SAFETY DATA SHEET

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

1.1 Product identifier

Product name **Ottokraftstoff**

Other means of identification Benzin, Benzin additiviert, Eurosuper, Eurosuper 95, Eurosuper additiviert, Super Plus, Super Plus 98, Super Plus additiviert, Ultimate Super

Proper shipping name MARPOL Annex 1 rules apply for bulk shipments by sea.
Category: gasoline and spirits

SDS no. SAS2120

Product type Liquid.

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

Identified uses
Formulation and (re)packing of substances and mixtures (Benzene 0-1%) Use in fuel - Professional (Benzene 0-1%) Use in fuel - Consumer (Benzene 0-1%) Use in fuel - Industrial (Benzene 0-1%) Use as an intermediate (Benzene 0-1%)

Use of the substance/ mixture Use only as a motor fuel for spark ignition engines. NOT for aviation use. Should NOT be used as a solvent nor cleaning agent.
For specific application advice see appropriate Technical Data Sheet or consult our company representative.

1.3 Details of the supplier of the safety data sheet

Supplier BP Europa SE Zweigniederlassung BP Austria
IZ NÖ-Süd, Straße 6, Obj. 17
A-2355 Wiener Neudorf
Austria

BP Austria: +43 2236 31810 1000 (office hours)

E-mail address MSDSadvice@bp.com

1.4 Emergency telephone number

EMERGENCY TELEPHONE NUMBER +43 2236 31810 1000 (office hours)

Austria Poison Center Poison Control Centre (VIZ): +43 1 4064343 (24 hours/ 7 days reachable)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Flam. Liq. 1, H224
Skin Irrit. 2, H315
Eye Irrit. 2, H319
Muta. 1B, H340
Carc. 1B, H350
Repr. 2, H361d (Unborn child)
STOT SE 3, H336
Asp. Tox. 1, H304
Aquatic Chronic 2, H411

See Section 16 for the full text of the H statements declared above.

See sections 11 and 12 for more detailed information on health effects and symptoms and environmental hazards.

2.2 Label elements

SECTION 2: Hazards identification

Hazard pictograms

Signal word Danger

Hazard statements

H224 - Extremely flammable liquid and vapour.
H319 - Causes serious eye irritation.
H315 - Causes skin irritation.
H340 - May cause genetic defects.
H350 - May cause cancer.
H361d - Suspected of damaging the unborn child.
H304 - May be fatal if swallowed and enters airways.
H336 - May cause drowsiness or dizziness.
H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

P201 - Obtain special instructions before use.
P280 - Wear protective gloves. Wear protective clothing. Wear eye or face protection.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P273 - Avoid release to the environment.

Response

P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor.
P331 - Do NOT induce vomiting.
P308 + P313 - IF exposed or concerned: Get medical advice/attention.

Storage P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.

Disposal P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients Gasoline

Supplemental label elements Not applicable.

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles Restricted to professional users.

Special packaging requirements

Containers to be fitted with child-resistant fastenings Yes, applicable.

Tactile warning of danger Yes, applicable.

2.3 Other hazards

Results of PBT and vPvB assessment Product does not meet the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Product definition Mixture

A complex mixture of volatile hydrocarbons containing paraffins, naphthenes, olefins and aromatics with carbon numbers predominantly between C4 and C12. May contain oxygenates. May also contain small quantities of proprietary performance additives.

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
Gasoline	REACH #: 01-2119471335-39 EC: 289-220-8 CAS: 86290-81-5 Index: 649-378-00-4	≤95	Flam. Liq. 1, H224 Skin Irrit. 2, H315 Muta. 1B, H340 Carc. 1B, H350 Repr. 2, H361d (Unborn child) STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411	[1]

SECTION 3: Composition/information on ingredients

tert-butyl methyl ether	REACH #: 01-2119452786-27 EC: 216-653-1 CAS: 1634-04-4 Index: 603-181-00-X	≤15	Flam. Liq. 2, H225 Skin Irrit. 2, H315	[1] [2]
2-ethoxy-2-methylpropane (ETBE)	REACH #: 01-2119452785-29 EC: 211-309-7 CAS: 637-92-3	≤15	Flam. Liq. 2, H225 STOT SE 3, H336	[1]
Ethanol	REACH #: 01-2119457610-43 EC: 200-578-6 CAS: 64-17-5 Index: 603-002-00-5	≥1 - <5	Flam. Liq. 2, H225 Eye Irrit. 2, H319	[1] [2]
2-methylpropan-1-ol	REACH #: 01-2119484609-23 EC: 201-148-0 CAS: 78-83-1 Index: 603-108-00-1	<3	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335 STOT SE 3, H336	[1] [2]
methanol	REACH #: 01-2119433307-44 EC: 200-659-6 CAS: 67-56-1 Index: 603-001-00-X	<0.3	Flam. Liq. 2, H225 Acute Tox. 3, H301 Acute Tox. 3, H311 Acute Tox. 3, H331 STOT SE 1, H370	[1] [2]

See Section 16 for the full text of the H statements declared above.

Type

[1] Substance classified with a health or environmental hazard
[2] Substance with a workplace exposure limit
[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
[5] Substance of equivalent concern
[6] Additional disclosure due to company policy

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Check for and remove any contact lenses. Get medical attention.

Skin contact

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Drench contaminated clothing with water before removing. This is necessary to avoid the risk of sparks from static electricity that could ignite contaminated clothing. Contaminated clothing is a fire hazard. Contaminated leather, particularly footwear, must be discarded. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention.

Inhalation

If inhaled, remove to fresh air. Get medical attention immediately.

If exposure to vapour, mists or fumes causes drowsiness, headache, blurred vision or irritation of the eyes, nose or throat, remove immediately to fresh air. Keep patient warm and at rest. If any symptoms persist obtain medical advice.

Ingestion

Do not induce vomiting. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Aspiration hazard if swallowed. Can enter lungs and cause damage. Get medical attention immediately.

Protection of first-aiders

No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

Potential acute health effects

Inhalation

Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.

Ingestion

Irritating to mouth, throat and stomach. Aspiration hazard if swallowed -- harmful or fatal if liquid is aspirated into lungs.

Skin contact

Causes skin irritation.

SECTION 4: First aid measures

Eye contact Causes serious eye irritation.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Inhalation Solvent "sniffing" (abuse) or intentional overexposure to vapours can produce serious central nervous system effects, including unconsciousness, and possibly death. May be harmful by inhalation if exposure to vapour, mists or fumes resulting from thermal decomposition products occurs. Vapour, mist or fume may irritate the nose, mouth and respiratory tract.

Ingestion If swallowed, may irritate the mouth, throat and digestive system. If swallowed, may cause abdominal pain, stomach cramps, nausea, vomiting, diarrhoea, dizziness and drowsiness.

Skin contact Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis.

Eye contact Vapour, mist or fume may cause eye irritation. Exposure to vapour, mist or fume may cause stinging, redness and watering of the eyes.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treatment should in general be symptomatic and directed to relieving any effects.
Product can be aspirated on swallowing or following regurgitation of stomach contents, and can cause severe and potentially fatal chemical pneumonitis, which will require urgent treatment. Because of the risk of aspiration, induction of vomiting and gastric lavage should be avoided. Gastric lavage should be undertaken only after endotracheal intubation. Monitor for cardiac dysrhythmias.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media In case of fire, use water fog, foam, dry chemical or carbon dioxide extinguisher or spray.

Unsuitable extinguishing media Do not use water jet. The use of a water jet may cause the fire to spread by splashing the burning product.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture Extremely flammable liquid and vapour. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard. Vapours can form explosive mixtures with air. Vapours are heavier than air and can spread along the ground or float on water surfaces to remote ignition sources. Vapours may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Liquid will float and may reignite on surface of water.

Hazardous combustion products Combustion products may include the following:
carbon oxides (CO, CO_2) (carbon monoxide, carbon dioxide)

5.3 Advice for firefighters

Special precautions for fire-fighters No action shall be taken involving any personal risk or without suitable training. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. This material is toxic to aquatic organisms. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Special protective equipment for fire-fighters Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Immediately contact emergency personnel. No action shall be taken involving any personal risk or without suitable training. Eliminate all ignition sources. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Floors may be slippery; use care to avoid falling. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Put on appropriate personal protective equipment.

For emergency responders Entry into a confined space or poorly ventilated area contaminated with vapour, mist or fume is extremely hazardous without the correct respiratory protective equipment and a safe system of work. Wear self-contained breathing apparatus. Wear a suitable chemical protective suit. Chemical resistant boots. See also the information in "For non-emergency personnel".

SECTION 6: Accidental release measures

6.2 Environmental precautions

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage. In case of small spillages in closed waters (i.e. ports), contain product with floating barriers or other equipment. Collect spilled product by absorbing with specific floating absorbents. If possible, large spillages in open waters should be contained with floating barriers or other mechanical means. If this is not possible, control the spreading of the spillage, and collect the product by skimming or other suitable mechanical means. The use of dispersants should be advised by an expert, and, if required, approved by local authorities. Collect recovered product and other contaminated materials in suitable tanks or containers for recycle, recovery or safe disposal.

6.3 Methods and material for containment and cleaning up

Small spill

Eliminate all ignition sources. Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. The method and equipment used must be in conformance with appropriate regulations and industry practice on explosive atmospheres.

Large spill

Eliminate all ignition sources. Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Dike spill area and do not allow product to reach sewage system and surface or ground water. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Use spark-proof tools and explosion-proof equipment. Contaminated absorbent material may pose the same hazard as the spilt product. The method and equipment used must be in conformance with appropriate regulations and industry practice on explosive atmospheres. Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections

See Section 1 for emergency contact information.
See Section 5 for firefighting measures.
See Section 8 for information on appropriate personal protective equipment.
See Section 12 for environmental precautions.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not swallow. Aspiration hazard if swallowed. Can enter lungs and cause damage. Never siphon by mouth. Avoid breathing vapour or mist. Avoid contact of spilt material and runoff with soil and surface waterways. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Do not reuse container. Empty containers retain product residue and can be hazardous.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a segregated and approved area. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Store locked up. Keep away from heat and direct sunlight. Eliminate all ignition sources. Separate from oxidising materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Store and use only in equipment/containers designed for use with this product. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Light hydrocarbon vapours can build up in the headspace of tanks. These can cause flammability/explosion hazards even at temperatures below the normal flash point (note: flash point must not be regarded as a reliable indicator of the potential flammability of vapour in tank

SECTION 7: Handling and storage

headspaces). Tank headspaces should always be regarded as potentially flammable and care should be taken to avoid static electrical discharge and all ignition sources during filling, ullaging and sampling from storage tanks. Do not enter storage tanks. If entry to vessels is necessary, follow permit to work procedures. Entry into a confined space or poorly ventilated area contaminated with vapour, mist or fume is extremely hazardous without the correct respiratory protective equipment and a safe system of work. When the product is pumped (e.g. during filling, discharge or ullaging) and when sampling, there is a risk of static discharge. Ensure equipment used is properly earthed or bonded to the tank structure. Electrical equipment should not be used unless it is intrinsically safe (i.e. will not produce sparks). Explosive air/vapour mixtures may form at ambient temperature. If product comes into contact with hot surfaces, or leaks occur from pressurised fuel pipes, the vapour or mists generated will create a flammability or explosion hazard. Product contaminated rags, paper or material used to absorb spillages, represent a fire hazard, and should not be allowed to accumulate. Dispose of safely immediately after use.

7.3 Specific end use(s)

Recommendations See section 1.2 and Exposure scenarios in annex, if applicable.

