

Safety Data Sheet

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**1.1 Product Identifier**

Material Name:	Gasoline MK1 93.5, 95, 96, 98 (CAS 86290-81-5)
REACH Registration No.:	01-2119471335-39
Synonyms:	Gasoline 93.5/95/96/98 MK1 E5, E5 base, V-power, UMS, ULG

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

Product Use: Fuel for gasoline engines.
Distribution of substance, industrial
Formulation & (re)packing of substances and mixtures, industrial
Use as a fuel, industrial
Use as a fuel, professional
Use as a fuel, consumer

Uses Advised Against: Applications that are not registered and risk assessed.

1.3 Details of the supplier of the substance or mixture

Manufacturer/Supplier: St1 Refinery AB
Box 8889
402 72 Göteborg, Sweden

Telephone: +46 (0) 31 744 6000

Email Contact for MSDS: bransle@st1.se or Supply-Sweden@st1.se

1.4 Emergency Telephone Number: 112 SOS Alarm
Swedish Poisons Information Centre: +46 (0)8 331231

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2. HAZARDS IDENTIFICATION

2.1 Classification of substance or mixture

Product definition : Mixture

(EG) No 1272/2008 (CLP)	
Hazard class	Category codes
Flammable liquid, 1	H224
Acute toxicity, 1	H304
Skin irritation, 2	H315
Germ cell mutagenicity, 1B	H340
Carcinogenicity, 1B	H350
Repr, 2	H361
STOT – SE, 3	H336
Aquatic Chronic, 2	H411

2.2 Label Elements

Labelling according to Regulation (EG) no. 1272/2008

Hazard pictograms:



Signal word: DANGER

Hazard statements: PHYSICAL HAZARDS
H224: Extremely flammable liquid and vapour.

HEALTH HAZARDS

H304: May be fatal if swallowed and enters airways

H315: Causes skin irritation

H340: May cause genetic defects

H350: May cause cancer

H361: Suspected of damaging fertility or the unborn child

H336: May cause drowsiness or dizziness

ENVIRONMENTAL HAZARDS

H411: Toxic to aquatic life with long lasting effects

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Precautionary statements:

PREVENTION

P201, P202, P210, P233, P240, P241, P242, P243, P261, P264, P271, P273, P280

RESPONSE

P301+P310, P302+P352, P303+P361+P353

P304+P340, P308+P313, P312, P331, P332+P313, P370+P378, P391

STORAGE

P403+P235, P405

DISPOSAL

P501

For more information regarding CLP precautionary statements see chapter 16.

2.3 Other Hazards

Health Hazards:

Slightly irritating to respiratory system.

A component or components of this material may cause cancer.

This product contains benzene which may cause leukaemia (AML acute myelogenous leukaemia). May cause MDS (Myelodysplastic Syndrome).

Safety Hazards:

Electrostatic charges may be generated during handling.

Electrostatic discharge may cause fire. Liquid evaporates quickly and can ignite leading to a flash fire, or an explosion in a confined space.

The substance does not fulfil all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB.

Other information:

This product is intended for use in closed systems only.

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3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

3.2 Mixtures

Preparation Description :

A complex combination of hydrocarbons consisting primarily of paraffin's, cycloparaffin's, aromatic and olefinic hydrocarbons having carbon numbers predominantly greater than C3 and boiling in the range of 25°C to 205°C.

Product is a mixture according regulation 1907/2006/EC.

Classification of components according to (EG) nr 1272/2008

Chemical Name	CAS No.	EINECS	REACH Registration No.	Conc. vol %
Gasoline, low boiling naphtha	86290-81-5	289-220-8	01-2119471335-39	>80
Ethanol	64-17-5	200-578-6		≤5
MTBE (methyl tert-butyl ether)	1634-04-4	216-653-1		0 - 20
Toluene	108-88-3	203-625-9		<10
n-hexan	110-54-3	203-777-6		<5
Benzene	71-43-2	200-753-7		<1
Methanol	67-56-1	200-659-6		Max 0,2

Chemical Name	Hazard class	Category codes
Gasoline, low boiling naphtha	Flam. Liq, 1; Asp. Tox, 1; Skin Corr, 2; Muta, 1B; Carc, 1B; Repr, 2; STOT SE, 3; Aq. Chronic, 2	H224; H304; H315; H340; H350; H361; H336; H411
Ethanol	Flam. Liq, 2; Eye Corr, 2	H225; H319
MTBE (methyl tert-butyl ether)	Flam. Liq, 2; Skin Corr, 2	H225; H315
Toluene	Flam. Liq, 2; Asp. Tox, 1; Skin Corr, 2; Repr, 2; STOT RE, 2; STOT SE, 3	H225; H304; H315; H361; H373; H336
n-Hexane	Flam. Liq, 2; Asp. Tox, 1; Skin Corr, 2; Repr, 2; STOT RE, 2; STOT se, 3; Aq. Chronic, 2	H225; H304; H315; H361; H373; H336; H411
Benzene	Flam. Liq, 2; Asp. Tox, 1; Skin Corr, 2; Eye Corr, 2; Muta, 1B; Carc, 1B; STOT RE, 1	H225; H304; H315; H319; H340; H350; H372
Methanol	Flam. Liq, 2; Acute Tox, 3; Acute Tox, 3; Acute Tox, 3; STOT SE, 1	H225; H301; H311; H331; H370

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4. FIRST AID MEASURES

4.1 Description of First Aid Measures

Inhalation:	Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.
Skin contact:	Remove contaminated clothing. Immediately flush skin with large amounts of water for at least 15 minutes, and follow by washing with soap and water if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment.
Eye contact:	Flush eyes with water while holding eyelids open. Rest eyes for 30 minutes. If redness, burning, blurred vision, or swelling persists, transport to the nearest medical facility for additional treatment.
Ingestion:	If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 38,3 °C, shortness of breath, chest congestion or continued coughing or wheezing.
4.2 Most important symptoms/effects, acute & delayed:	Skin irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blisters. Eye irritation signs and symptoms may include a burning sensation and a temporary redness of the eye. If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever. The onset of respiratory symptoms may be delayed for several hours after exposure. Auditory system effects may include temporary hearing loss and/or ringing in the ears.
4.3 Indication of immediate medical attention and special treatment needed:	Treat symptomatically.

