, eliminate leakage. Provide adequate ventilation.
Wear appropriate protective equipment. Keep unprotected people away.
Cordon off downwind area at risk and warn inhabitants.
Larger quantities (> 1 barrel), additionally: full protection suit, boots.

6.2 Environmental precautions

Do not allow to penetrate into soil, waterbodies or drains.
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). Treat the absorbed material according to Section 13 (Disposal considerations).

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: Eliminate all ignition sources if safe to do so. Provide adequate ventilation, and local exhaust as needed.
Do not breathe vapours.
Avoid contact with skin, eyes, and clothing. 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.
Larger quantities (> 1 barrel), additionally: full protection suit, boots.

Precautions against fire and explosion:
Keep away from sources of ignition and heat. Take precautionary measures against static discharges. Use grounding equipment.
Avoid sparks. Avoid open flames. Do not weld. Use only antistatically equipped (spark-free) tools.
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.
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.

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

7.3 Specific end use(s)

Fuel

SECTION 8: Exposure controls/personal protection

All exposure relevant information (human health and environment) is summarised in annexes to this safety data sheet.

8.1 Control parameters

Additional information: Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Provide for good ventilation or exhaust system or work with completely self-contained equipment. Explosion protection required.

Personal protection equipment

Occupational exposure controls

Respiratory protection: When aerosols and vapours form:
Use filter type A (= against vapours of organic substances) according to BS EN 14387.
In case of prolonged exposure: Wear self-contained breathing apparatus.

Hand protection: Protective gloves according to BS EN 374, oil resistant plastic gloves.
Glove material: Nitrile rubber (or equivalent).
Breakthrough time: >480 min.
Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

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

Body protection: Flame retardant, antistatic and chemical resistant 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:	yellowish
Odour:	characteristic, like Mineral oil
Odour threshold:	No data available
Melting point/freezing point:	<= -47 °C
Initial boiling point and boiling range:	150 - 300 °C
Flammability:	Flammable liquid and vapour.
Upper/lower flammability or explosive limits:	LEL (Lower Explosion Limit): 0.60 Vol-% UEL (Upper Explosive Limit): 6.50 Vol-%
Flash point/flash point range:	> 38 °C (IP 303/ASTM D 3828)
Decomposition temperature:	No data available
pH:	No data available
Viscosity, kinematic:	at -20 °C: 3.15 mm²/s (ASTM D 445)
Water solubility:	at 20 °C: low
Partition coefficient: n-octanol/water:	(Kerosine (petroleum)) 3.3 - 6 log P(o/w) Based on the n-octanol/water partition coefficient accumulation in organisms is possible.
Vapour pressure:	at 38 °C: 1 - 21 kPa (EN 13016-1)
Density:	at 15 °C: 775 - 840 g/mL
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:	> 220 °C (ASTM E 669)
Evaporation rate:	No data available
Additional information:	No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

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.
In case of warming: Risk of fire/Danger of spontaneous combustion.
Forms explosive mixtures with air, also in empty, uncleaned containers.
Container: Heating will lead to pressure increase: Danger of bursting and explosion.
Reacts with oxidizing agents.

10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Protect from direct sunlight.

10.5 Incompatible materials

Strong oxidizing agents.

10.6 Hazardous decomposition products

Nitrogen oxides (NOx), sulphur oxides, carbon black, carbon monoxide and carbon dioxide.