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
tert-butyl methyl ether	**Regulation on Limit Values - MAC (Austria).** PEAK: 360 mg/m³, 4 times per shift, 15 minutes. Issued/Revised: 7/2001 PEAK: 100 ppm, 4 times per shift, 15 minutes. Issued/Revised: 7/2001 TWA: 180 mg/m³, 4 times per shift, 8 hours. Issued/Revised: 7/2001 TWA: 50 ppm, 4 times per shift, 8 hours. Issued/Revised: 7/2001
Ethanol	**Regulation on Limit Values - MAC (Austria).** CEIL: 3800 mg/m³, 3 times per shift, 60 minutes. Issued/Revised: 7/2001 CEIL: 2000 ppm, 3 times per shift, 60 minutes. Issued/Revised: 7/2001 TWA: 1900 mg/m³, 3 times per shift, 8 hours. Issued/Revised: 7/2001 TWA: 1000 ppm, 3 times per shift, 8 hours. Issued/Revised: 7/2001
2-methylpropan-1-ol	**Regulation on Limit Values - MAC (Austria).** PEAK: 600 mg/m³, 4 times per shift, 15 minutes. Issued/Revised: 3/2003 PEAK: 200 ppm, 4 times per shift, 15 minutes. Issued/Revised: 3/2003 TWA: 150 mg/m³, 4 times per shift, 8 hours. Issued/Revised: 3/2003 TWA: 50 ppm, 4 times per shift, 8 hours. Issued/Revised: 3/2003
methanol	**Regulation on Limit Values - MAC (Austria). Absorbed through skin.** PEAK: 1040 mg/m³, 4 times per shift, 15 minutes. Issued/Revised: 3/2003 PEAK: 800 ppm, 4 times per shift, 15 minutes. Issued/Revised: 3/2003 TWA: 260 mg/m³, 4 times per shift, 8 hours. Issued/Revised: 3/2003 TWA: 200 ppm, 4 times per shift, 8 hours. Issued/Revised: 3/2003

Whilst specific OELs for certain components may be shown in this section, other components may be present in any mist, vapour or dust produced. Therefore, the specific OELs may not be applicable to the product as a whole and are provided for guidance only.

Recommended monitoring procedures If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Derived No Effect Level

SECTION 8: Exposure controls/personal protection

Product/ingredient name	Type	Exposure		Value	Population	Effects
Gasoline	DNEL	Short term Inhalation	15 minutes	1300 mg/m³	Workers	Systemic
	DNEL	Short term Inhalation	15 minutes	1100 mg/m³	Workers	Local
	DNEL	Long term Inhalation	8 hours TWA	840 mg/m³	Workers	Local
	DNEL	Short term Inhalation	15 minutes	1200 mg/m³	Consumers	Systemic
	DNEL	Short term Inhalation	15 minutes	640 mg/m³	Consumers	Local
	DNEL	Long term Inhalation	24 hours TWA	180 mg/m³	Consumers	Local
tert-butyl methyl ether	DNEL	Short term Inhalation	-	357 mg/m³	Workers	Local
	DNEL	Long term Dermal	TWA, Repeated dose toxicity	5100 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	TWA, Repeated dose toxicity	178.5 mg/m³	Workers	Systemic
	DNEL	Short term Inhalation	-	214 mg/m³	Consumers	Local
	DNEL	Long term Dermal	TWA, Repeated dose toxicity	3570 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Inhalation	TWA	53.6 mg/m³	Consumers	Systemic
	DNEL	Long term Oral	TWA	7.1 mg/kg bw/day	Consumers	Systemic
2-ethoxy-2-methylpropane (ETBE)	DNEL	Short term Inhalation	-	2800 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	TWA, Repeated dose toxicity	6767 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	TWA, Repeated dose toxicity	352 mg/m³	Workers	Systemic
	DNEL	Long term Inhalation	TWA	105 mg/m³	Workers	Local
	DNEL	Short term Inhalation	-	1680 mg/m³	Consumers	Systemic
	DNEL	Long term Dermal	TWA, Repeated dose toxicity	4060 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Inhalation	TWA, Repeated dose toxicity	105 mg/m³	Consumers	Systemic
	DNEL	Long term Oral	TWA, Repeated dose toxicity	6 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Inhalation	TWA	63 mg/m³	Consumers	Local
Ethanol	DNEL	Short term Inhalation	-	1900 mg/m³	Workers	Local
	DNEL	Long term Dermal	TWA	343 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	TWA	950 mg/m³	Workers	Systemic
	DNEL	Short term Inhalation	-	950 mg/m³	Consumers	Local
	DNEL	Long term Dermal	TWA	206 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Inhalation	TWA	114 mg/m³	Consumers	Systemic
	DNEL	Long term Oral	TWA	87 mg/kg bw/day	Consumers	Systemic
methanol	DNEL	Long term Dermal	TWA	40 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	TWA	260 mg/m³	Workers	Systemic

SECTION 8: Exposure controls/personal protection

	DNEL	Short term Dermal	-	40 mg/kg bw/ day	Workers	Systemic
	DNEL	Short term Inhalation	-	260 mg/m³	Workers	Systemic
	DNEL	Short term Inhalation	-	260 mg/m³	Workers	Local
	DNEL	Long term Inhalation	TWA	260 mg/m³	Workers	Local
	DNEL	Long term Dermal	TWA	8 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Inhalation	TWA	50 mg/m³	Consumers	Systemic
	DNEL	Short term Dermal	-	8 mg/kg bw/day	Consumers	Systemic
	DNEL	Short term Inhalation	-	50 mg/m³	Consumers	Systemic
	DNEL	Short term Inhalation	-	50 mg/m³	Consumers	Local
	DNEL	Long term Inhalation	TWA	50 mg/m³	Consumers	Local
	DNEL	Short term Oral	-	8 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Oral	TWA	8 mg/kg bw/day	Consumers	Systemic

Predicted No Effect Concentration

Product/ingredient name	Type	Compartment Detail	Value	Method Detail
tert-butyl methyl ether	PNEC	Fresh water	5.1 mg/l	Assessment Factors
	PNEC	Marine	0.26 mg/l	Assessment Factors
	PNEC	Intermittent release	47.2 mg/l	Assessment Factors
	PNEC	Sewage Treatment Plant	71 mg/l	Assessment Factors
	PNEC	Fresh water sediment	23 mg/kg dwt	Equilibrium Partitioning
	PNEC	Marine water sediment	1.62 mg/kg dwt	Equilibrium Partitioning
	PNEC	Soil	1.62 mg/kg dwt	Equilibrium Partitioning
2-ethoxy-2-methylpropane (ETBE)	PNEC	Fresh water	0.51 mg/l	Assessment Factors
	PNEC	Marine water sediment	0.02 mg/kg wwt	Equilibrium Partitioning
	PNEC	Intermittent release	1.1 mg/l	Assessment Factors
	PNEC	Fresh water sediment	0.62 mg/kg wwt	Equilibrium Partitioning
	PNEC	Marine	0.017 mg/l	Assessment Factors
	PNEC	Soil	0.24 mg/kg wwt	Equilibrium Partitioning
	PNEC	Sewage Treatment Plant	12.5 mg/l	Assessment Factors
Ethanol	PNEC	Fresh water	0.96 mg/l	Assessment Factors
	PNEC	Marine	0.79 mg/l	Assessment Factors
	PNEC	Fresh water	2.75 mg/l	Assessment Factors
	PNEC	Fresh water sediment	3.6 mg/kg dwt	Equilibrium Partitioning
	PNEC	Soil	0.63 mg/kg dwt	Assessment Factors
	PNEC	Sewage Treatment Plant	580 mg/l	Assessment Factors
	PNEC	Secondary Poisoning	720 mg/kg	Assessment Factors

8.2 Exposure controls

Appropriate engineering controls

Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits.
All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained.
Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards.
The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Ensure that eyewash stations and safety showers are close to the workstation location.

Respiratory protection

If local exhaust ventilation or other methods of ventilation are not possible or are insufficient, wear suitable respiratory protective devices. Wear suitable respiratory protective devices if there is a risk of exposure limits being exceeded. The choice of suitable respiratory device will depend upon a risk assessment of the workplace environment and the task being carried out. If required, the respiratory device must be certified as safe in defined explosive atmospheres (EX Label). Respiratory protective devices must be checked to ensure they fit correctly each time they are worn. Please consult European standard EN 529 for further guidance on the selection, use, care and maintenance of respiratory protective devices.

SECTION 8: Exposure controls/personal protection

Suitable breathing apparatus (independent of ambient atmosphere) must be worn if any of the following situations apply.
- When the workplace atmosphere is considered to be immediately dangerous to life and health.
- When there is a risk of the workplace atmosphere being oxygen deficient.
- When the workplace atmosphere is uncontrolled.
- When the workplace atmosphere is unknown.
- When there is a risk of loss of consciousness or asphyxiation
- When entry into a confined space is required.
- When there is a risk of gases being released that could be a fire or explosion hazard.
- When the concentration of contaminants in the atmosphere exceeds the level of protection (maximum allowed concentration) given by a filtering device
- When the contaminants have a low odour that would not be tasted or smelt by the wearer of a filtering device if the filter became exhausted or saturated.
- When there is a risk of hydrogen sulphide exposure limits being exceeded.

Use with adequate ventilation.
If there is a requirement for the use of a respiratory protective device, but the use of breathing apparatus (independent of ambient atmosphere) is not required, then a suitable filtering device must be worn.
The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product.

Recommended: ☑ Gas filter suitable for gases and vapours. Filter type: AX
Gas filter suitable for gases and vapours. Filter type: A
Combined filter suitable for gases, vapours and particles (dust, smoke, mist, aerosol). Filter type: AP

Eye/face protection

Chemical splash goggles.

Skin protection

Hand protection

General Information:

Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. The correct choice of protective gloves depends upon the chemicals being handled, and the conditions of work and use. Most gloves provide protection for only a limited time before they must be discarded and replaced (even the best chemically resistant gloves will break down after repeated chemical exposures).

Gloves should be chosen in consultation with the supplier / manufacturer and taking account of a full assessment of the working conditions.

Wear chemical resistant gloves.
Do not re-use gloves.
Protective gloves will deteriorate over time due to physical and chemical damage. Inspect and replace gloves on a regular basis.
Protective gloves must give suitable protection against mechanical risks (i.e. abrasion, blade cut and puncture).
The frequency of replacement will depend upon the circumstances of use.

Breakthrough time:

Breakthrough time data are generated by glove manufacturers under laboratory test conditions and represent how long a glove can be expected to provide effective permeation resistance. It is important when following breakthrough time recommendations that actual workplace conditions are taken into account. Always consult with your glove supplier for up-to-date technical information on breakthrough times for the recommended glove type.
Our recommendations on the selection of gloves are as follows:

Continuous contact:

Gloves with a minimum breakthrough time of 240 minutes, or >480 minutes if suitable gloves can be obtained.
If suitable gloves are not available to offer that level of protection, gloves with shorter breakthrough times may be acceptable as long as appropriate glove maintenance and replacement regimes are determined and adhered to.

Short-term / splash protection:

Recommended breakthrough times as above.
It is recognised that for short-term, transient exposures, gloves with shorter breakthrough times may commonly be used. Therefore, appropriate maintenance and replacement regimes must be determined and rigorously followed.

SECTION 8: Exposure controls/personal protection

Glove Thickness:

For general applications, we recommend gloves with a thickness typically greater than 0.35 mm.

It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.
Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task.

Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:

• Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.

• Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential.

Recommended: Nitrile gloves. The presence of aromatic hydrocarbons in the product will significantly shorten the length of time that nitrile gloves will provide protection. Do not re-use nitrile gloves if exposed to aromatic hydrocarbons. Gloves made from fluoroelastomer resistant to hydrocarbons and a wide range of chemicals.
Wear a chemically resistant multi-layer laminate inner glove inside an outer nitrile glove. The purpose of the outer glove is to protect the inner glove from cuts and mechanical damage.

Skin and body

Wear suitable protective clothing.
Footwear highly resistant to chemicals.
When there is a risk of ignition wear inherently fire resistant protective clothes and gloves.
Refer to standard: ISO 11612
When there is a risk of ignition from static electricity, wear anti-static protective clothing. For greatest effectiveness against static electricity, overalls, boots and gloves should all be anti-static.
Refer to standard: EN 1149
Cotton or polyester/cotton overalls will only provide protection against light superficial contamination.
When the risk of skin exposure is high (from experience this could apply to the following tasks: cleaning work, maintenance and service, filling and transfer, taking samples and cleaning up spillages) then a chemical protective suit and boots will be required.
Work clothing / overalls should be laundered on a regular basis. Laundering of contaminated work clothing should only be done by professional cleaners who have been told about the hazards of the contamination. Always keep contaminated work clothing away from uncontaminated work clothing and uncontaminated personal clothes.