5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

5.1 Extinguishing Media: Foam, water spray or fog. Dry chemical powder, carbon dioxide,

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sand or earth may be used for small fires only.

Unsuitable Extinguishing Media:

Do not use direct water jets on the burning product as they could cause a steam explosion and spread of the fire. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

5.2 Special hazards arising from substance or mixture:

Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Will float and can be reignited on surface water

5.3 Advice for fire-fighters:

Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

Additional Advice:

If the fire cannot be extinguished the only course of action is to evacuate immediately. Keep adjacent containers cool by spraying with water. If possible remove containers from the danger zone. Contain residual material at affected sites to prevent material from entering drains (sewers), ditches, and waterways.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures:

6.1.1 For non-emergency personnel:

Avoid contact with skin, eyes and clothing. Evacuate the area of all non-essential personnel. Ventilate contaminated area thoroughly. Avoid contact with spilled or released material. Immediately remove all contaminated clothing. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. For guidance on disposal of spilled material see Chapter 13 of this Material Safety Data Sheet. If contamination of sites occurs remediation may require specialist advice. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Take precautionary measures against static discharges.

6.1.2 For emergency personnel:

Vapour can travel for considerable distances both above and below the ground surface. Underground services (drains, pipelines, cable ducts) can provide preferential flow paths. Do not breathe fumes, vapour. Take measures to minimise the effects on groundwater. Contain residual material at affected sites to prevent material from entering drains (sewers), ditches, and waterways. Shut off leaks, if

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possible without personal risks. Remove all possible sources of ignition in the surrounding area and evacuate all personnel. Attempt to disperse the gas or to direct its flow to a safe location. For example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Monitor area with combustible gas meter.

6.2 Environmental Precautions:

Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers.

6.3 Methods and Material for Containment

For small liquid spills (< 1 drum), transfer by mechanical means to a labelled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.

For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.

Additional Advice:

Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Local authorities should be advised if significant spillages cannot be contained. Maritime spillages should be dealt with using a Shipboard Oil Pollution Emergency Plan (SOPEP), as required by MARPOL Annex 1 Regulation 26.

7. HANDLING AND STORAGE

7.1 Precautions for Safe Handling:

Avoid breathing vapours or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material. Air-dry contaminated clothing in a well-ventilated area before laundering. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Prevent spillages. For comprehensive advice on handling, product transfer, storage and tank cleaning refer to the product supplier. Do not use as a cleaning solvent or other non-motor fuel uses. When using the product do not eat or drink. Extinguish any naked

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flames. Do not smoke. Remove ignition sources. Avoid sparks. Never siphon by mouth. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Avoid exposure.

7.2 Conditions for safe storage, including any incompatibilities:

Tank storage: Tanks must be specifically designed for use with this product. Bulk storage tanks should be diked (bunded). Locate tanks away from heat and other sources of ignition. Cleaning, inspection and maintenance of storage tanks is a specialist operation, which requires the implementation of strict procedures and precautions.

7.3 Specific End Uses:

Please refer to Ch16 and/or the annexes for the registered uses under REACH.

Additional Information:

Ensure that all local regulations regarding handling and storage facilities are followed. Exposure to this product should be reduced as low as reasonably practicable.

Product Transfer:

Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (≤ 1 m/sec until fill pipe submerged to twice its diameter, then ≤ 7 m/sec). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations. Wait 2 minutes after tank filling (for tanks such as those on road tanker vehicles) before opening hatches or manholes. Wait 30 minutes after tank filling (for large storage tanks) before opening hatches or manholes.

Recommended Materials:

For containers, or container linings use mild steel, stainless steel. Examples of suitable materials are: high density polyethylene (HDPE), polypropylene (PP), and Viton (FKM), which have been specifically tested for compatibility with this product. For container linings, use amine-adduct cured epoxy paint. For seals and gaskets use: graphite, PTFE, Viton A, Viton B.

Unsuitable Materials:

Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Examples of materials to avoid are: natural rubber (NR), nitrile rubber (NBR), ethylene propylene rubber (EPDM), polymethyl methacrylate (PMMA), polystyrene, polyvinyl chloride (PVC), and polyisobutylene. However, some may be suitable for glove materials.

Container Advice:

Do not cut, drill, grind, weld or perform similar operations on or

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near containers. Containers, even those that have been emptied, can contain explosive vapours. Keep only in original container. Keep container tightly closed. Keep containers closed when not in use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

Occupational Exposure Limits (OEL)

Chemical name	Source	Limit level	Limit level	Short-time value	Short-time value
		mg/m ³	ppm	mg/m ³	ppm
Gasoline, low boiling point naphtha	AFS 2011:18	250			
Ethanol	AFS 2011:18	1000	500	1900	1000
MTBE (methyl tert-butyl ether)	AFS 2011:18	110	30	220	60
Toluene	AFS 2011:18	200	50	400	100
n-hexan	AFS 2011:18	90	25	180	50
Benzene	AFS 2011:18	1,5	0,5	9	3
Methanol	AFS 2011:18	250	200	350	250

AFS:

Swedish Work Environment Authority

Limit level:

Occupational exposure limit for exposure during a working day (8 hours).

Short-time value:

A recommended value which consists of a time-weighted average for exposure over a period of 15 minutes.

Biological Exposure Levels (BEI)

Derived No Effect Level (DNEL)

PNEC (Predicted no-effect Concentration) related information:

The substance is a complex combination of hydrocarbons, conventional methods to obtain PNEC is not suitable and it's not possible to identify a single PNEC for such substances.