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 bw (OECD 420)
LC50 Rat, inhalative: > 5.28 mg/L (OECD 403)
LD50 Rabbit, dermal: > 2,000 mg/kg bw (OECD 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. Specific symptoms in animal studies (Rabbit): irritant (OECD 404, API 1985a)

Serious eye damage/irritation: Based on available data, the classification criteria are not met. Specific symptoms in animal studies (Rabbit): Does not cause irritation. (OECD 405, API 1985a)

Sensitisation to the respiratory tract: Lack of data. according to REACH not required

Skin sensitisation: Based on available data, the classification criteria are not met. Specific symptoms in animal studies (Guinea pig): Not known to cause sensitization. (EPA OTS 798.4100, API 1985a)

Germ cell mutagenicity/Genotoxicity: Based on available data, the classification criteria are not met. Mutagenicity: In-vitro/In-vitro: negative (OECD 471, 475, 476)

Carcinogenicity: Based on available data, the classification criteria are not met. Application, dermal (Mouse): negative
LOAEL: 200 mg/kg bw/d (OECD 451, API 1989a)

Reproductive toxicity: Based on available data, the classification criteria are not met.
NOAEL oral: > 3000 mg/m³ bw/d
NOAEL dermal: > 494 mg/m³ bw/d
NOAEL inhalative: > 10000 mg/m³

Effects on or via lactation: Lack of data.

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

Specific target organ toxicity (repeated exposure): Based on available data, the classification criteria are not met.
NOAEL Rat, oral: 750 mg/kg bw/d (Mattie et al.)
NOAEL Rat, dermal: >= 400 mg/kg bw/d(OECD 410)
NOAEC Rat, inhalative: >= 1000 mg/m³ (OECD 413)

Aspiration hazard: Asp. Tox. 1; H304 = May be fatal if swallowed and enters airways. When swallowed and vomited immediately, aspiration into the lungs may occur resulting in chemical pneumonia or suffocation.

11.2 Information on other hazards

Endocrine disrupting properties: No data available

Symptoms

Inhalation of large amounts causes: Disorders of coordination, inebriation, headache, nausea.
In case of prolonged exposure: dizziness, unconsciousness and apnea possible.
In case of inhalation: Prolonged inhalation leads to headache, dizziness and CNS disorders.
In case of prolonged exposure: Drowsiness, unconsciousness and apnea possible.
In case of ingestion:
Gastrointestinal complaints. When swallowed and vomited immediately, aspiration into the lungs may occur resulting in chemical pneumonia or suffocation.
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.

Algae toxicity:
EL50 Pseudokirchneriella subcapitata (green algae): 1.0 - 3.0 mg/L/72h (OECD 201)

Daphnia toxicity:
EL50 short-term, Daphnia magna (Big water flea): 1.4 mg/L (OECD 202)
NOEL long-term, Daphnia magna (Big water flea): 0.48 mg/L/21d (OECD 211)

Fish toxicity:
LL50 short-term, Oncorhynchus mykiss: 2 - 5 mg/L/96h (OECD 203)
NOEL long-term, Oncorhynchus mykiss: 0.098 mg/L/28 d

Further details: Substance floats on the water surface.
Will be adsorbed by the ground and stays immobile.

12.2 Persistence and degradability

Further details: Hydrolysis is not expected to occur.

Effects in sewage plants: Bacterial toxicity:
LL50 Tetrahymena pyriformis: 677.9 mg/L/3h

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water:
(Kerosine (petroleum)) 3.3 - 6 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

The product does not contain any substances classified as PBT or vPvB.

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

General information: Do not allow to enter into ground-water, surface water or drains.
In case of spills of large quantities: Danger to drinking water.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste key number: 13 07 03* = wastes of liquid fuels
* = Evidence for disposal must be provided.

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

Additional information

Carriage on tank-lorry. Empty carefully and completely, if possible.
Handle empty containers with care. Incineration may cause explosion.
Discharge into the environment must be avoided.