Refer to standards:

Respiratory protection: EN 529
Gloves: EN 420, EN 374
Eye protection: EN 166
Filtering half-mask: EN 149
Filtering half-mask with valve: EN 405
Half-mask: EN 140 plus filter
Full-face mask: EN 136 plus filter
Particulate filters: EN 143
Gas/combined filters: EN 14387

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	
Physical state	Liquid.
Colour	Yellow.
Odour	Petrol
Odour threshold	0.025 ppm (Based on Petrol)
pH	Not applicable. Based on Solubility in Water (Very slightly soluble in water)
Melting point/freezing point	<-60°C (<-76°F) (Based on Petrol)
Initial boiling point and boiling range	30 to 215°C (86 to 419°F)
Flash point	Open cup: <-20°C (<-4°F) [Cleveland.]
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable. Based on physical state.
Upper/lower flammability or explosive limits	Lower: 0.6% Upper: 8%
Vapour pressure	45 to 90 kPa (337.5 to 675 mm Hg) [37.8°C (100°F)]
Vapour density	3 to 4 [Air = 1]
Relative density	0.62 to 0.88 [at 15°C Based on Concawe Category: Low boiling point naphtha (Gasoline)]
Density	720 to 775 kg/m³ (0.72 to 0.775 g/cm³) at 15°C
Solubility(ies)	Very slightly soluble in water
Partition coefficient: n-octanol/water	Not applicable. Based on Gasoline - Substance is a hydrocarbon UVCB. Standard tests for this endpoint are intended for single substances and are not appropriate for this complex substance.
Auto-ignition temperature	280 to 470°C (536 to 878°F) (Based on Concawe Category: Low boiling point naphtha (Gasoline))
Decomposition temperature	Not available.
Viscosity	Kinematic: <7 mm^2/s (<7 cSt) at 40°C
Explosive properties	Based on Gasoline - Not considered explosive based on structural and oxygen balance considerations.
Oxidising properties	Based on Gasoline - Not considered oxidizing based on structural considerations.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity

No specific test data available for this product. Refer to Conditions to avoid and Incompatible materials for additional information.

10.2 Chemical stability

The product is stable.

10.3 Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.
Under normal conditions of storage and use, hazardous polymerisation will not occur.

10.4 Conditions to avoid

Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapour to accumulate in low or confined areas.

10.5 Incompatible materials

Reactive or incompatible with the following materials: oxidising materials.

10.6 Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result / Route	Test authority / Number	Species	Dose	Exposure	Remarks
Gasoline	LC50 Inhalation Vapour	Equivalent to OECD 403	Rat	>7630 mg/m³ Nominal	4 hours	Based on Gasoline
	LC50 Inhalation Vapour	Equivalent to OECD 403	Rat	>5610 mg/m³ analytical	4 hours	Based on Gasoline
	LD50 Dermal	OECD 402	Rabbit	>2000 mg/kg	-	Based on Gasoline
	LD50 Oral	Equivalent to OECD 401	Rat	>5000 mg/kg	-	Based on Gasoline
tert-butyl methyl ether	LC50 Inhalation Vapour	OECD 403	Rat	85 mg/l	4 hours	
	LD50 Dermal	OECD 402	Rat	>2000 mg/kg	-	-
	LD50 Oral	OECD 401	Rat	>2000 mg/kg	-	
2-ethoxy-2-methylpropane (ETBE)	LC50 Inhalation Vapour	OECD 403	Rat	>5.88 mg/l	4 hours	-
	LD50 Dermal	OECD 402	Rat	>2000 mg/kg	-	-
	LD50 Oral	OECD 401	Rat	>2003 mg/kg	-	-
Ethanol	LC50 Inhalation Vapour	Equivalent to OECD 403	Rat	124.7 mg/l	4 hours	Based on Ethanol
	LC50 Inhalation Vapour	Equivalent to OECD 403	Rat	116.9 mg/l	4 hours	Based on Ethanol
	LC50 Inhalation Vapour	Equivalent to OECD 403	Rat	133.8 mg/l	4 hours	Based on Ethanol
	LD50 Oral	OECD 401	Rat	10470 mg/kg	-	Based on Ethanol
2-methylpropan-1-ol	LC50 Inhalation Vapour	- -	Rat	19200 mg/m³	4 hours	-
	LD50 Dermal	- -	Rabbit - Male, Female	2460 mg/kg	-	-
	LD50 Oral	- -	Rat - Female	3350 mg/kg	-	-
methanol	LC50 Inhalation Vapour	not guideline -	Rat	128.2 mg/l	4 hours	Based on methanol
	LC50 Inhalation Vapour	not guideline -	Rat	130.7 mg/l	4 hours	Based on methanol
	LC50 Inhalation Vapour	not guideline -	Rat	>115.9 mg/l	4 hours	Based on methanol
	LC50 Inhalation Vapour	not guideline -	Rat	87.5 mg/l	6 hours	Based on methanol

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	LC50 Inhalation Vapour	not guideline	-	Rat	92.6 mg/l	6 hours	Based on methanol
	LC50 Inhalation Vapour	not guideline	-	Rat	82.1 mg/l	6 hours	Based on methanol
	LD50 Oral	not guideline	-	Rat	>1187 mg/kg	-	Based on methanol

Acute toxicity estimates

Route	ATE value
Not available.	

Irritation/Corrosion

Product/ingredient name	Test authority / Test number		Species	Route / Result	Test concentration	Remarks
Gasoline	OECD	404	Rabbit	Skin - Irritant	-	Based on Gasoline
	Equivalent to OECD	405	Rabbit	Eyes - Non-irritating to the eyes.	-	Based on Gasoline
tert-butyl methyl ether	OECD	404	Rabbit	Skin - Irritation	-	-
	OECD	405	Rabbit	Eyes - Non-irritating to the eyes.	-	-
2-ethoxy-2-methylpropane (ETBE)	OECD	404	Rabbit	Skin - Non-irritant to skin.	-	-
	OECD	405	Rabbit	Eyes - Non-irritating to the eyes.	-	-
Ethanol	OECD	404	Rabbit	Skin - Non-irritant to skin.	-	Based on Ethanol
	OECD	405	Rabbit	Eyes - Cornea opacity	-	Based on Ethanol
	OECD	405	Rabbit	Eyes - Iris lesion	-	Based on Ethanol
	OECD	405	Rabbit	Eyes - Irritant	-	Based on Ethanol
2-methylpropan-1-ol	OECD	404	Rabbit	Skin - Irritant	-	Based on 2-Methylpropan-1-ol; Isobutanol
	OECD	405	Rabbit	Eyes - Severe irritant	-	Based on 2-Methylpropan-1-ol; Isobutanol
methanol	not guideline	-	Rabbit	Skin - Non-irritant to skin.	-	Based on methanol
	not guideline	-	Rabbit	Eyes - Non-irritating to the eyes.	-	Based on methanol

Sensitiser

SECTION 11: Toxicological information

Product/ingredient name	Route	Test authority / Test number		Species	Result	Remarks
Gasoline	skin	Equivalent to OECD	406	Guinea pig	Not sensitising	Based on Gasoline
tert-butyl methyl ether	skin	OECD	406	Guinea pig	Not sensitising	-
2-ethoxy-2-methylpropane (ETBE)	skin	OECD	406	Guinea pig	Not sensitising	-
methanol	skin	OECD	406	Guinea pig	Not sensitising	Based on methanol

GERM CELL MUTAGENICITY

Product/ingredient name	Test authority / Test number	Cell		Type	Result	Remarks
Gasoline	Equivalent to OECD 476	-	Experiment: In vitro	Subject: Mammal - species unspecified	Negative	Based on Gasoline
	Equivalent to OECD 471	-	Experiment: In vitro	Subject: Non-mammalian species	Negative	Based on Gasoline
	EPA OPPTS 870.5395	Cell: Germ	Experiment: In vivo	Subject: Unspecified	Negative	Based on Gasoline vapour condensate
	Equivalent to OECD 475	Cell: Germ	Experiment: In vivo	Subject: Unspecified	Negative	Based on Gasoline
tert-butyl methyl ether	EU B 13/14	-	Experiment: In vitro	Subject: Non-mammalian species	Negative	-
	OECD 471	-	Experiment: In vitro	Subject: Non-mammalian species	Negative	-
	OECD 476	-	Experiment: In vitro	Subject: Non-mammalian species	Negative	-
	Equivalent to OECD 473	-	Experiment: In vitro	Subject: Non-mammalian species	Negative	-
	Equivalent to OECD 486	Cell: Somatic	Experiment: In vivo	Subject: Unspecified	Negative	-
	Equivalent to EPA OPPTS 870.5385	Cell: Somatic	Experiment: In vivo	Subject: Unspecified	Negative	-
	Equivalent to EPA OPPTS 798.5385	Cell: Somatic	Experiment: In vivo	Subject: Unspecified	Negative	-
2-ethoxy-2-methylpropane (ETBE)	Equivalent to OECD 476	-	Experiment: In vitro	Subject: Mammal - species unspecified	Negative	-
	Equivalent to OECD 473	-	Experiment: In vitro	Subject: Mammal - species unspecified	Negative	-
	OECD 471	-	Experiment: In vitro	Subject: Non-mammalian species	Negative	-
	Equivalent to	Cell:	Experiment:	Subject:	Negative	-

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	OECD 474	Somatic	In vivo	Unspecified		
Ethanol	Equivalent to OECD 476	-	Experiment: In vitro	Subject: Mammal - species unspecified	Negative	Based on Ethanol
	Equivalent to OECD 473	-	Experiment: In vitro	Subject: Non-mammalian species	Negative	Based on Ethanol
	Equivalent to OECD 478	Cell: Germ	Experiment: In vivo	Subject: Unspecified	Negative	Based on Ethanol
methanol	OECD 471	-	Experiment: In vitro	Subject: Mammalian-Animal	Negative	Based on methanol
	OECD 476	-	Experiment: In vitro	Subject: Mammalian-Animal	Negative	Based on methanol
	-	Cell: Somatic	Experiment: In vitro	Subject: Mammalian-Animal	Negative	Based on methanol
	OECD 474	Cell: Somatic	Experiment: In vivo	Subject: Mammalian-Animal	Negative	Based on methanol
	OECD 473	Cell: Somatic	Experiment: In vivo	Subject: Mammalian-Animal	Negative	Based on methanol

Conclusion/Summary May cause genetic defects.

Carcinogenicity

Product/ingredient name	Test authority / Test number		Species	Route	Exposure	Result	Remarks
Gasoline	Equivalent to OECD	451	Rat	Inhalation	113 weeks	Negative	Based on Gasoline
	Equivalent to OECD	451	Mouse	Dermal	102 weeks	Negative	Based on Gasoline
tert-butyl methyl ether	EPA	OTS 798. 3300	Rat	Inhalation	2 years	Positive	Limited relevance to man.
Ethanol	EPA	OPPTS 870.4200	Mouse	Oral	105 weeks	Positive	Based on Ethanol
	Equivalent to OECD	-	Rat	Oral	104 weeks	Negative	Based on Ethanol
methanol	OECD	453	Mouse	Inhalation	24 months	Negative	Based on methanol
	OECD	453	Rat	Inhalation	24 months	Negative	Based on methanol

Conclusion/Summary May cause cancer

Reproductive toxicity

Product/ingredient name	Test authority / Test number		Species	Route	Exposure	Developmental	Maternal toxicity	Fertility	Remarks
Gasoline	OECD	416	Rat	Inhalation	2 generation	-	-	Negative	Based on Gasoline vapour condensate
	OECD	414	Rat	Inhalation	14 days	Negative	-	-	Based on Gasoline
tert-butyl methyl	not	-	Rat	Inhalation	2	-	-	Negative	no effects

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ether	guideline				generation				observed
	Equivalent to OECD	414	Rat	Inhalation	9 days	Negative	-	-	no effects observed
2-ethoxy-2-methylpropane (ETBE)	OECD	416	Rat	Oral	2 generation	-	-	Negative	no effects observed
	OECD	414	Rat	Oral	2 weeks	Negative	-	-	no effects observed
Ethanol	Equivalent to OECD	416	Rat	Oral	2 generation	-	-	Positive	Based on Ethanol
	Equivalent to OECD	414	Rat	Inhalation	18 days	Negative	-	-	Based on Ethanol
methanol	Equivalent to OECD	414	Rat	Inhalation	2 generation	-	-	Negative	Based on methanol
	Equivalent to OECD	414	Mouse	Inhalation	2 generation	-	-	Negative	Based on methanol
	Equivalent to OECD	414	Rat	Inhalation	10 days	Negative	-	Negative	Based on methanol
	Equivalent to OECD	414	Mouse	Inhalation	5 days	Negative	-	Negative	Based on methanol

Conclusion/Summary Development: Suspected of damaging the unborn child.
Fertility: Based on available data, the classification criteria are not met.
Effects on or via lactation: Not classified. Based on available data, the classification criteria are not met.