8.2 Exposure Controls General Information:

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Use sealed systems as far as possible. Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits.

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Local exhaust ventilation is recommended. Eye washes and showers for emergency use.

Occupational Exposure Controls

Personal Protective Equipment:

Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Eye Protection:

Chemical splash goggles (chemical monogoggles). Approved to EU Standard EN166.

Hand Protection:

Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, and dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Select gloves tested to a relevant standard (e.g. Europe EN374). When prolonged or frequent repeated contact occurs, Nitrile gloves may be suitable. (Breakthrough time of > 240 minutes.) For incidental contact/splash protection Neoprene or PVC gloves may be suitable.

Body protection:

Chemical resistant gloves/gauntlets, boots, and apron (where risk of splashing).

Respiratory Protection:

If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus. All respiratory protection equipment and use must be in accordance with local regulations. Select a filter suitable for combined particulate/organic gases and vapours (boiling point >65 °C) meeting EN14387.

Monitoring Methods:

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.

Thermal Hazards :

Not applicable.

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Monitoring Methods : Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.

8.2.3 Environmental Exposure Controls: Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.

**Exposure Control :
Measures for Consumers** Do not ingest. If swallowed then seek immediate medical assistance.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

According to Swedish Standard SS 15 54 22:2006

Appearance:	Pale yellow, clear liquid
Odour:	Characteristic
Odour threshold:	-
pH:	Not applicable
Melting point/freezing point:	< -60 °C
Initial boiling point and boiling range:	25 - 205°C
Flash point:	< -40 °C
Evaporation rate:	-
Flammability (solid, gas)	-
Upper/lower flammability or explosive limits:	1 - 8 % (V)
Vapour pressure, at 37,8 °C:	45 - 95 kPa
Vapour density:	-
Relative density:	720 - 775 kg/m ³
Solubility(ies):	Low solubility
Partition coefficient: n-octanol/water:	-
Auto-ignition temperature:	> 250°C
Decomposition temperature:	-
Kinematics Viscosity, 40°C	< 1 mm ² /s
Explosive properties:	Not considered to be explosive
Oxidising properties:	Not considered to oxidise

9.2 Other Information : Not applicable.

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10. STABILITY AND REACTIVITY

10.1 Reactivity:	The product is not considered reactive.
10.2 Chemical Stability:	Stable under normal conditions of use.
10.3 Possibility of Hazardous Reactions:	Risk of ignition or explosion can occur when light hydrocarbon vapours accumulate in the head space of the container.
10.4 Conditions to Avoid:	Avoid heat, sparks, open flames and other ignition sources.
10.5 Incompatible Materials:	Strong oxidising agents.
10.6 Hazardous Decomposition Product:	Hazardous decomposition products are not expected to form during normal storage. Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.

11. TOXIKOLOGISK INFORMATION

11.1 Information on Toxicological effects

Basis for Assessment:	Information given is based on product data, a knowledge of the components and the toxicology of similar products.
Likely Routes of Exposure:	Exposure may occur via inhalation, ingestion, skin absorption, skin or eye contact, and accidental ingestion.
Acute Oral Toxicity:	Low toxicity: LD50 >5000 mg/kg, Rat
Acute Dermal Toxicity:	Low toxicity: LD50 >2000 mg/kg, Rabbit.
Acute Inhalation Toxicity:	Low toxicity: LC50 >5 mg/l/4 h, Rat.
Skin Corrosion/Irritation:	Irritating to skin.
Serious Eye Damage/Irritation:	Expected to be slightly irritating.
Respiratory Irritation:	Based on human experience, breathing of vapours or mists may cause a temporary burning sensation to nose, throat and lungs.
Respiratory or Skin Sensitisation:	Not expected to be a sensitizer.
Aspiration Hazard:	Aspiration into the lungs when swallowed or vomited may cause

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	chemical pneumonitis which can be fatal.
Germ Cell Mutagenicity:	May cause heritable genetic damage (Benzene). Mutagenicity studies on gasoline and gasoline blending streams have shown predominantly negative result.
Carcinogenicity:	Known human carcinogen (Benzene). May cause leukaemia (AML - acute myelogenous leukemia) (Benzene). Inhalation exposure to mice causes liver tumours, which are not considered relevant to humans.
Reproductive and Developmental Toxicity:	Causes birth defects at doses which are maternally toxic. Many case studies involving abuse during pregnancy indicate that toluene can cause birth defects, growth retardation and learning disabilities (Toluene).
Specific target organ toxicity - single exposure:	High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.
Specific target organ toxicity - repeated exposure:	Kidney: caused kidney effects in male rats which are not considered relevant to humans (Toluene)
Additional Information :	Exposure to very high concentrations of similar materials has been associated with irregular heart rhythms and cardiac arrest. Prolonged and repeated exposures to high concentrations have resulted in hearing loss in rats. Solvent abuse and noise interaction in the work environment may cause hearing loss (Toluene). Abuse of vapours has been associated with organ damage and death (Toluene). May cause MDS (Myelodysplastic Syndrome) (Benzene).

12. ECOLOGICAL INFORMATION

Basis for Assessment:	Incomplete ecotoxicological data are available for this product. The information given below is based partly on knowledge of the components and the ecotoxicology of similar products.
12.1 Toxicity	Expected to be toxic: (to aquatic organisms) LL/EL/IL50
Acute Toxicity:	> 1 <=10 mg/l (LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract).
Fish:	Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l
Aquatic Invertebrates:	Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l
Algae:	Expected to be toxic: LL/EL/IL50 > 1 <= 10 mg/l
Microorganisms:	Expected to be harmful: LL/EL/IL50 >10 <= 100 mg/l

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Chronic Toxicity

Fish : NOEC/NOEL expected to be > 1.0 - <= 10 mg/l (based on test data)

Aquatic Invertebrates : NOEC/NOEL expected to be > 1.0 - <= 10 mg/l (based on test data)

12.2 Persistence and degradability:

Expected to be inherently biodegradable. Oxidises rapidly by photo-chemical reactions in air.