SECTION 14: Transport information

14.1 UN number or ID number

ADR/RID, IMDG, IATA-DGR: UN 1863

14.2 UN proper shipping name

ADR/RID, IATA-DGR: UN 1863, FUEL, AVIATION, TURBINE ENGINE
IMDG: UN 1863, FUEL, AVIATION, TURBINE ENGINE (Kerosine (petroleum)), MARINE POLLUTANT

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: III

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 30, UN number UN 1863
Hazard label:	3
Special Provisions:	ADR664
Limited quantities:	5 L
EQ:	E1
Package - Instructions:	P001 IBC03 LP01 R001
Special provisions for packing together:	MP19
Portable tanks - Instructions:	T2
Portable tanks - Special Provisions:	TP1
Tank coding:	LGBF
Tunnel restriction code:	D/E

Sea transport (IMDG)

EmS:	F-E, S-E
Special Provisions:	223
Limited quantities:	5 L
Excepted quantities:	E1
Package - Instructions:	P001, LP01
Package - Provisions:	-
IBC - Instructions:	IBC03
IBC - Provisions:	-
Tank instructions - IMO:	-
Tank instructions - UN:	T2
Tank instructions - Provisions:	TP1
Stowage and handling:	Category A.
Properties and observations:	Boiling range: -14°C upwards. Immiscible with water.
Segregation group:	none

Air transport (IATA)

Hazard label:	Flamm. liquid
Excepted Quantity Code:	E1
Passenger and Cargo Aircraft: Ltd.Qty.:	Pack.Instr. Y344 - Max. Net Qty/Pkg. 10 L
Passenger and Cargo Aircraft:	Pack.Instr. 355 - Max. Net Qty/Pkg. 60 L
Cargo Aircraft only:	Pack.Instr. 366 - Max. Net Qty/Pkg. 220 L
Special Provisions:	A3
Emergency Response Guide-Code (ERG):	3L

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

Further regulations, limitations and legal requirements:

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, 40
Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances [Seveso-III-Directive]: annex I, part 1: P5c, E2, 34b.

15.2 Chemical Safety Assessment

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

SECTION 16: Other information

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

H226 = Flammable liquid and vapour.
H304 = May be fatal if swallowed and enters airways.
H315 = Causes skin irritation.
H336 = May cause drowsiness or dizziness.
H411 = Toxic to aquatic life with long lasting effects.

Literature: CONCAWE (Madouplein 1, B-1030 Brussels, Belgium):
- REACH Registration Dossier, CSR Kerosines 07/2010
- Dossier Kerosines/Jet Fuels
- Report 01/53 (Classification and of Labelling of Petroleum Substances Directive)
- Report 01/54 (Environmental Classification of Petroleum Substances - Summary data and Rationale)

ICSC 0663

Reason of change: Changes in section 14: General revision

Date of first version: 5/6/2013

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

Abbreviations and acronyms:
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
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
EN: European Standard
EQ: Excepted quantities
EU: European Union
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
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
OECD: Organisation for Economic Co-operation and Development
OSHA: Occupational Safety and Health Administration
PBT: Persistent, bioaccumulative and toxic
PNEC: Predicted no-effect concentration
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
RID: Regulations Concerning the International Carriage of Dangerous Goods by Rail
RMM: Risk Management Measures
Skin Irrit.: Skin irritation
STOT SE: Specific target organ toxicity - single exposure
STP: Sewage Treatment Plant
TRGS: Technical Rules for Hazardous Substances
UN: United Nations
vPvB: Very persistent and very bioaccumulative

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: Distribution of Kerosine (petroleum) (Industrial)

List of use descriptors

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

Application

Contributing Scenarios:

1	Distribution of Kerosine (petroleum) (environment)	Page 12
2	Use in closed process, no likelihood of exposure (worker)	Page 13
3	Use in closed, continuous process with occasional controlled exposure (worker)	Page 14
4	Use in closed, continuous process with occasional controlled exposure - Bulk product storage + Sampling (worker)	Page 15
5	Use in closed, continuous process - occasional exposure (worker)	Page 15
6	Use in closed, continuous process - occasional exposure - with sample collection (worker)	Page 16
7	Use in batch and other process (synthesis) where opportunity for exposure arises (worker)	Page 17
8	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities - maintenance of vessels and containers (worker)	Page 17
9	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities (worker)	Page 18
10	Transfer of substance or preparation into small containers (dedicated filling line, including weighing) - bulk transfers (closed systems) (worker)	Page 19
11	Use as laboratory reagent (worker)	Page 19