Specific target organ toxicity

Product/ ingredient name	Hazard	Test authority / Test number		Species	Route	Type	Dose	Exposure	Target organs	Remarks
Gasoline	STOT - RE	Equivalent to EPA	OPPTS 870. 3465	Rat	Inhalation	NOAEC	>1 mg/l /6 hours	90 days	-	Based on Gasoline
	STOT - RE	Equivalent to OECD	453	Rat	Inhalation	NOAEC	>1 mg/l /6 hours	2 years	-	Based on Gasoline
tert-butyl methyl ether	STOT - SE	OECD	401	Rat	Oral	LOAEL	>2000 mg/kg bw	-	-	-
	STOT - SE	Equivalent to OECD	402	Rat	Dermal	LOAEL	>2000 mg/kg bw	-	-	-
	STOT - RE	Equivalent to OECD	408	Rat	Oral	NOAEL	>100 mg/ kg bw/ day	13 weeks	kidneys	-
	STOT - RE	Equivalent to OECD	403	Rat	Inhalation	LOAEL	>20 mg/l	4 hours	-	-
	STOT - RE	EPA	OTS 798. 2450	Rat	Inhalation	NOAEC	>1 mg/l /6 hours	13 weeks	kidneys, liver, adrenal, glands	-
2-ethoxy-2-methylpropane (ETBE)	STOT - RE	EPA	OTS 798. 2450	Mouse	Inhalation	NOAEC	>250 ppm	90 days; 6 hours per day	liver	-
	STOT - RE	EPA	OTS 798. 2450	Rat	Inhalation	NOAEC	>250 ppm	90 days; 6 hours per day	testes, bone marrow	-

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	STOT - RE	EPA	OTS 798. 2450	Rat	Inhalation	NOAEC	>250 ppm	90 days; 6 hours per day	-	-
Ethanol	STOT - RE	Equivalent to OECD	408	Rat	Oral	NOAEL	>100 mg/kg	14 weeks	gastrointestinal tract liver kidneys	Based on Ethanol
	STOT - SE	OECD	401	Rat	Oral	LOAEL	>2000 mg/kg	-	-	Based on Ethanol
	-	-	-	Rat	Inhalation	NOAEL	>1 mg/l 6 hours	18 days	-	-
	-	-	-	Rat	Inhalation	LOAEL	>2000 ppmV	4 hours	-	Based on Ethanol
methanol	STOT - SE	-	-	Mammal - species unspecified	Oral	LOAEL	2000 mg/kg	-	Eyes	Based on methanol
	STOT - RE	OECD	453	Mammal - species unspecified	Inhalation	NOAEC	0.13 mg/l	20 hours / days	heart brain liver	Based on methanol

Conclusion/Summary STOT - SE: May cause drowsiness or dizziness. Target Organs: Central Nervous System (CNS). Based on Acute effects on humans.
STOT - RE: Not classified. Based on available data, the classification criteria are not met. Assessment was by using a weight of evidence approach.

Information on likely routes of exposure Routes of entry anticipated: Dermal, Inhalation.

Potential acute health effects

Inhalation Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.

Ingestion Irritating to mouth, throat and stomach. Aspiration hazard if swallowed -- harmful or fatal if liquid is aspirated into lungs.

Skin contact Causes skin irritation.

Eye contact Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

Ingestion Adverse symptoms may include the following:
nausea or vomiting

Skin contact Adverse symptoms may include the following:
irritation
redness

Eye contact Adverse symptoms may include the following:
pain or irritation
watering
redness

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Inhalation Solvent "sniffing" (abuse) or intentional overexposure to vapours can produce serious central nervous system effects, including unconsciousness, and possibly death. May be harmful by inhalation if exposure to vapour, mists or fumes resulting from thermal decomposition products occurs. Vapour, mist or fume may irritate the nose, mouth and respiratory tract.

Ingestion If swallowed, may irritate the mouth, throat and digestive system. If swallowed, may cause abdominal pain, stomach cramps, nausea, vomiting, diarrhoea, dizziness and drowsiness.

Skin contact Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis.

Eye contact Vapour, mist or fume may cause eye irritation. Exposure to vapour, mist or fume may cause stinging, redness and watering of the eyes.

Potential chronic health effects

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General Solvent "sniffing" (abuse) or intentional overexposure to vapours can produce serious central nervous system effects, including unconsciousness, and possibly death.

Carcinogenicity May cause cancer. Risk of cancer depends on duration and level of exposure. Exposure to benzene may result in effects to the hematopoietic system causing blood disorders including anaemia and leukaemia.
Benzene is classified by EEC as a category 1 carcinogen - substances known to be carcinogenic to man.
IARC assessment: benzene - carcinogenic to humans (Group 1)

Mutagenicity May cause genetic defects.

Developmental effects Suspected of damaging the unborn child.

Fertility effects No known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Test authority / Test number		Species	Type / Result	Exposure	Effects	Remarks
Gasoline	Modelled data	-	Micro-organism	Acute EC50 15.41 mg/l Nominal Fresh water	40 hours	growth inhibition	-
	OECD	201	Algae	Acute EL50 3.1 mg/l Nominal Fresh water	72 hours	(growth rate)	Based on Gasoline
	OECD	201	Algae	Acute EL50 3.7 mg/l Nominal Fresh water	96 hours	(growth rate)	Based on Gasoline
	OECD	202	Daphnia	Acute EL50 4.5 mg/l Nominal Fresh water	48 hours	Mobility	Based on straight-run light gasoline
	OECD	203	Fish	Acute LL50 10 mg/l Nominal Fresh water	96 hours	Mortality	Based on Naphtha (petroleum), isomerisation
	EPA	66013-75-009	Fish	Acute LL50 8.2 mg/l Nominal Fresh water	96 hours	Mortality	Based on Naphtha (petroleum), light alkylate
	OECD	201	Algae	Acute NOELR 0.5 mg/l Nominal Fresh water	72 hours	(growth rate)	Based on Gasoline
	OECD	202	Daphnia	Acute NOELR 0.5 mg/l Nominal Fresh water	48 hours	Mobility	Based on Straight run gas oil
	OECD	211	Daphnia	Chronic EL50 10 mg/l Nominal Fresh water	21 days	Reproduction	Based on Naphtha (petroleum), light alkylate
	OECD	211	Daphnia	Chronic EL50 >40 mg/l Nominal Fresh water	21 days	Mobility	Based on Naphtha (petroleum), light alkylate
	OECD	211	Fish	Chronic EL50 10 mg/l Nominal Fresh water	21 days	Reproduction	Based on: Naphtha (petroleum), light alkylate; read across between species
	OECD	204	Fish	Chronic LL50 5.2 mg/l	14 days	Mortality	Based on

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				Nominal Fresh water			Naphtha (petroleum), light catalytic reformed
	OECD	211	Daphnia	Chronic NOELR 2.6 mg/l Nominal Fresh water	21 days	Reproduction	Based on Naphtha (petroleum), light alkylate
	OECD	211	Daphnia	Chronic NOELR 16 mg/l Nominal Fresh water	21 days	Mobility	Based on Naphtha (petroleum), light alkylate
	OECD	204	Fish	Chronic NOELR 2.6 mg/l Nominal Fresh water	14 days	Mortality	Based on Naphtha (petroleum), light catalytic reformed
	OECD	211	Fish	Chronic NOELR 2.6 mg/l Nominal Fresh water	21 days	Reproduction	Based on: Naphtha (petroleum), light alkylate; read across between species
	Modelled data	-	soil, plants	Chronic PNEC >0.4 mg/kg	-	-	-
tert-butyl methyl ether	EPA	OPPTS 850. 1010	Daphnia	Acute EC50 472 mg/l Fresh water	48 hours	-	-
	EPA	OPPTS 850. 1010	Crustaceans	Acute LC50 200 mg/l Marine water	96 hours	-	-
	EPA	1981	Fish	Acute LC50 672 mg/l Fresh water	96 hours	-	-
	OECD	203	Fish	Acute LC50 574 mg/l Marine water	96 hours	-	-
	EPA	OPPTS 850. 1010	Crustaceans	Chronic NOEC 26 mg/l Marine water	28 days	-	-
	EPA	OPPTS 850. 1010	Daphnia	Chronic NOEC 51 mg/l Fresh water	21 days	-	-
2-ethoxy-2-methylpropane (ETBE)	OECD	202	Daphnia	Acute EC50 110 mg/l Nominal Fresh water	48 hours	Immobilisation	-
	OECD	203	Fish	Acute LC50 >974.1 mg/l Fresh water	96 hours	Mortality	-
	OECD	201	Algae	Acute NOEC 7.5 mg/l Measured Fresh water	72 hours	(growth rate)	-
	EPA	OTS 797. 1930	Crustaceans	Acute NOEC 25 mg/l Marine water	96 hours	-	-
	EPA	OPPTS	Crustaceans	Chronic NOEC 3.39 mg/l	28 days	Reproduction	-

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		850. 1350		Measured Marine water			
	EPA	OPPTS 850. 1300	Daphnia	Chronic NOEC 51 mg/l Measured Fresh water	21 days	Reproduction	-
	ASTM	E1241-92	Fish	Chronic NOEC 299 mg/l Measured Fresh water	31 days Mortality	Mortality	-
Ethanol	Equivalent to OECD	201	Algae	EC50 675 mg/l	4 days	-	Based on Ethanol
	EPA	OTS 797. 1160	Aquatic plants	EC50 4432 mg/l	7 days	-	Based on Ethanol
	ASTM	E729 - 80	Daphnia	Acute LC50 5012 mg/l	48 hours	-	Based on Ethanol
	EPA	E03 - 05	Fish	Acute LC50 153 g/l	96 hours	-	Based on Ethanol
	EPA	E03 - 05	Fish	Acute LC50 14.2 g/l	96 hours	-	Based on Ethanol
	not guideline	-	Daphnia	Chronic LC50 2 mg/l	10 days	-	Based on Ethanol
	not guideline	-	Daphnia	Chronic LC50 9.6 mg/l	9 days	-	Based on Ethanol
methanol	OECD	201	Algae	Acute EC50 22000 mg/l Fresh water	96 hours	-	Based on methanol
	EPA	850.54	Algae	Acute EC50 22000 mg/l Fresh water	96 hours	-	Based on methanol
	DIN	38412 Teil 11	Other	Acute EC50 >10000 mg/l Fresh water	48 hours	-	Based on methanol
	EPA	660/3-75-009	Fish	Acute LC50 15400 mg/l Fresh water	96 hours	-	Based on methanol

Environmental hazards Toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

Expected to be biodegradable. Non-persistent per IMO criteria

Product/ingredient name	Test authority / Test number	Result - Exposure	Remarks
tert-butyl methyl ether	not guideline	100 % - 1.25 days	Rapid degradation by adapted microbes.
	Modelled data	61 to 69 % - 151 days	Biodegradation in Soil-Aerobic
	OECD 301 D	9.24 % - Not readily - 28 days	-
	OECD 301 D	1.8 % - Not readily - 28 days	-
	OECD 301 D	0 % - Not readily - 28 days	-
	Modelled data	0 % - 250 days	Biodegradation in Soil-Anaerobic
2-ethoxy-2-methylpropane (ETBE)	not guideline	100 % - 1.25 days	Rapid degradation by adapted microbes.
	not guideline	66 to 71 % - 151 days	Biodegradation in Soil
	OECD 301 D	6.6 % - Not readily - 7 days	-
	not guideline	0 % - 244 days	Sediment / Water
Ethanol	EPA	95 % - Readily - 15 days	Based on Ethanol

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	EPA	84 % - Readily - 20 days	Based on Ethanol
	EPA	74 % - Readily - 5 days	Based on Ethanol
	EPA	74 % - Readily - 10 days	Based on Ethanol
methanol	not guideline	82.7 % - Readily - 5 days	Based on methanol
	not guideline	82.7 % - Readily - 10 days	Based on methanol
	not guideline	82.7 % - Readily - 15 days	Based on methanol
	not guideline	82.7 % - Readily - 20 days	Based on methanol

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
ethanol	-	-	Readily
2-methylpropan-1-ol	-	-	Readily

12.3 Bioaccumulative potential

This product is not expected to bioaccumulate through food chains in the environment.