12.3 Bioaccumulative Potential:

Contains constituents with the potential to bioaccumulate.

12.4 Mobility:

Floats on water. If product enters soil, one or more constituents will be mobile and may contaminate groundwater.

12.5 Results of PBT and vPvB assessment:

The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB.

12.6 Other adverse effects:

Films formed on water may affect oxygen transfer and damage organisms.

13. DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Material Disposal:

Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand. Do not dispose into the environment, in drains or in water courses. Do not dispose of tank water bottoms by allowing them to drain into the ground. This will result in soil and groundwater contamination.

Container Disposal:

Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not, puncture, cut, or weld uncleaned drums. Send to drum recoverer or metal reclaimer. Do not pollute the soil, water or environment with the waste container.

Local Legislation:

Proposals for waste code under the EU Waste Disposal Code (EWC):

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13 07 02* Gasoline

13 07 03* Other fuels (including mixtures)

The number given to waste is associated with proper use. Users must decide if their particular use results in another waste assigned. Disposal should be in accordance with applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION**ADR/RID**

UN No:	1203
UN Proper Shipping Name:	GASOLINE
Transport Hazard Class:	3
Packing group:	II
Danger label (primary risk):	3
Hazard identification No:	33
Classification code:	F1

Land transport**ADN**

UN No:	1203
UN Proper Shipping Name:	GASOLINE
Transport Hazard Class:	3
Packing group:	II
Environmental Hazard:	Yes

Inland waterways transport**IMDG**

UN No:	1203
UN Proper Shipping Name:	GASOLINE
Transport Hazard Class:	3
Packing group:	II
Marine pollutant:	Yes

Sea transport**IATA**

UN No:	1203
UN Proper Shipping Name:	GASOLINE
Transport Hazard Class:	3
Packing group:	II
Environmental Hazard:	Yes

Air transport

Additional information: MARPOL 73/78 Annex I rules apply for bulk shipments by sea. MARPOL 73/78 Annex II not applicable.

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15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

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

EU Regulation (EC) No 1907/2006 (REACH).
EU Regulation (EC) No 1272/2008 Classification, labelling and packaging of chemical substances and mixtures (CLP).

15.2 Chemical Safety Assessment

A Chemical Safety Assessment was performed for this substance.

16. OTHER INFORMATION

Hazard statement:

H224: Extremely flammable liquid and vapour.
H304: May be fatal if swallowed and enters airways
H315: Causes skin irritation
H340: May cause genetic defects
H350: May cause cancer
H361: Suspected of damaging fertility or the unborn child
H336: May cause drowsiness or dizziness
H411: Toxic to aquatic life with long lasting effects

Precautionary statements:

P201: Obtain special instructions before use
P202: Do not handle until all safety precautions have been read and understood
P210: Keep away from heat/sparks/open flames/hot surfaces - No smoking
P233: Keep container tightly closed
P240: Ground/bond container and receiving equipment
P241: Use explosion-proof electrical/ventilation/ lightning equipment
P242: Use only non-sparing tools
P243: Take precautionary measures against static discharge
P261: Do not breath fume/gas/mist/vapours/spray
P264: Wash hands thoroughly after handling
P271: Use only outdoors or in a well-ventilated area
P273: Avoid release to the environment
P280: Wear protective gloves/clothing/eye protection
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P302+P352: IF ON SKIN: Wash with plenty of soap and water
P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest

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	<p>in a position comfortable for breathing</p> <p>P308+P313: IF exposed or concerned: Get medical advice/attention</p> <p>P312: Call a POISON CENTER or doctor/physician if you feel unwell</p> <p>P331: Do NOT induce vomiting</p> <p>P332+P313: If skin irritation occurs: Get medical advice/attention</p> <p>P370+P378: In case of fire: Use water spray or foam for extinction</p> <p>P391: Collect spillage</p> <p>P403+P235: Store in a well-ventilated place. Keep cool</p> <p>P405: Store locked up</p> <p>P501: Dispose of contents/container in accordance with local/regional/national/international regulation</p>
Recommended Restrictions on Use (Advice Against):	This product must not be used in applications other than those recommended in Section 1, without first seeking the advice of the supplier.
Additional Information:	This document contains important information to ensure the safe storage, handling and use of this product. The information in this document should be brought to the attention of the person in your organisation responsible for advising on safety matters.
Further Information	This product is intended for use in closed systems only.
MSDS Distribution:	The information in this document should be made available to all who may handle the product.
MSDS Version Number:	3.2
MSDS Effective Date:	2015-12-02
MSDS Regulation Disclaimer:	This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.
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Identified Uses according to the Use Descriptor System**Uses – Worker**

Title 1. Manufacture of substance
- Industrial

Uses – Worker

Title 2. Use as an intermediate
- Industrial

Uses – Worker

Title 3. Distribution of substance
- Industrial

Uses – Worker

Title 4. Formulation & (re)packing of substances and mixtures
- Industrial

Uses – Worker

Title 5. Use as a fuel
- Industrial

Uses – Worker

Title 6. Use as a fuel
- Professional

Use – Consumer

Title 7. Use as a fuel
- Consumer

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Abbreviation:

SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

SU8 - Manufacture of bulk, large scale chemicals (including petroleum products)

SU9 - Manufacture of fine chemicals

SU 10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

SU21 - Consumer uses: Private households (= general public = consumers)

SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

PC13 - Fuels

PROC1 - Use in closed process, no likelihood of exposure

PROC2 - Use in closed, continuous process with occasional controlled exposure

PROC3 - Use in closed batch process (synthesis or formulation)

PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC15 - Use as laboratory reagent

PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected

ERC1 - Manufacture of substances

ERC2 - Formulation of preparations

ERC3 - Formulation in materials

ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

ERC5 - Industrial use resulting in inclusion into or onto a matrix

ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

ERC6b - Industrial use of reactive processing aids

ERC6c - Industrial use of monomers for manufacture of thermo-plastics

ERC6d - Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers

ERC7 - Industrial use of sub-stances in closed systems

ERC9a - Wide dispersive indoor use of substances in closed systems

ERC9b - Wide dispersive outdoor use of substances in closed systems

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Exposure Scenario – Worker

SECTION 1	EXPOSURE SCENARIO TITLE
Title	1. Manufacture of substance - Industrial
Use Descriptor	Sector of Use: SU 3, SU8, SU9 Process Categories: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC15 Environmental Release Categories: ERC1, ERC4, ESVOC SpERC 1.1.v1
Scope of process	Manufacture of the substance or use as a process chemical or extraction agent within closed or contained systems. Includes incidental exposures during recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
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Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa at STP
Concentration of substance in product.	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and Duration of Use	
	Covers daily exposures up to 8 hours (unless stated differently).
Other Operational Conditions affecting Exposure	
	Operation is carried out at elevated temperature (> 20°C above ambient temperature). Assumes a good basic standard of occupational hygiene has been implemented.

Contributing Scenarios	Risk Management Measures
General measures applicable to all activities	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves tested to EN374 (nitrile gloves have the best protection for gasoline), if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
General measures (carcinogens)	Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment,

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	<p>where possible, prior to maintenance.</p> <p>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 immediately and dispose of wastes safely.</p> <p>Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance.</p>
General exposures (closed systems) with sample collection	Handle substance within a closed system. Sample via a closed loop or other system to avoid exposure. Wear suitable gloves tested to EN374 (nitrile).
General exposures (closed systems). Continuous process	Handle substance within a closed system.
General exposures (closed systems). Batch process	Handle substance within a closed system. Ensure operation is undertaken outdoors.
Laboratory activities	Handle within a fume cupboard or implement suitable equivalent methods to minimise exposure.
Bulk transfers	Ensure material transfers are under containment or extract ventilation.
Equipment cleaning and maintenance	Drain down and flush system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle. Clear spills immediately. Wear chemically resistant gloves tested to EN374 (nitrile) in combination with 'basic' employee training.
Storage	Ensure operation is undertaken outdoors. Store substance within a closed system.

Section 2.2	Control of Environmental Exposure
Substance is complex UVCB.	
Predominantly hydrophobic.	
Amounts Used	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	1.8E+07
Fraction of Regional tonnage used locally:	0,03
Annual site tonnage (tonnes/year):	6.0E+05
Maximum daily site tonnage (kg/day):	2.0E+06
Frequency and Duration of Use	

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Continuous release.	
Emission Days (days/year):	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	0.05
Release fraction to wastewater from process (initial release prior to RMM):	3.0E-03
Release fraction to soil from process (initial release prior to RMM):	1.0E-04
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
Risk from environmental exposure is driven by humans via indirect exposure (primarily inhalation).	
Onsite waste water treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	99.0
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	99.1
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	80.4
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	95.5
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	99.1
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d):	2.0E+06
Assumed domestic sewage treatment plant flow (m3/d)	10000
Conditions and measures related to external treatment of waste for disposal	
During manufacturing no waste of the substance is generated.	
Conditions and measures related to external recovery of waste	
During manufacturing no waste of the substance is generated.	

SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 - Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.	

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SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 4.1 - Health	
<p>Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.</p> <p>Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.</p> <p>Available hazard data do not enable the derivation of a DNEL for carcinogenic effects.</p> <p>Risk Management Measures are based on qualitative risk characterisation.</p> <p>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.</p>	
Section 4.2 -Environment	
<p>Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.</p>	
<p>Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.</p>	
<p>Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.</p>	
<p>Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).</p>	

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Exposure Scenario – Worker

SECTION 1	EXPOSURE SCENARIO TITLE
Title	2. Use as an intermediate - Industrial
Use Descriptor	Sector of Use: SU3, SU8, SU9 Process Categories: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15 Environmental Release Categories: ERC 6A, ESVOC SpERC 6.1a.v1
Scope of process	Use of substance as an intermediate within closed or contained systems (not related to Strictly Controlled Conditions). Includes incidental exposures during recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
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Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa at STP
Concentration of substance in product.	Covers percentage substance in the product up to 100% (unless stated differently).
Frequency and Duration of Use	
	Covers daily exposures up to 8 hours (unless stated differently).
Other Operational Conditions affecting Exposure	
	Operation is carried out at elevated temperature (> 20°C above ambient temperature). Assumes a good basic standard of occupational hygiene has been implemented.

Contributing Scenarios	Risk Management Measures
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves tested to EN374 (nitrile gloves have the best protection for gasoline), if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
General measures (carcinogens)	Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment,

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	<p>where possible, prior to maintenance.</p> <p>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 immediately and dispose of wastes safely.</p> <p>Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance.</p>
General exposures (closed systems) with sample collection	Handle substance within a closed system. Sample via a closed loop or other system to avoid exposure. Wear suitable gloves (nitrile).
General exposures (closed systems)	Handle substance within a closed system. Ensure operation is undertaken outdoors.
Laboratory activities	Handle within a fume cupboard or implement suitable equivalent methods to minimise exposure.
Bulk transfers	Ensure material transfers are under containment or extract ventilation.
Equipment cleaning and maintenance	Drain down and flush system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle. Clear spills immediately. Wear chemically resistant gloves (nitrile) in combination with 'basic' employee training.
Storage	Ensure operation is undertaken outdoors. Store substance within a closed system.