Exposure Scenario 1 - Contributing exposure scenario 1

Distribution of Kerosine (petroleum) (environment)

List of use descriptors

Environmental release categories [ERC]:

ERC 1: Manufacture of the substance
ERC 2: Formulation into mixture
ERC 3: Formulation into solid matrix
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: Use of functional fluid at industrial site

Specific Environmental Release Categories [SPERC]:

SpERC 1.1bv1

Operational conditions

Duration and frequency of use: Emission days per year: 300

Environment factors not influenced by risk management:

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

Flow rate of receiving surface water: 18,000 m³/d

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

Other relevant operational conditions:

Fraction of EU tonnage used in region: 0.1
Annual amount used in the EU: 5,400,000 t/y
Fraction of regional tonnage used locally: 0.002
Annual amount per site: 11,000 t/y
Daily amount per site: 36,000 kg/d

Exposure prediction

Exposure estimation and reference to its source:

Man via environment - Oral: 0.7 µg/kg d
Man via environment - Inhalation: 1.6 µg/kg d

Risk characterisation ratio (RCR):

RCR Sewage treatment plant: 0.0039
RCR Water (freshwater): 0.006
RCR Water (marine water): 0.0006
RCR Agricultural soil: 4.8E-05
RCR Sediment (freshwater): 0.0068
RCR Sediment (marine water): 0.00068
RCR Man via environment - Oral: 3.7E-05
RCR Man via environment - Inhalation: 8.5E-05

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:

Municipal STP: yes (effectiveness water: 94.7 %)
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

Use in closed process, no likelihood of exposure (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, medium volatility

Concentration of the substance in a mixture:
<= 100 %

Duration and frequency of use: Use duration: <= 8 hours
Emission days per year: 300

Other information: Indoor use
Process temperature: <= 40 °C

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 0.01 ppm
Dermal: 0 mg/kg bw/d

Risk characterisation ratio (RCR):
RCR Inhalative: 0
RCR dermal: 0
RCR combined: 0

Risk management measures

Operational conditions and risk management measures:
Assumes a good basic standard of occupational hygiene is implemented.
Avoid contact with skin. 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.

Conditions and measures related to personal protection, hygiene and health evaluation:
Hand protection: no
Respiratory protection: no
Eye protection: no

Other information: Clear lines prior to de-coupling. Ensure dedicated sample points are provided. Avoid dip sampling. Ensure material transfers are under containment or extract ventilation.

Exposure Scenario 1 - Contributing exposure scenario 3

Use in closed, continuous process with occasional controlled exposure (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, medium volatility

Concentration of the substance in a mixture:
<= 100 %

Duration and frequency of use: Use duration: <= 8 hours
Emission days per year: 300

Other information: Indoor use
Process temperature: <= 40 °C

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 10 ppm
Dermal: 0 mg/kg bw/d

Risk characterisation ratio (RCR):
RCR Inhalative: 0.25
RCR dermal: 0
RCR combined: 0.25

Risk management measures

Operational conditions and risk management measures:
Assumes a good basic standard of occupational hygiene is implemented.
Avoid contact with skin. 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.

Conditions and measures related to personal protection, hygiene and health evaluation:
Hand protection: no
Respiratory protection: no
Eye protection: no

Other information: Clear lines prior to de-coupling. Ensure dedicated sample points are provided. Avoid dip sampling. Ensure material transfers are under containment or extract ventilation.

Exposure Scenario 1 - Contributing exposure scenario 4

Use in closed, continuous process with occasional controlled exposure - Bulk product storage + Sampling (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, medium volatility

Concentration of the substance in a mixture:
<= 100 %

Duration and frequency of use: Use duration: <= 8 hours
Emission days per year: 300

Other information: Indoor use
Process temperature: <= 40 °C

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 10 ppm
Dermal: 0 mg/kg bw/d

Risk characterisation ratio (RCR):
RCR Inhalative: 0.25
RCR dermal: 0
RCR combined: 0.25

Risk management measures

Operational conditions and risk management measures:
Assumes a good basic standard of occupational hygiene is implemented.
Avoid contact with skin. 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.