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Gasoline	2 to 7	-	high
tert-butyl methyl ether	1.04	1.5	low
2-ethoxy-2-methylpropane (ETBE)	1.48	-	low
Ethanol	-0.35	-	low
2-methylpropan-1-ol	1	-	low
methanol	-0.77	<10	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{OC}) Not available.

Mobility Spillages may penetrate the soil causing ground water contamination.

12.5 Results of PBT and vPvB assessment

Product does not meet the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII.

12.6 Other adverse effects

Other ecological information Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal Where possible, arrange for product to be recycled. Dispose of via an authorised person/ licensed waste disposal contractor in accordance with local regulations.

Hazardous waste Yes.

European waste catalogue (EWC)

Waste code	Waste designation
13 07 02*	Petrol

However, deviation from the intended use and/or the presence of any potential contaminants may require an alternative waste disposal code to be assigned by the end user.

Packaging

Methods of disposal Where possible, arrange for product to be recycled. Dispose of via an authorised person/ licensed waste disposal contractor in accordance with local regulations.

SECTION 13: Disposal considerations

Special precautions

This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Empty containers represent a fire hazard as they may contain flammable product residues and vapour. Never weld, solder or braze empty containers. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Empty packages may contain some remaining product. Hazard warning labels are a guide to the safe handling of empty packaging and should not be removed.

References

Commission 2014/955/EU
Directive 2008/98/EC

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	UN1203	UN1203	UN1203	UN1203
14.2 UN proper shipping name	MOTOR SPIRIT or GASOLINE or PETROL	MOTOR SPIRIT or GASOLINE or PETROL	MOTOR SPIRIT or GASOLINE or PETROL. Marine pollutant	MOTOR SPIRIT or GASOLINE or PETROL
14.3 Transport hazard class(es)	3 	3 	3 	3 
14.4 Packing group	II	II	II	II
14.5 Environmental hazards	Yes.	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.
Additional information	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg. **Hazard identification number** 33 **Tunnel code** D/E	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg. **Remarks** Table: C. Danger: 3+N2+CMR+F	The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg. **Emergency schedules** F-E, S-E	The environmentally hazardous substance mark may appear if required by other transportation regulations.

14.6 Special precautions for user

Not available.

ADR/RID Classification code: F1

ADN Classification code: F1

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Proper shipping name

MARPOL Annex 1 rules apply for bulk shipments by sea.
Category: gasoline and spirits

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Other regulations

REACH Status

The company, as identified in Section 1, sells this product in the EU in compliance with the current requirements of REACH.

United States inventory (TSCA 8b)

At least one component is not listed.

SECTION 15: Regulatory information

Australia inventory (AICS) At least one component is not listed.

Canada inventory At least one component is not listed in DSL but all such components are listed in NDSL.

China inventory (IECSC) At least one component is not listed.

Japan inventory (ENCS) At least one component is not listed.

Korea inventory (KECI) All components are listed or exempted.

Philippines inventory (PICCS) All components are listed or exempted.

Taiwan Chemical Substances Inventory (TCSI) All components are listed or exempted.

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Ingredient name	Annex	Status
Benzene	Annex I - Part 1	Listed

Seveso Directive

This product is controlled under the Seveso Directive.

Named substances

Name
Petroleum products and alternative fuels (a) gasolines and naphthas, (b) kerosenes (including jet fuels), (c) gas oils (including diesel fuels, home heating oils and gas oil blending streams) (d) heavy fuel oils (e) alternative fuels serving the same purposes and with similar properties as regards flammability and environmental hazards as the products referred to in points (a) to (d)

Danger criteria

Category
P5a E2

National regulations

VbF class A I
Very dangerous flammable liquid.

Limitation of the use of organic solvents Permitted.

15.2 Chemical safety assessment A Chemical Safety Assessment has been carried out for one or more of substances within this mixture. A Chemical Safety Assessment has not been carried out for the mixture itself.

SECTION 16: Other information

Abbreviations and acronyms

ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
CAS = Chemical Abstracts Service
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
CSA = Chemical Safety Assessment
CSR = Chemical Safety Report
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EINECS = European Inventory of Existing Commercial chemical Substances
ES = Exposure Scenario
EUH statement = CLP-specific Hazard statement
EWC = European Waste Catalogue
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)

SECTION 16: Other information

OECD = Organisation for Economic Co-operation and Development
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation [Regulation (EC) No. 1907/2006]
RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
RRN = REACH Registration Number
SADT = Self-Accelerating Decomposition Temperature
SVHC = Substances of Very High Concern
STOT-RE = Specific Target Organ Toxicity - Repeated Exposure
STOT-SE = Specific Target Organ Toxicity - Single Exposure
TWA = Time weighted average
UN = United Nations
UVCB = Complex hydrocarbon substance
VOC = Volatile Organic Compound
vPvB = Very Persistent and Very Bioaccumulative
Varies = may contain one or more of the following 64741-88-4 / RRN 01-2119488706-23, 64741-89-5 / RRN 01-2119487067-30, 64741-95-3 / RRN 01-2119487081-40, 64741-96-4/ RRN 01-2119483621-38, 64742-01-4 / RRN 01-2119488707-21, 64742-44-5 / RRN 01-2119985177-24, 64742-45-6, 64742-52-5 / RRN 01-2119467170-45, 64742-53-6 / RRN 01-2119480375-34, 64742-54-7 / RRN 01-2119484627-25, 64742-55-8 / RRN 01-2119487077-29, 64742-56-9 / RRN 01-2119480132-48, 64742-57-0 / RRN 01-2119489287-22, 64742-58-1, 64742-62-7 / RRN 01-2119480472-38, 64742-63-8, 64742-65-0 / RRN 01-2119471299-27, 64742-70-7 / RRN 01-2119487080-42, 72623-85-9 / RRN 01-2119555262-43, 72623-86-0 / RRN 01-2119474878-16, 72623-87-1 / RRN 01-2119474889-13

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Flam. Liq. 1, H224	On basis of test data
Skin Irrit. 2, H315	Calculation method
Eye Irrit. 2, H319	Calculation method
Muta. 1B, H340	Calculation method
Carc. 1B, H350	Calculation method
Repr. 2, H361d (Unborn child)	Calculation method
STOT SE 3, H336	Calculation method
Asp. Tox. 1, H304	Calculation method
Aquatic Chronic 2, H411	Calculation method

Full text of abbreviated H statements

H224	Extremely flammable liquid and vapour.
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H301	Toxic if swallowed.
H304	May be fatal if swallowed and enters airways.
H311	Toxic in contact with skin.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H340	May cause genetic defects.
H350	May cause cancer.
H361d	Suspected of damaging the unborn child.
H370	Causes damage to organs.
H411	Toxic to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

Acute Tox. 3, H301	ACUTE TOXICITY (oral) - Category 3
Acute Tox. 3, H311	ACUTE TOXICITY (dermal) - Category 3
Acute Tox. 3, H331	ACUTE TOXICITY (inhalation) - Category 3
Aquatic Chronic 2, H411	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
Asp. Tox. 1, H304	ASPIRATION HAZARD - Category 1
Carc. 1B, H350	CARCINOGENICITY - Category 1B
Eye Dam. 1, H318	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
Eye Irrit. 2, H319	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Flam. Liq. 1, H224	FLAMMABLE LIQUIDS - Category 1
Flam. Liq. 2, H225	FLAMMABLE LIQUIDS - Category 2
Flam. Liq. 3, H226	FLAMMABLE LIQUIDS - Category 3
Muta. 1B, H340	GERM CELL MUTAGENICITY - Category 1B
Repr. 2, H361d	REPRODUCTIVE TOXICITY (Unborn child) - Category 2
Skin Irrit. 2, H315	SKIN CORROSION/IRRITATION - Category 2
STOT SE 1, H370	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 1

SECTION 16: Other information

STOT SE 3, H335	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3
STOT SE 3, H336	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Narcotic effects) - Category 3

History

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Prepared by	Product Stewardship

Indicates information that has changed from previously issued version.

Notice to reader

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Annex to the extended Safety Data Sheet (eSDS)

Consumer

Identification of the substance or mixture

Product definition	Mixture
Code	SAS2120
Product name	Ottokraftstoff

Section 1: Title

Short title of the exposure scenario	Use in fuel (Low boiling point naphtha) - Consumer
List of use descriptors	**Identified use name:** Use in fuel - Consumer (Benzene 0-1%) **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC09a, ERC09b **Market sector by type of chemical product:** PC13 **Specific Environmental Release Category:** ESVOC SpERC 9.12c.v1
Processes and activities covered by the exposure scenario	Covers consumer uses in liquid fuels.
Assessment Method	See Section 3

Section 2: Operational conditions and risk management measures

Section 2.1: Control of consumer exposure

Concentration of substance in mixture or article	Covers percentage substance in the product up to 100% (unless stated differently).
Physical state:	Liquid, vapour pressure > 10 kPa at Standard Temperature and Pressure
Amounts used:	For each use event, covers use amounts up to 37500g Covers skin contact area up to 420cm² Unless otherwise stated.
Frequency and duration of use:	Covers use up to 0.143 times per day. Covers exposure up to 2 hours per event. Unless otherwise stated.
Other given operational conditions affecting consumers exposure:	Covers use at ambient temperatures. Covers use in room size of 20 m³. assumes use with typical ventilation. Unless otherwise stated.

Contributing scenarios: Operational conditions and risk management measures

Product category(ies) 13: Fuels Liquid: automotive refuelling
Operations Conditions (consumer): Covers concentrations up to 1% Covers use up to 52 days per year Covers use up to 1 time/on day of use Covers skin contact area up to 210.00 cm² For each use event, covers use amounts up to 37500 g Covers outdoor use. Covers use in room size of 100 m³ Covers exposure up to 0.05 hours per event
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Process Category 13: Fuels Liquid: Scooter refuelling
Operations Conditions (consumer): Covers concentrations up to 1% Covers use up to 52 days per year Covers use up to 1 time/on day of use Covers skin contact area up to 210.00 cm² For each use event, covers use amounts up to 3750g Covers outdoor use. Covers use in room size of 100 m³ Covers exposure up to 0.03 hours per event
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 13: Fuels Liquid: garden equipment - use
Operations Conditions (consumer): Covers concentrations up to 1% Covers use up to 26 days per year Covers use up to 1 time/on day of use For each use event, covers use amounts up to 750g Covers outdoor use. Covers use in room size of 100 m³ Covers exposure up to 2.00 hours per event
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Product category(ies) 13: Fuels Liquid: garden equipment - refuelling
Operations Conditions (consumer): Covers concentrations up to 1% Covers use up to 26 days per year Covers use up to 1 time/on day of use Covers skin contact area up to 420.00cm² For each use event, covers use amounts up to 750g 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 per event
Risk management measures (RMM): No specific risk management measure identified beyond those operational conditions stated.