Section 2.2	Control of Environmental Exposure
Substance is complex UVCB.	
Predominantly hydrophobic.	
Amounts Used	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	2.21E+06
Fraction of Regional tonnage used locally:	6.8E-03
Annual site tonnage (tonnes/year):	1.5E+04
Maximum daily site tonnage (kg/day):	5.0E+04
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	300

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Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	0.025
Release fraction to wastewater from process (initial release prior to RMM):	3.0E-03
Release fraction to soil from process (initial release prior to RMM):	1.0E-03
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
Risk from environmental exposure is driven by freshwater sediment.	
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	80
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	92.9
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
Conditions and measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	95.5
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	95.5
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	781E+04
Assumed domestic sewage treatment plant flow (m3/d)	2000
Conditions and measures related to external treatment of waste for disposal	
This substance is consumed during use and no waste of substance is generated.	
Conditions and measures related to external recovery of waste	
This substance is consumed during use and no waste of substance is generated.	

SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 - Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 4.1 - Health	
<p>Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.</p> <p>Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.</p> <p>Available hazard data do not enable the derivation of a DNEL for carcinogenic effects.</p> <p>Risk Management Measures are based on qualitative risk characterisation.</p> <p>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.</p>	
Section 4.2 -Environment	
<p>Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.</p>	
<p>Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.</p>	
<p>Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.</p>	
<p>Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).</p>	

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Exposure Scenario – Worker

SECTION 1	EXPOSURE SCENARIO TITLE
Title	3. Distribution of substance - Industrial
Use Descriptor	Sector of Use: SU3 Process Categories: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC15 Environmental Release Categories: ERC1, ERC2, ERC3, ERC4, ERC5, ERC6A, ERC6B, ERC6C, ERC6D, ERC7, ESVOC SpERC 1.1b.v1
Scope of process	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.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
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Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa at STP
Concentration of substance in product.	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and Duration of Use	
	Covers daily exposures up to 8 hours (unless stated differently).
Other Operational Conditions affecting Exposure	
	Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene has been implemented.

Contributing Scenarios	Risk Management Measures
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves tested to EN374 (nitrile gloves have the best protection for gasoline), if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
General measures (carcinogens)	Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to maintenance. Where there is potential for exposure: restrict access to authorised persons; provide specific

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	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 immediately and dispose of wastes safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance.
General exposures (closed systems) with sample collection	Handle substance within a closed system. Sample via a closed loop or other system to avoid exposure. Wear suitable gloves (nitrile)
General exposures (closed systems). Outdoor	Handle substance within a closed system.
Process sampling	Sample via a closed loop or other system to avoid exposure.
Laboratory activities	Handle within a fume cupboard or implement suitable equivalent methods to minimise exposure.
Bulk closed loading and unloading	Ensure material transfers are under containment or extract ventilation.
Equipment cleaning and maintenance	Drain down and flush system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle. Clear spills immediately. Wear chemically resistant gloves (nitrile) in combination with 'basic' employee training.
Storage	Ensure operation is undertaken outdoors. Store substance within a closed system.

Section 2.2	Control of Environmental Exposure
Substance is complex UVCB.	
Predominantly hydrophobic.	
Amounts Used	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	1.8E+07
Fraction of Regional tonnage used locally:	0.002
Annual site tonnage (tonnes/year):	3.75E+04
Maximum daily site tonnage (kg/day):	1.2E+05
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	300
Environmental factors not influenced by risk management	

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Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (initial release prior to RMM):	1.0E-03
Release fraction to wastewater from process (initial release prior to RMM):	1.0E-05
Release fraction to soil from process (initial release prior to RMM):	1.0E-05
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Risk from environmental exposure is driven by humans via indirect exposure (primarily inhalation).	
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	90
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	12
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	95.5
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	95.5
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	1.1E+06
Assumed domestic sewage treatment plant flow (m3/d)	2000
Conditions and Measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or regional regulations.	

SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 - Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.	

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
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Section 4.1 - Health

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.

Available hazard data do not enable the derivation of a DNEL for carcinogenic effects.

Risk Management Measures are based on qualitative risk characterisation.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Section 4.2 -Environment

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.

Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.

Further details on scaling and control technologies are provided in SpERC factsheet (<http://cefic.org/en/reach-for-industries-libraries.html>).

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Exposure Scenario – Worker

SECTION 1	EXPOSURE SCENARIO TITLE
Title	4. Formulation & (re)packing of substances and mixtures - Industrial
Use Descriptor	Sector of Use: SU3, SU10 Process Categories: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC15 Environmental Release Categories: ERC2, ESVOC SpERC 2.2.v1
Scope of process	Formulation of the substance and its mixtures in batch or continuous operations within closed or contained systems, including incidental exposures during storage, materials transfers, mixing, maintenance, sampling and associated laboratory activities.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
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Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure > 10kPa at STP
Concentration of substance in product.	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and Duration of Use	
	Covers daily exposures up to 8 hours (unless stated differently).
Other Operational Conditions affecting Exposure	
	Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene has been implemented.

Contributing Scenarios	Risk Management Measures
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves tested to EN374 (nitrile gloves have the best protection for gasoline), if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
General measures (carcinogens)	Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/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

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	gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenarios; clear up spills immediately and dispose of wastes safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance.
General exposures (closed systems) with sample collection	Handle substance within a closed system. Sample via a closed loop or other system to avoid exposure. Wear suitable gloves tested to EN374 (nitrile).
General exposures (closed systems). Outdoor	Handle substance within a closed system.
Process sampling	Sample via a closed loop or other system to avoid exposure.
Laboratory activities	Handle within a fume cupboard or implement suitable equivalent methods to minimise exposure. Wear suitable gloves tested to EN374 (nitrile).
Bulk transfers	Ensure material transfers are under containment or extract ventilation.
Drum/batch transfers	Ensure material transfers are under containment or extract ventilation.
Equipment cleaning and maintenance	Drain down and flush system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle. Clear spills immediately. Wear chemically resistant gloves (nitrile) in combination with 'basic' employee training.
Storage	Store substance within a closed system. Ensure operation is undertaken outdoors.