Conditions and measures related to personal protection, hygiene and health evaluation:
Hand protection: no
Respiratory protection: no
Eye protection: no

Other information: Clear lines prior to de-coupling. Ensure dedicated sample points are provided. Avoid dip sampling. Ensure material transfers are under containment or extract ventilation.

Exposure Scenario 1 - Contributing exposure scenario 5

Use in closed, continuous process - occasional exposure (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, medium volatility

Concentration of the substance in a mixture:
<= 100 %

Duration and frequency of use: Use duration: <= 8 hours
Emission days per year: 300

Other information: Indoor use
Process temperature: <= 40 °C

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 25 ppm
Dermal: 0 mg/kg bw/d

Risk characterisation ratio (RCR):
RCR Inhalative: 0.63
RCR dermal: 0
RCR combined: 0.63

Risk management measures

Operational conditions and risk management measures:
Assumes a good basic standard of occupational hygiene is implemented.
Avoid contact with skin. 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.

Conditions and measures related to personal protection, hygiene and health evaluation:
Hand protection: no
Respiratory protection: no
Eye protection: no

Other information: Clear lines prior to de-coupling. Ensure dedicated sample points are provided. Avoid dip sampling. Ensure material transfers are under containment or extract ventilation.

Exposure Scenario 1 - Contributing exposure scenario 6

Use in closed, continuous process - occasional exposure - with sample collection (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, medium volatility

Concentration of the substance in a mixture:
<= 100 %

Duration and frequency of use: Use duration: <= 8 hours
Emission days per year: 300

Other information: Indoor use
Process temperature: <= 40 °C

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 25 ppm
Dermal: 0 mg/kg bw/d

Risk characterisation ratio (RCR):
RCR Inhalative: 0.63
RCR dermal: 0
RCR combined: 0.63

Risk management measures

Operational conditions and risk management measures:
Assumes a good basic standard of occupational hygiene is implemented.
Avoid contact with skin. 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.

Conditions and measures related to personal protection, hygiene and health evaluation:
Hand protection: no
Respiratory protection: no
Eye protection: no

Other information: Clear lines prior to de-coupling. Ensure dedicated sample points are provided. Avoid dip sampling. Ensure material transfers are under containment or extract ventilation.

Exposure Scenario 1 - Contributing exposure scenario 7

Use in batch and other process (synthesis) where opportunity for exposure arises (worker)

List of use descriptors

Process categories [PROC]: PROC 4: Chemical production where opportunity for exposure arises

Operational conditions

Product characteristics: Liquid, medium volatility

Concentration of the substance in a mixture:
<= 100 %

Duration and frequency of use: Use duration: <= 8 hours
Emission days per year: 300

Other information: Indoor use
Process temperature: <= 40 °C

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 20 ppm
Dermal: 0 mg/kg bw/d

Risk characterisation ratio (RCR):
RCR Inhalative: 0.5
RCR dermal: 0
RCR combined: 0.5

Risk management measures

Operational conditions and risk management measures:
Assumes a good basic standard of occupational hygiene is implemented.
Avoid contact with skin. 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.

Conditions and measures related to personal protection, hygiene and health evaluation:
Hand protection: no
Respiratory protection: no
Eye protection: no

Other information: Clear lines prior to de-coupling. Ensure dedicated sample points are provided. Avoid dip sampling. Ensure material transfers are under containment or extract ventilation.

Exposure Scenario 1 - Contributing exposure scenario 8

Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities - maintenance of vessels and containers (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, medium volatility

Concentration of the substance in a mixture:
<= 100 %

Duration and frequency of use: Use duration: <= 8 hours
Emission days per year: 300

Other information: Indoor use
Process temperature: <= 40 °C

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 10 ppm
Dermal: 0 mg/kg bw/d

Risk characterisation ratio (RCR):
RCR Inhalative: 0.25
RCR dermal: 0
RCR combined: 0.25

Risk management measures

Operational conditions and risk management measures:

Assumes a good basic standard of occupational hygiene is implemented.
Avoid contact with skin. 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.
Drain down and flush system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle. Equivalent to 80 % efficiency (ventilation).

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

Hand protection: no
Respiratory protection: no
Eye protection: no

Other information: Clear lines prior to de-coupling. Ensure dedicated sample points are provided. Avoid dip sampling. Ensure material transfers are under containment or extract ventilation.

Exposure Scenario 1 - Contributing exposure scenario 9

Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities (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, medium volatility

Concentration of the substance in a mixture:

<= 100 %

Duration and frequency of use: Use duration: <= 8 hours
Emission days per year: 300

Other information: Indoor use
Process temperature: <= 40 °C

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 5 ppm
Dermal: 0 mg/kg bw/d

Risk characterisation ratio (RCR):

RCR Inhalative: 0.13
RCR dermal: 0
RCR combined: 0.13

Risk management measures

Operational conditions and risk management measures:

Assumes a good basic standard of occupational hygiene is implemented.
Avoid contact with skin. 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.

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

Hand protection: no
Respiratory protection: no
Eye protection: no

Other information: Clear lines prior to de-coupling. Ensure dedicated sample points are provided. Avoid dip sampling. Ensure material transfers are under containment or extract ventilation.

Exposure Scenario 1 - Contributing exposure scenario 10

Transfer of substance or preparation into small containers (dedicated filling line, including weighing) - bulk transfers (closed systems) (worker)

List of use descriptors

Process categories [PROC]: PROC 9: Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

Operational conditions

Product characteristics: Liquid, medium volatility
Concentration of the substance in a mixture:
<= 100 %
Duration and frequency of use: Use duration: <= 8 hours
Emission days per year: 300
Other information: Indoor use
Process temperature: <= 40 °C

Exposure prediction

Exposure estimation and reference to its source:
Inhalative: 5 ppm
Dermal: 0 mg/kg bw/d
Risk characterisation ratio (RCR):
RCR Inhalative: 0.13
RCR dermal: 0
RCR combined: 0.13

Risk management measures

Technical conditions and measures at process level (source) to prevent release:
Ensure material transfers are under containment or extract ventilation. (Effectiveness: 90 %)
Operational conditions and risk management measures:
Assumes a good basic standard of occupational hygiene is implemented.
Avoid contact with skin. 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.
Conditions and measures related to personal protection, hygiene and health evaluation:
Hand protection: no
Respiratory protection: no
Eye protection: no
Other information: Clear lines prior to de-coupling. Ensure dedicated sample points are provided. Avoid dip sampling.

Exposure Scenario 1 - Contributing exposure scenario 11

Use as laboratory reagent (worker)

List of use descriptors

Process categories [PROC]: PROC 15: Use as laboratory reagent

Operational conditions

Product characteristics: Liquid, medium volatility
Concentration of the substance in a mixture:
<= 100 %
Duration and frequency of use: Use duration: <= 8 hours
Emission days per year: 300
Other information: Indoor use
Process temperature: <= 40 °C

Exposure prediction

Exposure estimation and reference to its source:

Inhalative: 10 ppm
Dermal: 0 mg/kg bw/d

Risk characterisation ratio (RCR):

RCR Inhalative: 0.25
RCR dermal: 0
RCR combined: 0.25

Risk management measures

Operational conditions and risk management measures:

Assumes a good basic standard of occupational hygiene is implemented.
Avoid contact with skin. 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.

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

Hand protection: no
Respiratory protection: no
Eye protection: no

Other information: Clear lines prior to de-coupling. Ensure dedicated sample points are provided. Avoid dip sampling. Ensure material transfers are under containment or extract ventilation.

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): 2,900,000