Section 2.2: Control of environmental exposure

Product characteristics:	Substance is complex UVCB. Predominantly hydrophobic
Frequency and duration of use:	Continuous release
Conditions and measures related to external treatment of waste for disposal:	Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste:	This substance is consumed during use and no waste from the substance is generated.
RCR - Air Compartment Driven:	EC number ... Value | EC number ... Value 232-443-2 … 6.2E-05 | 265-150-3 … 9.3E-04 232-453-7 … 2.0E-05 | 265-178-6 … 3.5E-04 265-041-0 … 3.1E-04 | 265-192-2 … 8.3E-05 265-042-6 … 3.8E-02 | 270-690-8 … 7.5E-05 265-055-7 … 7.1E-05 | 271-267-0 … 8.6E-05 265-056-2 … 2.0E-04 | 271-635-0 … 1.2E-05 265-065-1 … 8.0E-05 | 272-186-3 … 8.6E-05 265-070-9 … 1.2E-04 | 273-271-8 … 5.4E-04 265-073-5 … 3.1E-04 | 289-220-8 … 9.6E-03 265-085-0 … 1.3E-04 | 295-279-0 … 5.6E-06 265-086-6 … 1.9E-04 | 295-433-7 … 4.0E-04 265-089-2 … 6.0E-04 | 297-401-8 … 8.8E-05
RCR - Water Compartment Driven:	EC number ... Value | EC number ... Value 232-443-2 … 4.8E-04 | 265-150-3 … 8.7E-04 232-453-7 … 7.8E-05 | 265-178-6 … 2.3E-03 265-041-0 … 2.4E-03 | 265-192-2 … 5.9E-04 265-042-6 … 1.1E-02 | 270-690-8 … 4.9E-04 265-055-7 … 4.8E-04 | 271-267-0 … 7.2E-04 265-056-2 … 1.6E-03 | 271-635-0 … 5.4E-05 265-065-1 … 5.6E-04 | 272-186-3 … 6.5E-04 265-070-9 … 7.6E-04 | 273-271-8 … 2.9E-03 265-073-5 … 2.6E-03 | 289-220-8 … 2.1E-02 265-085-0 … 1.2E-04 | 295-279-0 … 3.1E-05 265-086-6 … 3.9E-04 | 295-433-7 … 6.6E-04 265-089-2 … 1.2E-03 | 297-401-8 … 4.9E-04

Section 3 Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment	
Exposure assessment (environment):	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	Not available.
Exposure estimation and reference to its source - Consumers	
Exposure assessment (human):	The ECETOC TRA tool has been used to estimate consumer exposure, consistent with the content of ECETOC Report #107 and the Chapter R15 of the IR&CSA TDG. Where exposure determinants differ to these sources, then they are indicated.
Exposure estimation and reference to its source	Not available.

Section 4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

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.
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.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	Mixture
Code	SAS2120
Product name	Ottokraftstoff

Section 1: Title

Short title of the exposure scenario	Formulation and (re)packing of substances and mixtures (Low boiling point naphtha)
List of use descriptors	**Identified use name:** Formulation and (re)packing of substances and mixtures (Benzene 0-1%) **Process Category:** PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC15 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC02 **Specific Environmental Release Category:** ESVOC SpERC 2.2.v1
Processes and activities covered by the exposure scenario	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.
Assessment Method	See Section 3

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Product characteristics:

Physical state:	Liquid, vapour pressure > 10 kPa at Standard Temperature and Pressure
Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
Amounts used:	Not applicable.
Frequency and duration of use:	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management:	Not applicable.
Other conditions affecting workers exposure:	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented

Contributing scenarios: Operational conditions and risk management measures

General measures (skin irritants): Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) 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 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.

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 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 chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Storage: Store substance within a closed system. Wear suitable gloves tested to EN374.

Section 2.2: Control of environmental exposure

Product characteristics:	Substance is complex UVCB. Predominantly hydrophobic
Frequency and duration of use:	Continuous release
Emission days	typical value: 300 days per year EC number 265-071-4, 270-690-8, 295-279-0: 100 days per year
Environment factors not influenced by risk management:	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process (initial release prior to RMM)	typical value: 2.5E-02 EC number 265-055-7, 295-279-0, 297-401-8: 1.0E-02
Release fraction to soil from process (initial release prior to RMM)	1.0E-04
Release fraction to wastewater from process (initial release prior to RMM)	EC number ... Value | EC number ... Value 232-443-2 … 2.0E-03 | 265-150-3 … 2.0E-04 232-453-7 … 7.3E-04 | 265-178-6 … 6.8E-04 265-041-0 … 5.7E-04 | 265-192-2 … 1.4E-03 265-042-6 … 1.1E-03 | 270-690-8 … 2.0E-03 265-055-7 … 2.0E-04 | 271-267-0 … 2.0E-04 265-056-2 … 5.4E-04 | 271-635-0 … 4.5E-03 265-065-1 … 2.0E-03 | 272-186-3 … 5.0E-04 265-070-9 … 5.0E-04 | 273-271-8 … 1.6E-03 265-071-4 … 2.0E-04 | 289-220-8 … 6.4E-04 265-073-5 … 2.0E-03 | 295-279-0 … 2.0E-03 265-085-0 … 2.0E-03 | 295-433-7 … 2.0E-04 265-086-6 … 2.0E-04 | 297-401-8 … 2.0E-03 265-089-2 … 5.1E-04 |
Technical conditions and measures at process level (source) to prevent release:	Common practices vary across sites thus conservative process release estimates used.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:	Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater. typical value: If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. EC number 297-401-8: If discharging to domestic sewage treatment plant, additional onsite wastewater treatment required.
Treat air emission to provide a typical removal efficiency of	0.0 %
Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of	EC number ... ≥ % | EC number ... ≥ % 232-443-2 … 86.0 | 265-150-3 … 91.2 232-453-7 … 96.1 | 265-178-6 … 95.8 265-041-0 … 94.9 | 265-192-2 … 95.9 265-042-6 … 95.3 | 270-690-8 … 83.6 265-055-7 … 88.2 | 271-267-0 … 94.0 265-056-2 … 95.5 | 271-635-0 … 94.4 265-065-1 … 94.6 | 272-186-3 … 94.8 265-070-9 … 94.6 | 273-271-8 … 94.6 265-071-4 … 33.4 | 289-220-8 … 95.7

	265-073-5 … 96.9 | 295-279-0 … 93.1 265-085-0 … 75.4 | 295-433-7 … 93.9 265-086-6 … 92.5 | 297-401-8 … 99.0 265-089-2 … 94.8 |
If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of	typical value: ≥ 0 % EC number ... ≥ % 297-401-8 ... 79.8
Organisational measures to prevent/limit release from site:	Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed Not applicable as there is no release to wastewater.
Conditions and measures related to sewage treatment plant:	
Estimated substance removal from wastewater via on-site sewage treatment	EC number ... % | EC number ... % 232-443-2 … 95.5 | 265-150-3 … 95.3 232-453-7 … 96.5 | 265-178-6 … 96.2 265-041-0 … 95.4 | 265-192-2 … 96.2 265-042-6 … 95.7 | 270-690-8 … 95.9 265-055-7 … 95.0 | 271-267-0 … 96.9 265-056-2 … 95.9 | 271-635-0 … 94.9 265-065-1 … 94.8 | 272-186-3 … 95.2 265-070-9 … 95.1 | 273-271-8 … 95.1 265-071-4 … 95.4 | 289-220-8 … 96.1 265-073-5 … 97.0 | 295-279-0 … 95.2 265-085-0 … 96.3 | 295-433-7 … 95.4 265-086-6 … 96.6 | 297-401-8 … 95.2 265-089-2 … 95.3 |
Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs	EC number ... % | EC number ... % 232-443-2 … 95.5 | 265-150-3 … 95.3 232-453-7 … 96.5 | 265-178-6 … 96.2 265-041-0 … 95.4 | 265-192-2 … 96.2 265-042-6 … 95.7 | 270-690-8 … 95.9 265-055-7 … 95.0 | 271-267-0 … 96.9 265-056-2 … 95.9 | 271-635-0 … 94.9 265-065-1 … 94.8 | 272-186-3 … 95.2 265-070-9 … 95.1 | 273-271-8 … 95.1 265-071-4 … 95.4 | 289-220-8 … 96.1 265-073-5 … 97.0 | 295-279-0 … 95.2 265-085-0 … 96.3 | 295-433-7 … 95.4 265-086-6 … 96.6 | 297-401-8 … 99.0 265-089-2 … 95.3 |
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal	EC number ... kg/day | EC number ... kg/day 232-443-2 … 3.6E+04 | 265-150-3 … 1.9E+05 232-453-7 … 1.1E+05 | 265-178-6 … 1.1E+05 265-041-0 … 1.1E+05 | 265-192-2 … 6.1E+04 265-042-6 … 1.1E+05 | 270-690-8 … 5.6E+04 265-055-7 … 9.8E+04 | 271-267-0 … 1.3E+05 265-056-2 … 1.1E+05 | 271-635-0 … 3.2E+04 265-065-1 … 1.0E+05 | 272-186-3 … 1.1E+05 265-070-9 … 1.1E+05 | 273-271-8 … 1.1E+05 265-071-4 … 2.4E+05 | 289-220-8 … 1.1E+05 265-073-5 … 4.2E+04 | 295-279-0 … 2.0E+04 265-085-0 … 4.6E+04 | 295-433-7 … 1.3E+05 265-086-6 … 2.2E+05 | 297-401-8 … 1.0E+05 265-089-2 … 1.1E+05 |
Assumed on-site sewage treatment plant flow	2000 (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.
Conditions and measures related to external recovery of waste:	External recovery and recycling of waste should comply with applicable local and/or national regulations.
RCR - Air Compartment Driven:	EC number ... Value | EC number ... Value 232-443-2 … 2.8E-02 | 265-150-3 … 1.8E-01 232-453-7 … 1.8E-01 | 265-178-6 … 1.8E-01 265-041-0 … 1.8E-01 | 265-192-2 … 1.0E-01 265-042-6 … 1.8E-01 | 270-690-8 … 8.5E-03 265-055-7 … 3.1E-02 | 271-267-0 … 1.2E-01 265-056-2 … 1.8E-01 | 271-635-0 … 1.1E-01 265-065-1 … 1.8E-01 | 272-186-3 … 1.8E-01 265-070-9 … 1.8E-01 | 273-271-8 … 1.8E-01 265-071-4 … 1.0E-02 | 289-220-8 … 1.8E-01 265-073-5 … 7.5E-02 | 295-279-0 … 1.9E-02 265-085-0 … 1.3E-02 | 295-433-7 … 1.8E-01 265-086-6 … 1.8E-01 | 297-401-8 … 7.6E-02

	265-089-2 … 1.8E-01 |
RCR - Water Compartment Driven:	EC number ... Value | EC number ... Value 232-443-2 … 3.2E-01 | 265-150-3 … 5.3E-01 232-453-7 … 9.1E-01 | 265-178-6 … 9.1E-01 265-041-0 … 9.1E-01 | 265-192-2 … 9.1E-01 265-042-6 … 9.1E-01 | 270-690-8 … 2.5E-01 265-055-7 … 4.2E-01 | 271-267-0 … 5.1E-01 265-056-2 … 9.1E-01 | 271-635-0 … 9.1E-01 265-065-1 … 9.5E-01 | 272-186-3 … 9.1E-01 265-070-9 … 9.1E-01 | 273-271-8 … 9.1E-01 265-071-4 … 7.0E-02 | 289-220-8 … 9.1E-01 265-073-5 … 9.7E-01 | 295-279-0 … 6.9E-01 265-085-0 … 1.5E-01 | 295-433-7 … 7.5E-01 265-086-6 … 4.5E-01 | 297-401-8 … 9.1E-01 265-089-2 … 9.1E-01 |

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment	
Exposure assessment (environment):	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source - Workers	
Exposure assessment (human):	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 4: Guidance to check compliance with the exposure scenario

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.
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. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition	Mixture
Code	SAS2120
Product name	Ottokraftstoff

Section 1: Title

Short title of the exposure scenario	Use in fuel (Low boiling point naphtha) - Professional
List of use descriptors	**Identified use name:** Use in fuel - Professional (Benzene 0-1%) **Process Category:** PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC16 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC09a, ERC09b **Specific Environmental Release Category:** ESVOC SpERC 9.12b.v1
Processes and activities covered by the exposure scenario	Covers the use as a fuel (or fuel additives and additive components) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.
Assessment Method	See Section 3

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Product characteristics:

Physical state:	Liquid, vapour pressure > 10 kPa at Standard Temperature and Pressure
Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
Amounts used:	Not applicable.
Frequency and duration of use:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure:	Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented

Contributing scenarios: Operational conditions and risk management measures

General measures (skin irritants): Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) 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 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 in 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