Section 2.2	Control of Environmental Exposure
Substance is complex UVCB.	
Predominantly hydrophobic.	
Amounts Used	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	1.65E+07
Fraction of Regional tonnage used locally:	1.8E-03
Annual site tonnage (tonnes/year):	3.0E+04
Maximum daily site tonnage (kg/day):	1.0E+05
Frequency and Duration of Use	

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Continuous release.	
Emission Days (days/year):	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements):	0.025
Release fraction to wastewater from process (initial release prior to RMM):	2.0E-03
Release fraction to soil from process (initial release prior to RMM):	1.0E-04
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
Risk from environmental exposure is driven by humans via indirect exposure (primarily inhalation).	
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	56.5
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	94.7
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	95.5
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	95.5
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	1.0E+05
Assumed domestic sewage treatment plant flow (m3/d)	2000
Conditions and Measures related to external treatment of waste for disposal	
External treatment and disposal of waste should comply with applicable local and/or regional regulations.	
Conditions and measures related to external recovery of waste	
External recovery and recycling of waste should comply with applicable local and/or regional regulations.	

SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

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Section 3.2 - Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.	
SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 4.1 - Health	
<p>Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.</p> <p>Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.</p> <p>Available hazard data do not enable the derivation of a DNEL for carcinogenic effects.</p> <p>Risk Management Measures are based on qualitative risk characterisation.</p> <p>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.</p>	
Section 4.2 -Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.	
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.	
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.	
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).	

Safety Data Sheet

Exposure Scenario – Worker

SECTION 1	EXPOSURE SCENARIO TITLE
Title	5. Use as a fuel - Industrial
Use Descriptor	Sector of Use: SU3 Process Categories: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16 Environmental Release Categories: ERC7, ESVOC SpERC 7.12a.v1
Scope of process	Covers the use as a fuel (or fuel additives and additive components) within closed or contained systems, including incidental exposures during activities associated with its transfer, use, equipment maintenance and handling of waste.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
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Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa at STP
Concentration of substance in product.	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and Duration of Use	
	Covers daily exposures up to 8 hours (unless stated differently).
Other Operational Conditions affecting Exposure	
	Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene has been implemented.

Contributing Scenarios	Risk Management Measures
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves tested to EN374 (nitrile gloves have the best protection for gasoline), if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
General measures (carcinogens)	Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/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

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	protection when its use is identified for certain contributing scenarios; clear up spills immediately and dispose of wastes safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance.
Bulk closed unloading	Ensure material transfers are under containment or extract ventilation.
Drum/batch transfers	Ensure material transfers are under containment or extract ventilation.
Refuelling	Ensure material transfers are under containment or extract ventilation.
Refuelling aircraft	Ensure material transfers are under containment or extract ventilation.
General exposures (closed systems)	Handle substance within a closed system. Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.
Use as a fuel (closed systems)	Handle substance within a closed system.
Equipment cleaning and maintenance	Drain down system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle. Clear spills immediately. Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Wear chemically resistant gloves tested to EN374 (nitrile) in combination with 'basic' employee training.
Storage	Store substance within a closed system. Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

Section 2.2	Control of Environmental Exposure
Substance is complex UVCB.	
Predominantly hydrophobic.	
Amounts Used	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	1.4E+06
Fraction of Regional tonnage used locally:	1

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Annual site tonnage (tonnes/year):	1.4E+06
Maximum daily site tonnage (kg/day):	4.6E+06
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	300
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements):	2.5E-03
Release fraction to wastewater from process (initial release prior to RMM):	1.0E-05
Release fraction to soil from process (initial release prior to RMM):	0
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Risk from environmental exposure is driven by humans via indirect exposure (primarily inhalation).	
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	99.4
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	76.9
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils.	
Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	95.5
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	95.5
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	4.6E+06
Assumed domestic sewage treatment plant flow (m3/d)	2000
Conditions and Measures related to external treatment of waste for disposal	
Combustion emissions limited by required exhaust emission controls	
Waste combustion emissions considered in regional exposure assessment.	
Conditions and measures related to external recovery of waste	
This substance is consumed during use and no waste of substance is generated.	

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SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	
Section 3.2 - Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.	
SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 4.1 - Health	
<p>Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.</p> <p>Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.</p> <p>Available hazard data do not enable the derivation of a DNEL for carcinogenic effects.</p> <p>Risk Management Measures are based on qualitative risk characterisation.</p> <p>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.</p>	
Section 4.2 - Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.	
Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.	
Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.	
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).	

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Exposure Scenario – Worker

SECTION 1	EXPOSURE SCENARIO TITLE
Title	6. Use as a fuel - Professional
Use Descriptor	Sector of Use: SU22 Process Categories: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC16 Environmental Release Categories: ERC9A, ERC9B, ESVOC SpERC 9.12b.v1
Scope of process	Covers the use as a fuel (or fuel additives and additive components) within closed or contained systems, including incidental exposures during activities associated with its transfer, use, equipment maintenance and handling of waste.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
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Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Liquid, vapour pressure > 10 kPa at STP
Concentration of substance in product.	Covers percentage substance in the product up to 100 % (unless stated differently).
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene has been implemented.	

Contributing Scenarios	Risk Management Measures
General measures (skin irritants)	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves tested to EN374 (nitrile gloves have the best protection for gasoline), if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
General measures (carcinogens)	Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/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

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	gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenarios; clear up spills immediately and dispose of wastes safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance.
General exposures (closed systems). Outdoor	Handle substance within a closed system. Bulk closed unloading. Ensure material transfers are under containment or extract ventilation.
Drum/batch transfers	Ensure material transfers are under containment or extract ventilation.
Refuelling	Ensure material transfers are under containment or extract ventilation.
Use as a fuel (closed systems)	Handle substance within a closed system.
Equipment maintenance	Drain down system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle. Clear spills immediately. Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Ensure operatives are trained to minimise exposures.
Storage	Store substance within a closed system. Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

Section 2.2	Control of Environmental Exposure
Substance is complex UVCB.	
Predominantly hydrophobic.	
Amounts Used	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	1.19E+06
Fraction of Regional tonnage used locally:	5.0E-04
Annual site tonnage (tonnes/year):	5.9E+02
Maximum daily site tonnage (kg/day):	1.6E+03
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	365
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	

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Release fraction to air from wide dispersive use (regional only):	1.0E-02
Release fraction to wastewater from wide dispersive use:	1.0E-05
Release fraction to soil from wide dispersive use (regional only):	1.0E-05
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Risk from environmental exposure is driven by humans via indirect exposure (primarily inhalation).	
If discharging to domestic sewage treatment plant, no secondary wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%)	0
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of >= (%)	3.4
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%)	0
Prevent discharge of undissolved substance to or recover from onsite wastewater.	
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	95.5
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%)	95.5
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	1.5E+054
Assumed domestic sewage treatment plant flow (m3/d)	2000
Conditions and Measures related to external treatment of waste for disposal	
Combustion emissions limited by required exhaust emission controls.	
Waste combustion emissions considered in regional exposure assessment.	
Conditions and measures related to external recovery of waste	
This substance is consumed during use and no waste of substance is generated.	

SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 - Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

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SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 4.1 - Health	
<p>Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.</p> <p>Available hazard data do not enable the derivation of a DNEL for dermal irritant effects.</p> <p>Available hazard data do not enable the derivation of a DNEL for carcinogenic effects.</p> <p>Risk Management Measures are based on qualitative risk characterisation.</p> <p>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.</p>	
Section 4.2 -Environment	
<p>Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.</p>	
<p>Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.</p>	
<p>Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination.</p>	
<p>Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).</p>	

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Exposure Scenario – Consumer

SECTION 1	EXPOSURE SCENARIO TITLE
Title	7. Use as a fuel - Consumer
Use Descriptor	Sector of Use: SU21 Process Categories: P13 Environmental Release Categories: ERC9A, ERC9B, ESVOC SpERC 9.12b.v1
Scope of process	Covers consumer uses of automotive fuels only.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
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Section 2.1	Control of Consumer Exposure
Physical form of product	Liquid, vapour pressure > 10 Pa at STP
Concentration of substance in product.	Unless otherwise stated: Covers concentrations up to 100 %
Amounts Used	
Unless otherwise stated:	
for each use event, covers amount up to (g):	37 500
covers skin contact area (cm ²):	420
Frequency and duration of use	
Unless otherwise stated:	
covers use up to (times/day of use):	0.143
covers use up to (hours/events):	2
Other Operational Conditions affecting Exposure	
Unless otherwise stated:	
Covers use at ambient temperatures.	
Covers use in room size of 20m ³ .	
Covers use under typical household ventilation.	

Product Categories	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
Fuels. Liquid: Automotive Refuelling.	Covers concentrations up to 100 %
	Covers use up to 52 day/year
	Covers use up to 1 times/day of use
	Covers skin contact area 210 cm ²

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	For each use event, covers amount up to 37 500 g.
	Covers outdoor use.
	Covers use in room size of 100 m3
	Covers exposure up to 0.05 hours/event
Fuels. Liquid Scooter Refuelling.	Covers concentrations up to 100 %
	Covers use up to 52 day/year
	Covers use up to 1 times/day of use
	Covers skin contact area up to 210 cm2
	For each use event, covers amount up to 3 750 g.
	Covers outdoor use.
	Covers use in room size of 100 m3
	Covers exposure up to 0.03 hours/event
Fuels. Liquid, Garden Equipment - Use.	Covers concentrations up to 100 %
	Covers use up to 26 day/year
	Covers use up to 1 times/day of use
	For each use event, covers amount up to 750 g.
	Covers outdoor use.
	Covers use in room size of 100 m3
	Covers exposure up to 2.00 hours/event
Fuels. Liquid: Garden Equipment - Refuelling.	Covers concentrations up to 100 %
	Covers use up to 26 day/year
	Covers use up to 1 times/day of use
	Covers skin contact area 420 cm2
	For each use event, covers amount up to 750 g.
	Covers use in a one car garage (34 m3) under typical ventilation.
	Covers use in room size of 34 m3
	Covers exposure up to 0.03 hours/event

Section 2.2	Control of Environmental Exposure
Substance is complex UVCB.	
Predominantly hydrophobic.	
Amounts Used	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tonnes/year):	1.39E+07
Fraction of Regional tonnage used locally:	5.0E-04
Annual site tonnage (tonnes/year):	7.0E+03
Maximum daily site tonnage (kg/day):	1.9E+04
Frequency and Duration of Use	
Continuous release.	
Emission Days (days/year):	365
Environmental factors not influenced by risk management	
Local freshwater dilution factor:	10

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Local marine water dilution factor:	100
Other Operational Conditions affecting Environmental Exposure	
Release fraction to air from wide dispersive use (regional only):	1.0E-02
Release fraction to wastewater from wide dispersive use:	1.0E-05
Release fraction to soil from wide dispersive use (regional only):	1.0E-05
Conditions and Measures related to municipal sewage treatment plant	
Estimated substance removal from wastewater via domestic sewage treatment (%)	95.5
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d)	1.8E+05
Assumed domestic sewage treatment plant flow (m3/d)	2000
Conditions and Measures related to external treatment of waste for disposal	
Combustion emissions limited by required exhaust emission controls. Waste combustion emissions considered in regional exposure assessment.	
Conditions and measures related to external recovery of waste	
This substance is consumed during use and no waste of substance is generated.	

SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.	

Section 3.2 - Environment	
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.	

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 4.1 - Health	
Predicted exposures are not expected to exceed the applicable consumer reference values when the operational conditions/risk management measures given in section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.	

Section 4.2 - Environment	
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.	
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).	