Product characteristics:	Substance is complex UVCB. Predominantly hydrophobic
Frequency and duration of use:	Continuous release
Emission days	365 days per year
Environment factors not influenced by risk management:	
Local freshwater dilution factor	10
Local marine water dilution factor	100
Technical conditions and measures at process level (source) to prevent release:	Common practices vary across sites thus conservative process release estimates used.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:	EC number 265-042-6, 265-150-3: Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion). No wastewater treatment required. typical value: Risk from environmental exposure is driven by freshwater. No wastewater treatment required.
Treat air emission to provide a typical removal efficiency of	Not applicable.
Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of	≥ 0 %
If discharging to municipal sewage treatment plant, provide the required on-site 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 Not applicable as there is no release to wastewater.
Conditions and measures related to sewage treatment plant:	
Estimated substance removal from wastewater via on-site sewage treatment	EC number ... % | EC number ... % 232-453-7 … 96.5 | 265-178-6 … 96.2 265-042-6 … 95.7 | 265-192-2 … 96.2 265-055-7 … 95.0 | 270-690-8 … 95.9 265-056-2 … 95.9 | 271-267-0 … 96.9 265-065-1 … 94.8 | 271-635-0 … 94.9 265-070-9 … 95.1 | 272-186-3 … 95.2 265-073-5 … 97.0 | 273-271-8 … 95.1 265-085-0 … 96.3 | 289-220-8 … 96.1 265-086-6 … 96.6 | 295-279-0 … 95.2 265-089-2 … 95.3 | 295-433-7 … 95.4 265-150-3 … 95.3 | 297-401-8 … 95.2
Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs	EC number ... % | EC number ... % 232-453-7 … 96.5 | 265-178-6 … 96.2 265-042-6 … 95.7 | 265-192-2 … 96.2 265-055-7 … 95.0 | 270-690-8 … 95.9 265-056-2 … 95.9 | 271-267-0 … 96.9 265-065-1 … 94.8 | 271-635-0 … 94.9 265-070-9 … 95.1 | 272-186-3 … 95.2 265-073-5 … 97.0 | 273-271-8 … 95.1 265-085-0 … 96.3 | 289-220-8 … 96.1 265-086-6 … 96.6 | 295-279-0 … 95.2 265-089-2 … 95.3 | 295-433-7 … 95.4 265-150-3 … 95.3 | 297-401-8 … 95.2

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal	EC number ... kg/day | EC number ... kg/day 232-453-7 … 1.9E+04 | 265-178-6 … 4.3E+04 265-042-6 … 2.1E+03 | 265-192-2 … 8.8E+03 265-055-7 … 3.2E+02 | 270-690-8 … 3.9E+02 265-056-2 … 1.1E+02 | 271-267-0 … 1.5E+04 265-065-1 … 1.2E+04 | 271-635-0 … 5.0E+04 265-070-9 … 2.3E+04 | 272-186-3 … 1.1E+04 265-073-5 … 1.1E+02 | 273-271-8 … 1.7E+03 265-085-0 … 6.4E+02 | 289-220-8 … 6.4E+04 265-086-6 … 1.6E+03 | 295-279-0 … 1.3E+04 265-089-2 … 1.3E+04 | 295-433-7 … 4.6E+04 265-150-3 … 2.2E+02 | 297-401-8 … 1.5E+03
Assumed on-site sewage treatment plant flow	2000 (m3/d)
Conditions and measures related to external treatment of waste for disposal:	Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste:	This substance is consumed during use and no waste from the substance is generated.
RCR - Air Compartment Driven:	EC number ... Value | EC number ... Value 232-453-7 … 2.0E-05 | 265-178-6 … 3.5E-04 265-042-6 … 3.8E-02 | 265-192-2 … 8.3E-05 265-055-7 … 7.1E-05 | 270-690-8 … 7.5E-05 265-056-2 … 2.0E-04 | 271-267-0 … 8.6E-05 265-065-1 … 8.0E-05 | 271-635-0 … 1.2E-05 265-070-9 … 1.2E-04 | 272-186-3 … 8.5E-05 265-073-5 … 3.1E-04 | 273-271-8 … 5.4E-04 265-085-0 … 1.3E-04 | 289-220-8 … 9.5E-03 265-086-6 … 1.8E-04 | 295-279-0 … 5.6E-06 265-089-2 … 6.0E-04 | 295-433-7 … 4.0E-04 265-150-3 … 9.3E-04 | 297-401-8 … 8.7E-05
RCR - Water Compartment Driven:	EC number ... Value | EC number ... Value 232-453-7 … 7.4E-05 | 265-178-6 … 2.3E-03 265-042-6 … 1.1E-02 | 265-192-2 … 5.9E-04 265-055-7 … 4.8E-04 | 270-690-8 … 4.9E-04 265-056-2 … 1.6E-03 | 271-267-0 … 7.2E-04 265-065-1 … 5.6E-04 | 271-635-0 … 5.4E-05 265-070-9 … 7.6E-04 | 272-186-3 … 6.4E-04 265-073-5 … 2.6E-03 | 273-271-8 … 2.9E-03 265-085-0 … 1.2E-04 | 289-220-8 … 2.0E-02 265-086-6 … 3.5E-04 | 295-279-0 … 3.1E-05 265-089-2 … 1.2E-03 | 295-433-7 … 6.6E-04 265-150-3 … 8.6E-04 | 297-401-8 … 4.8E-04

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment	
Exposure assessment (environment):	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source - Workers	
Exposure assessment (human):	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 4: Guidance to check compliance with the exposure scenario

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.

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. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	Mixture
Code	SAS2120
Product name	Ottokraftstoff

Section 1: Title

Short title of the exposure scenario	Use in fuel (Low boiling point naphtha) - Industrial
List of use descriptors	**Identified use name:** Use in fuel - Industrial (Benzene 0-1%) **Process Category:** PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC16 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC07 **Specific Environmental Release Category:** ESVOC SpERC 7.12a.v1
Processes and activities covered by the exposure scenario	Covers the use as a fuel (or fuel additives and additive components) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.
Assessment Method	See Section 3

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Product characteristics:

Physical state:	Liquid, vapour pressure > 10 kPa at Standard Temperature and Pressure
Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
Amounts used:	Not applicable.
Frequency and duration of use:	Covers daily exposures up to 8 hours (unless stated differently)
Human factors not influenced by risk management:	Not applicable.
Other conditions affecting workers exposure:	Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented

Contributing scenarios: Operational conditions and risk management measures

General measures (skin irritants): Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) 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 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 in 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 chemical-resistant gloves (tested to EN374) 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

Product characteristics: Substance is complex UVCB. Predominantly hydrophobic

Frequency and duration of use: Continuous release

Emission days

EC number ... days per year	EC number ... days per year
232-453-7 … 100	265-150-3 … 20
265-041-0 … 300	265-178-6 … 300
265-042-6 … 300	265-192-2 … 300
265-055-7 … 300	270-690-8 … 20
265-056-2 … 300	271-267-0 … 300
265-065-1 … 300	271-635-0 … 100
265-070-9 … 300	272-186-3 … 300
265-071-4 … 100	273-271-8 … 300
265-073-5 … 100	289-220-8 … 300
265-085-0 … 20	295-279-0 … 20
265-086-6 … 20	297-401-8 … 300
265-089-2 … 100	

Environment factors not influenced by risk management:

Local freshwater dilution factor: 10

Local marine water dilution factor: 100

Release fraction to air from process (initial release prior to RMM): typical value: 5.0E-02

EC number 265-055-7, 295-279-0, 297-401-8: 5.0E-03

Release fraction to soil from process (initial release prior to RMM): 0

Release fraction to wastewater 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 on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil:

EC number
265-041-0
265-056-2
265-065-1
265-192-2
273-271-8
Risk from environmental exposure is driven by humans via indirect exposure (primarily inhalation). No wastewater treatment required.

EC number 265-042-6, 265-178-6, 289-220-8:
Risk from environmental exposure is driven by humans via indirect exposure (primarily inhalation). If discharging to municipal sewage treatment plant, no on-site wastewater treatment required.

EC number
232-453-7 | 265-150-3
265-055-7 | 270-690-8
265-070-9 | 271-267-0
265-071-4 | 271-635-0
265-085-0 | 272-186-3
265-086-6 | 295-279-0
265-089-2 | 297-401-8
Risk from environmental exposure is driven by freshwater sediment. No wastewater treatment required.

EC number 265-073-5:

	Risk from environmental exposure is driven by freshwater. No wastewater treatment required.
Treat air emission to provide a typical removal efficiency of	95 %
Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of	typical value: 0 % EC number ... % 265-042-6 … 39.4 265-178-6 … 45.6 289-220-8 … 91.7
If discharging to municipal sewage treatment plant, provide the required on-site 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 Not applicable as there is no release to wastewater.
Conditions and measures related to sewage treatment plant:	
Estimated substance removal from wastewater via on-site sewage treatment	EC number ... % | EC number ... % 232-453-7 … 96.5 | 265-150-3 … 95.3 265-041-0 … 95.4 | 265-178-6 … 96.2 265-042-6 … 95.7 | 265-192-2 … 96.2 265-055-7 … 95.0 | 270-690-8 … 95.9 265-056-2 … 95.9 | 271-267-0 … 96.9 265-065-1 … 94.8 | 271-635-0 … 94.9 265-070-9 … 95.1 | 272-186-3 … 95.2 265-071-4 … 95.4 | 273-271-8 … 95.1 265-073-5 … 97.0 | 289-220-8 … 96.1 265-085-0 … 96.3 | 295-279-0 … 95.2 265-086-6 … 96.6 | 297-401-8 … 95.2 265-089-2 … 95.3 |
Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs	EC number ... % | EC number ... % 232-453-7 … 96.5 | 265-150-3 … 95.3 265-041-0 … 95.4 | 265-178-6 … 96.2 265-042-6 … 95.7 | 265-192-2 … 96.2 265-055-7 … 95.0 | 270-690-8 … 95.9 265-056-2 … 95.9 | 271-267-0 … 96.9 265-065-1 … 94.8 | 271-635-0 … 94.9 265-070-9 … 95.1 | 272-186-3 … 95.2 265-071-4 … 95.4 | 273-271-8 … 95.1 265-073-5 … 97.0 | 289-220-8 … 96.1 265-085-0 … 96.3 | 295-279-0 … 95.2 265-086-6 … 96.6 | 297-401-8 … 95.2 265-089-2 … 95.3 |
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal	EC number ... kg/day | EC number ... kg/day 232-453-7 … 8.0E+06 | 265-150-3 … 3.7E+06 265-041-0 … 5.3E+06 | 265-178-6 … 5.3E+06 265-042-6 … 4.3E+06 | 265-192-2 … 5.3E+06 265-055-7 … 2.0E+06 | 270-690-8 … 1.1E+07 265-056-2 … 5.3E+06 | 271-267-0 … 2.6E+06 265-065-1 … 5.4E+06 | 271-635-0 … 1.4E+07 265-070-9 … 5.1E+06 | 272-186-3 … 5.2E+06 265-071-4 … 4.9E+06 | 273-271-8 … 5.4E+06 265-073-5 … 2.2E+06 | 289-220-8 … 5.3E+06 265-085-0 … 9.1E+06 | 295-279-0 … 4.0E+06 265-086-6 … 4.5E+06 | 297-401-8 … 4.0E+06 265-089-2 … 5.6E+06 |
Assumed on-site sewage treatment plant flow	2000 (m3/d)
Conditions and measures related to external treatment of waste for disposal:	Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste:	This substance is consumed during use and no waste from the substance is generated.
RCR - Air Compartment Driven:	EC number ... Value | EC number ... Value 232-453-7 … 1.8E-03 | 265-150-3 … 9.9E-04 265-041-0 … 9.5E-03 | 265-178-6 … 9.2E-02 265-042-6 … 1.4E-01 | 265-192-2 … 4.9E-03 265-055-7 … 1.2E-03 | 270-690-8 … 3.8E-04 265-056-2 … 1.9E-02 | 271-267-0 … 6.7E-03 265-065-1 … 5.6E-03 | 271-635-0 … 2.6E-03 265-070-9 … 1.6E-02 | 272-186-3 … 2.4E-02 265-071-4 … 1.0E-03 | 273-271-8 … 1.0E-01 265-073-5 … 9.6E-04 | 289-220-8 … 5.9E-01

	265-085-0 … 1.9E-04 | 295-279-0 … 4.8E-05 265-086-6 … 4.8E-04 | 297-401-8 … 6.2E-04 265-089-2 … 2.4E-03 |
RCR - Water Compartment Driven:	EC number ... Value | EC number ... Value 232-453-7 … 3.8E-03 | 265-150-3 … 1.1E-02 265-041-0 … 8.6E-03 | 265-178-6 … 7.0E-02 265-042-6 … 7.0E-02 | 265-192-2 … 3.3E-03 265-055-7 … 1.7E-02 | 270-690-8 … 2.9E-03 265-056-2 … 1.8E-02 | 271-267-0 … 1.5E-02 265-065-1 … 1.5E-03 | 271-635-0 … 3.0E-03 265-070-9 … 1.6E-02 | 272-186-3 … 2.5E-02 265-071-4 … 3.5E-03 | 273-271-8 … 3.2E-02 265-073-5 … 4.3E-03 | 289-220-8 … 4.7E-01 265-085-0 … 1.7E-03 | 295-279-0 … 8.7E-03 265-086-6 … 9.1E-03 | 297-401-8 … 7.5E-03 265-089-2 … 7.4E-03 |

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment	
Exposure assessment (environment):	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source - Workers	
Exposure assessment (human):	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 4: Guidance to check compliance with the exposure scenario

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.
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. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition	Mixture
Code	SAS2120
Product name	Ottokraftstoff

Section 1: Title

Short title of the exposure scenario	Use as an intermediate (Low boiling point naphtha)
List of use descriptors	**Identified use name:** Use as an intermediate (Benzene 0-1%) **Process Category:** PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC15 **Sector of end use:** SU08, SU09 **Subsequent service life relevant for that use:** No. **Environmental Release Category:** ERC06a **Specific Environmental Release Category:** ESVOC SpERC 6.1a.v1
Processes and activities covered by the exposure scenario	Use as an intermediate. Includes material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/ rail car and bulk container).
Assessment Method	See Section 3

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Product characteristics:

Physical state:	Liquid, vapour pressure > 10 kPa at Standard Temperature and Pressure
Concentration of substance in product:	Covers percentage substance in the product up to 100% (unless stated differently).
Amounts used:	Not applicable.
Frequency and duration of use:	Covers daily exposures up to 8 hours (unless stated differently)
Other conditions affecting workers exposure:	Operation is carried out at elevated temperature (> 20°C above ambient temperature) Assumes a good basic standard of occupational hygiene is implemented

Contributing scenarios: Operational conditions and risk management measures

General measures (skin irritants): Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) 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 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.

General exposures (closed systems): Handle substance within a closed system. Ensure operation is undertaken outdoors.

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

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 chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Section 2.2: Control of environmental exposure

Product characteristics: Substance is complex UVCB. Predominantly hydrophobic

Frequency and duration of use: Continuous release

Emission days 300 days per year

Environment factors not influenced by risk management:

Local freshwater dilution factor 10

Local marine water dilution factor 100

Release fraction to air from process (initial release prior to RMM)

EC number ... Value	EC number ... Value
232-443-2 … 2.5E-02	265-089-2 … 1.0E-02
265-041-0 … 2.5E-02	265-150-3 … 1.0E-02
265-042-6 … 2.5E-02	265-178-6 … 2.5E-02
265-046-8 … 2.5E-02	265-192-2 … 2.5E-02
265-055-7 … 1.0E-03	270-690-8 … 2.5E-02
265-056-2 … 2.5E-02	270-695-5 … 2.5E-02
265-065-1 … 2.5E-02	271-267-0 … 2.5E-02
265-070-9 … 1.0E-02	272-186-3 … 1.0E-02
265-071-4 … 1.0E-02	273-271-8 … 2.5E-02
265-073-5 … 2.5E-02	289-220-8 … 2.5E-02
265-075-6 … 2.5E-02	295-433-7 … 1.0E-02
265-079-8 … 2.5E-02	297-401-8 … 1.0E-03
265-085-0 … 2.5E-02	309-879-8 … 1.0E-02
265-086-6 … 2.5E-02	

Release fraction to soil from process (initial release prior to RMM) 1.0E-03

Release fraction to wastewater from process (initial release prior to RMM)

EC number ... Value	EC number ... Value
232-443-2 … 1.3E-03	265-089-2 … 1.0E-03
265-041-0 … 1.1E-03	265-150-3 … 3.0E-04
265-042-6 … 2.1E-03	265-178-6 … 1.4E-03
265-046-8 … 1.7E-03	265-192-2 … 1.5E-03
265-055-7 … 3.0E-04	270-690-8 … 2.0E-03
265-056-2 … 1.1E-03	270-695-5 … 3.0E-03
265-065-1 … 3.0E-03	271-267-0 … 3.0E-04
265-070-9 … 1.0E-03	272-186-3 … 9.9E-04
265-071-4 … 3.0E-04	273-271-8 … 3.0E-03
265-073-5 … 3.0E-03	289-220-8 … 1.3E-03
265-075-6 … 3.0E-04	295-433-7 … 3.0E-04
265-079-8 … 3.0E-04	297-401-8 … 3.0E-03
265-085-0 … 3.0E-03	309-879-8 … 3.0E-04
265-086-6 … 3.0E-04	

Technical conditions and measures at process level (source) to prevent release: Common practices vary across sites thus conservative process release estimates used.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil: Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater.

EC number

232-443-2	265-089-2
265-041-0	265-150-3
265-042-6	265-178-6
265-046-8	265-192-2
265-055-7	270-690-8
265-056-2	270-695-5
265-065-1	271-267-0
265-070-9	272-186-3
265-071-4	273-271-8
265-075-6	289-220-8
265-079-8	295-433-7
265-086-6	309-879-8

If discharging to municipal sewage treatment plant, no on-site wastewater treatment required.

EC number: 265-073-5, 265-085-0, 297-401-8

If discharging to domestic sewage treatment plant, additional onsite wastewater treatment required.

Treat air emission to provide a typical removal efficiency of

80 %

Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of

EC number ... ≥ %	EC number ... ≥ %
232-443-2 … 95.0	265-089-2 … 94.8
265-041-0 … 94.9	265-150-3 … 88.3
265-042-6 … 95.3	265-178-6 … 95.8
265-046-8 … 96.6	265-192-2 … 95.9
265-055-7 … 93.5	270-690-8 … 95.5
265-056-2 … 95.5	270-695-5 … 95.1
265-065-1 … 92.8	271-267-0 … 94.7
265-070-9 … 94.6	272-186-3 … 94.8
265-071-4 … 84.9	273-271-8 … 94.1
265-073-5 … 98.3	289-220-8 … 95.7
265-075-6 … 66.0	295-433-7 … 91.8
265-079-8 … 88.1	297-401-8 … 98.7
265-085-0 … 97.7	309-879-8 … 90.0
265-086-6 … 89.9	

If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of

typical value: 0 %

EC number ... %
265-073-5 ... 43.5
265-085-0 ... 39.1
297-401-8 ... 73.1

Organisational measures to prevent/limit release from site:

Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. Not applicable as there is no release to wastewater.

Conditions and measures related to sewage treatment plant:

Estimated substance removal from wastewater via on-site sewage treatment

EC number ... %	EC number ... %
232-443-2 … 95.5	265-089-2 … 95.3
265-041-0 … 95.4	265-150-3 … 95.3
265-042-6 … 95.7	265-178-6 … 96.2
265-046-8 … 96.9	265-192-2 … 96.2
265-055-7 … 95.0	270-690-8 … 95.9
265-056-2 … 95.9	270-695-5 … 97.1
265-065-1 … 94.8	271-267-0 … 96.9
265-070-9 … 95.1	272-186-3 … 95.2
265-071-4 … 95.4	273-271-8 … 95.1
265-073-5 … 97.0	289-220-8 … 96.1
265-075-6 … 96.8	295-433-7 … 95.4
265-079-8 … 95.7	297-401-8 … 95.2
265-085-0 … 96.3	309-879-8 … 95.7
265-086-6 … 96.6	

Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs

EC number ... %	EC number ... %
232-443-2 … 95.5	265-089-2 … 95.3
265-041-0 … 95.4	265-150-3 … 95.3
265-042-6 … 95.7	265-178-6 … 96.2
265-046-8 … 96.9	265-192-2 … 96.2
265-055-7 … 95.0	270-690-8 … 95.9
265-056-2 … 95.9	270-695-5 … 97.1
265-065-1 … 94.8	271-267-0 … 96.9
265-070-9 … 95.1	272-186-3 … 95.2
265-071-4 … 95.4	273-271-8 … 95.1
265-073-5 … 98.3	289-220-8 … 96.1
265-075-6 … 96.8	295-433-7 … 95.4
265-079-8 … 95.7	297-401-8 … 98.7
265-085-0 … 97.7	309-879-8 … 95.7
265-086-6 … 96.6	

Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal

EC number ... kg/day	EC number ... kg/day
232-443-2 … 5.5E+04	265-089-2 … 5.5E+04
265-041-0 … 5.5E+04	265-150-3 … 1.2E+05
265-042-6 … 5.5E+04	265-178-6 … 5.5E+04
265-046-8 … 5.5E+04	265-192-2 … 5.5E+04
265-055-7 … 6.5E+04	270-690-8 … 5.5E+04
265-056-2 … 5.5E+04	270-695-5 … 3.5E+04
265-065-1 … 7.0E+04	271-267-0 … 8.6E+04
265-070-9 … 5.5E+04	272-186-3 … 5.5E+04
265-071-4 … 1.6E+05	273-271-8 … 5.9E+04
265-073-5 … 5.0E+04	289-220-8 … 5.5E+04
265-075-6 … 2.3E+05	295-433-7 … 8.9E+04
265-079-8 … 1.4E+05	297-401-8 … 5.0E+04
265-085-0 … 5.0E+04	309-879-8 … 1.2E+05
265-086-6 … 1.5E+05	

Assumed on-site sewage treatment plant flow	2000 (m3/d)
Conditions and measures related to external treatment of waste for disposal:	This substance is consumed during use and no waste from the substance is generated.
Conditions and measures related to external recovery of waste:	This substance is consumed during use and no waste from the substance is generated.

RCR - Air Compartment Driven:

EC number ... Value	EC number ... Value
232-443-2 … 7.7E-02	265-089-2 … 7.4E-02
265-041-0 … 7.4E-02	265-150-3 … 2.8E-02
265-042-6 … 9.8E-02	265-178-6 … 7.8E-02
265-046-8 … 8.6E-02	265-192-2 … 8.0E-02
265-055-7 … 1.1E-03	270-690-8 … 9.0E-02
265-056-2 … 7.1E-02	270-695-5 … 5.0E-02
265-065-1 … 9.8E-02	271-267-0 … 3.5E-02
265-070-9 … 7.8E-02	272-186-3 … 7.1E-02
265-071-4 … 2.3E-02	273-271-8 … 1.0E-01
265-073-5 … 6.7E-02	289-220-8 … 7.7E-02
265-075-6 … 7.6E-03	295-433-7 … 3.6E-02
265-079-8 … 2.5E-02	297-401-8 … 1.8E-03
265-085-0 … 8.0E-02	309-879-8 … 2.9E-02
265-086-6 … 2.4E-02	

RCR - Water Compartment Driven:

EC number ... Value	EC number ... Value
232-443-2 … 9.1E-01	265-089-2 … 9.1E-01
265-041-0 … 9.1E-01	265-150-3 … 4.0E-01
265-042-6 … 9.1E-01	265-178-6 … 9.1E-01
265-046-8 … 9.1E-01	265-192-2 … 9.1E-01
265-055-7 … 7.7E-01	270-690-8 … 9.1E-01
265-056-2 … 9.1E-01	270-695-5 … 6.1E-01
265-065-1 … 7.2E-01	271-267-0 … 5.8E-01
265-070-9 … 9.1E-01	272-186-3 … 9.1E-01
265-071-4 … 3.1E-01	273-271-8 … 8.5E-01
265-073-5 … 9.1E-01	289-220-8 … 9.1E-01
265-075-6 … 9.3E-02	295-433-7 … 5.6E-01
265-079-8 … 3.6E-01	297-401-8 … 9.1E-01
265-085-0 … 9.1E-01	309-879-8 … 4.3E-01
265-086-6 … 3.4E-01	

Section 3: Exposure estimation and reference to its source

Exposure estimation and reference to its source - Environment

Exposure assessment (environment):	Hydrocarbon Block Method (Petrorisk)

Exposure estimation and reference to its source - Workers

Exposure assessment (human):	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 4: Guidance to check compliance with the exposure scenario

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.
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. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation.