

SAFETY DATA SHEET

Q8 Fuelolie 45



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

1.1 Product identifier

Product name : Q8 Fuelolie 45
Index number : 649-024-00-9
EC number : 270-675-6
REACH Registration number

Registration number	Legal entity
01-2119474894-22	-

CAS number : 68476-33-5

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

Material uses : Fuel for heating equipment

Identified uses	
Manufacture of substance Distribution of substance Formulation and (re)packing of substances and mixtures Use in fuel - Industrial Use in fuel - Professional	
Uses advised against	Reason
<input checked="" type="checkbox"/> Use in coatings - Professional Use in road and construction products - Professional	- -

1.3 Details of the supplier of the safety data sheet

Manufacturer / Distributor : Q8 Danmark A/S
Arne Jacobsens Allé 7
2300 København S,
Danmark
Tel. 7012 4545, Fax 4599 2020
Email: produktservice@Q8.dk, Web: www.Q8.dk

e-mail address of person responsible for this SDS : SDSinfo@Q8.com, communication preferably in English only.

1.4 Emergency telephone number

Denmark : +45 8988 2286
Europe : +44 (0) 1235 239 670
Global (English only) : +44 (0) 1865 407 333



SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : UVCB

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

ACUTE TOXICITY	Category 4	H332
CARCINOGENICITY	Category 1B	H350
TOXIC TO REPRODUCTION	Category 2	H361fd
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE)	Category 2	H373
ASPIRATION HAZARD	Category 1	H304
AQUATIC HAZARD (ACUTE)	Category 1	H400
AQUATIC HAZARD (LONG-TERM)	Category 1	H410

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

Ingredients of unknown toxicity : None.

Ingredients of unknown ecotoxicity : None.

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

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

2.2 Label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H332 - Harmful if inhaled.
H350 - May cause cancer.
H361fd - Suspected of damaging fertility. Suspected of damaging the unborn child.
H304 - May be fatal if swallowed and enters airways.
H373 - May cause damage to organs through prolonged or repeated exposure.
H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention : P201 - Obtain special instructions before use.
P260 - Do not breathe dust/fume/gas/mist/vapors/spray.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Response : P301 - IF SWALLOWED:
P310 - Immediately call a POISON CENTER or physician.
P331 - Do NOT induce vomiting.

Storage : P405 - Store locked up.

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

Hazardous ingredients : Fuel oil, residual

Supplemental label elements : Repeated exposure may cause skin dryness or cracking.

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

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SECTION 2: Hazards identification

Containers to be fitted with child-resistant fastenings : Not applicable.

Tactile warning of danger : Not applicable.

2.3 Other hazards

Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII : Not available.

Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII : Not available.

Other hazards which do not result in classification : Prolonged or repeated contact may dry skin and cause irritation. Hazardous concentrations of hydrogen sulphide (H₂S) gas may accumulate in the vapour space of storage vessels. Standard procedures for opening or entering tanks, vessels or other containers must strictly be followed to avoid inhalation of this acutely toxic gas.

SECTION 3: Composition/information on ingredients

3.1 Substances : UVCB

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type	Notes
Fuel oil, residual	REACH #: 01-2119474894-22 EC: 270-675-6 CAS: 68476-33-5 Index: 649-024-00-9	100	Acute Tox. 4, H332 Carc. 1B, H350 Repr. 2, H361fd (Fertility and Unborn child) STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1) EUH066 See Section 16 for the full text of the H statements declared above.	[A]	H

The mineral oils in the product contain < 3% DMSO extract (IP 346).

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

Type

[*] Substance

[A] Constituent

[B] Impurity

[C] Stabilizing additive

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

SECTION 4: First aid measures

4.1 Description of first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If exposure to hydrogen sulphide is suspected or cannot be excluded, obtain medical attention IMMEDIATELY. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- 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

Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
irritation
dryness
cracking
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
nausea or vomiting
reduced fetal weight
increase in fetal deaths
skeletal malformations

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

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SECTION 4: First aid measures

Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use dry chemical, CO₂, alcohol-resistant foam or water spray (fog).

Unsuitable extinguishing media : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : In a fire or if heated, a pressure increase will occur and the container may burst. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous combustion products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
sulfur oxides
Hydrogen sulphide

5.3 Advice for firefighters

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

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 : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

: Avoid dispersal of spilled 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.

6.3 Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

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SECTION 6: Accidental release measures

- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. 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. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.
- 6.4 Reference to other sections** : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
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 (see Section 8). 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 breathe vapor or mist. Do not swallow. Avoid release to the environment. 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. Empty containers retain product residue and can be hazardous. Do not reuse container. Hazardous concentrations of hydrogen sulphide (H₂S) gas may accumulate in the vapour space of storage vessels. Standard procedures for opening or entering tanks, vessels or other containers must strictly be followed to avoid inhalation of this acutely toxic gas.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. 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 original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. 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. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Provide adequate ventilation. See Section 10 for incompatible materials before handling or use.

Seveso Directive - Reporting thresholds (in tonnes)

Named substances

Name	Notification and MAPP threshold	Safety report threshold
Fuel oil, residual	2500	25000

7.3 Specific end use(s)

- Recommendations** : Not available.
- Industrial sector specific solutions** : Not available.

SECTION 8: Exposure controls/personal protection

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

No exposure limit value known.

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.

DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available.

8.2 Exposure controls

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Product may release hydrogen sulphide: a specific assessment of inhalation risks from the presence of hydrogen sulphide in tank headspaces, confined spaces, product residue, tank waste and waste water and unintentional releases should be made to help determine controls appropriate to local circumstances.

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. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. Wear suitable gloves tested to EN374. Recommended: < 1 hour (breakthrough time): nitrile rubber 0.17 mm.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

SECTION 8: Exposure controls/personal protection

- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: Boiling point > 65 °C: A1; Boiling point < 65 °C: AX1; Hot material: A1P2.
- 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. [Viscous liquid.]
- Appearance** : Opaque.
- Color** : Black.
- Odor** : Characteristic.
- Odor threshold** : Not applicable.
- pH** : 7
- Melting point/freezing point** : <30°C
- Initial boiling point and boiling range** : 202 to 511°C
- Flash point** : Closed cup: >60°C
Open cup: >60°C [ASTM D92.]
- Evaporation rate** : Not applicable.
- Flammability (solid, gas)** : Not applicable.
- Upper/lower flammability or explosive limits** : Lower: 1%
Upper: 6%
- Vapor pressure** : <0.1 kPa [room temperature]
- Vapor density** : Not available.
- Relative density** : 0.99
- Solubility(ies)** : Insoluble in the following materials: cold water and hot water.
- Dispersibility properties** : Not dispersible in the following materials: cold water and hot water.
- Partition coefficient: n-octanol/water** : 4 to 6
- Auto-ignition temperature** : 250 to 537°C
- Decomposition temperature** : >220°C
- Viscosity (40°C)** : Not available.
- Viscosity (100°C)** : 34.35 cSt
- Explosive properties** : Not applicable.
- Oxidizing properties** : Not applicable.

9.2 Other information

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SECTION 10: Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

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.

10.4 Conditions to avoid : No specific data.

10.5 Incompatible materials : Reactive or incompatible with the following materials:
Strong oxidizing materials

10.6 Hazardous decomposition products : Decomposition products may include the following materials: sulfur oxides
Hydrogen sulphide

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Fuel oil, residual	LC50 Inhalation Dusts and mists	Rat - Male, Female	4100 mg/m ³	4 hours
	LD50 Dermal	Rabbit - Male, Female	>2000 mg/kg	-
	LD50 Oral	Rat - Female	4320 mg/kg	-

Conclusion/Summary : Not available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Fuel oil, residual	Skin - Edema	Rat	0.7	24 hours	7 days
	Eyes - Redness of the conjunctivae	Rabbit	1.7	-	72 hours

Conclusion/Summary : Not available.

Sensitization

Product/ingredient name	Route of exposure	Species	Result
Fuel oil, residual	skin	Rat	Not sensitizing

Conclusion/Summary

Skin : Not sensitizing

Mutagenicity

Product/ingredient name	Test	Experiment	Result
Fuel oil, residual	476 <i>In vitro</i> Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Mammalian-Animal	Positive
	476 <i>In vitro</i> Mammalian Cell Gene Mutation Test	Experiment: In vivo Subject: Mammalian-Animal	Negative

Conclusion/Summary : Not available.

Carcinogenicity

Product/ingredient name	Result	Species	Dose	Exposure
Fuel oil, residual	Positive - Dermal - TC	Mouse - Male, Female	1000 mg/kg	2 days per week

Conclusion/Summary : Not available.

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SECTION 11: Toxicological information

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure
Fuel oil, residual	Positive - Dermal	Rat - Male, Female	0.05 mg/kg	6 hours per day

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Fuel oil, residual	Category 2	Not determined	Not determined

Aspiration hazard

Product/ingredient name	Result
Fuel oil, residual	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Not available.

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
Inhalation : Harmful if inhaled.
Skin contact : Defatting to the skin. May cause skin dryness and irritation.
Ingestion : May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : No specific data.
Inhalation : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations
Skin contact : Adverse symptoms may include the following:
irritation
dryness
cracking
reduced fetal weight
increase in fetal deaths
skeletal malformations
Ingestion : Adverse symptoms may include the following:
nausea or vomiting
reduced fetal weight
increase in fetal deaths
skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

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SECTION 11: Toxicological information

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
Fuel oil, residual	Sub-chronic NOAEL Dermal	Rat - Male, Female	1.06 mg/kg	13 weeks; 5 days per week

Conclusion/Summary : Not available.

General : May cause damage to organs through prolonged or repeated exposure. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

Carcinogenicity : May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : Suspected of damaging the unborn child.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : Suspected of damaging fertility.

Other information : Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Fuel oil, residual	Acute EC50 0.75 mg/l Fresh water Acute EC50 2 mg/l Fresh water Acute LC50 79 mg/l Fresh water	Algae Daphnia Fish	72 hours 48 hours 96 hours

Conclusion/Summary : Not available.

12.2 Persistence and degradability

Conclusion/Summary : Not available.

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Fuel oil, residual	4 to 6	-	high

12.4 Mobility in soil

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

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not available.
P: Not available. B: Not available. T: Yes.

vPvB : Not available.
vP: Not available. vB: Not available.

12.6 Other adverse effects : No known significant effects or critical hazards.

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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 : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : Yes.

European waste catalogue (EWC)

Waste code	Waste designation
13 07 01*	fuel oil and diesel

Packaging

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

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. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	UN3082	UN3082	UN3082	UN3082
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Fuel oil, residual)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Fuel oil, residual)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Fuel oil, residual)	Environmentally hazardous substance, liquid, n.o.s. (Fuel oil, residual)
14.3 Transport hazard class(es)	9 	9 	9 	9
14.4 Packing group	III	III	III	III
14.5 Environmental hazards	Yes.	Yes.	Yes.	Yes.

Additional information

ADR/RID : This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.

Hazard identification number 90

Limited quantity 5 L

Special provisions 274, 335, 601

Tunnel code (E)

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SECTION 14: Transport information

- ADN** : This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.
Special provisions 274, 601, 335
- IMDG** : This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.
Emergency schedules F-A, S-F
Special provisions 274, 335
- IATA** : This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8.
Quantity limitation Passenger and Cargo Aircraft: 450 L. Packaging instructions: 964. Cargo Aircraft Only: 450 L. Packaging instructions: 964. Limited Quantities - Passenger Aircraft: 30 kg. Packaging instructions: Y964.
Special provisions A97, A158

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

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 authorization

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

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

Other EU regulations

Ozone depleting substances (1005/2009/EU)

Not listed.

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

Not 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)

National regulations

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SECTION 15: Regulatory information

Product/ingredient name	List name	Name on list	Classification	Notes
Fuel oil, residual	Denmark Carcinogenic Chemicals	Brændselsolier Defineret ved EINECS-numrene 271-384-7, 270-675-6, 270-674-0 og 295-396-7 * Se også fyringsolier, tunge	Listed	-

Product registration number : PR-nr: 1693161

Danish fire class : III-1

Denmark – Cancer risks : National Working Environment Authorities Ordinance on Measures to Prevent Cancer Risks during Work with Substances and Preparations is applicable.

MAL-code : 5-6

Protection based on MAL : **According to the regulations on work involving coded products, the following stipulations apply to the use of personal protective equipment:**

General: Gloves must be worn for all work that may result in soiling. Apron/coveralls/protective clothing must be worn when soiling is so great that regular work clothes do not adequately protect skin against contact with the product. A face shield must be worn in work involving spattering if a full mask is not required. In this case, other recommended use of eye protection is not required.

In all spraying operations in which there is return spray, the following must be worn: respiratory protection and arm protectors/apron/coveralls/protective clothing as appropriate or as instructed.

MAL-code: 5-6

Application: When using scraper or knife, brush, roller etc. for pre- and post-treatments in a spray booth where the operator is outside the spray zone and when working in similar new* facilities of the combined-cabin, spray-cabin and spray-booth type where the operator is working inside the spray zone. When spraying in new* booths and cabins with non-atomizing guns.

- Protective clothing must be worn.

During non-atomizing spraying in existing* facilities of the combined-cabin, spray-cabin and spray-booth type where the operator is working inside the spray zone. When spraying in existing* spray booths, if the operator is outside the spray zone. When using scraper or knife, brush, roller, etc. for pre- and post-treatments in cabins or booths of the existing* facility type, if the operator is inside the spray zone. When using scraper or knife, brush, roller, etc. for pre- and post-treatments outside a closed facility, spray booth or spray cabin. During downtimes, cleaning and repair of closed facilities, spray booths or cabins, if there is a risk of contact with wet paint or organic solvents.

- Air-supplied full mask and protective clothing must be worn.

When spraying in new* booths if the operator is outside the spray zone.

- Air-supplied full mask must be worn.

During all spraying where atomization occurs in cabins or spray booths where the operator is inside the spray zone and during spraying outside a closed facility, cabin or booth.

- Air-supplied full mask, protective clothing and hood must be worn.


SECTION 15: Regulatory information

Drying: Items for drying/drying ovens that are temporarily placed on such things as rack trolleys, etc. must be equipped with a mechanical exhaust system to prevent fumes from wet items from passing through workers' inhalation zone.

Polishing: When polishing treated surfaces, a mask with dust filter must be worn. When machine grinding, eye protection must be worn. Work gloves must always be worn.

Caution The regulations contain other stipulations in addition to the above.

*See Regulations.

- Restrictions on use** : Not to be used by professional users below 18 years of age. See the National Working Environment Authorities Executive Order regarding Young People At Work.
- Carcinogenic waste** : Waste containers must be labeled: Contains a substance or substances regulated by Danish working environment legislation on cancer risks.
- Hazard class for water (WGK)** : 
- VOC content** : VOC (w/w): 100%

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.



Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

- Australia** : This material is listed or exempted.
- Canada** : This material is listed or exempted.
- China** : This material is listed or exempted.
- Europe** : This material is listed or exempted.
- Japan** : **Japan inventory (ENCS):** Not determined.
Japan inventory (ISHL): Not determined.
- Malaysia** : Not determined.
- New Zealand** : This material is listed or exempted.
- Philippines** : Not determined.
- Republic of Korea** : Not determined.
- Taiwan** : This material is listed or exempted.
- Thailand** :  Not determined.
- Turkey** : This material is listed or exempted.
- United States** : This material is listed or exempted.
- Viet Nam** :  Not determined.

15.2 Chemical Safety Assessment : Complete.

Q8 Fuelolie 45

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms

: ATE = Acute Toxicity Estimate
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
 DMEL = Derived Minimal Effect Level
 DNEL = Derived No Effect Level
 EUH statement = CLP-specific Hazard statement
 PBT = Persistent, Bioaccumulative and Toxic
 PNEC = Predicted No Effect Concentration
 RRN = REACH Registration Number
 vPvB = Very Persistent and Very Bioaccumulative

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

Classification	Justification
Acute Tox. 4, H332 Carc. 1B, H350 Repr. 2, H361fd (Fertility and Unborn child) STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)	On basis of test data Expert judgment Expert judgment Expert judgment Expert judgment Expert judgment Expert judgment

Full text of abbreviated H statements

H304 H332 H350 H361fd	May be fatal if swallowed and enters airways. Harmful if inhaled. May cause cancer. Suspected of damaging fertility. Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H400 H410	Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

Acute Tox. 4, H332 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Asp. Tox. 1, H304 Carc. 1B, H350 EUH066 Repr. 2, H361fd STOT RE 2, H373	ACUTE TOXICITY (inhalation) - Category 4 AQUATIC HAZARD (ACUTE) - Category 1 AQUATIC HAZARD (LONG-TERM) - Category 1 ASPIRATION HAZARD - Category 1 CARCINOGENICITY - Category 1B Repeated exposure may cause skin dryness or cracking. TOXIC TO REPRODUCTION (Fertility and Unborn child) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
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Training advice : Ensure operatives are trained to minimise exposures.
Date of printing : 05-09-2018
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Date of previous issue : 01-12-2017
Version : 1.05
Prepared by : Kuwait Petroleum Research & Technology B.V., The Netherlands

Notice to reader

The information in this SDS is based on the present state of our knowledge and on current laws. The product is not to be used for purposes other than those specified under section 1 without first obtaining written handling instructions. It is always the responsibility of the user to take all necessary steps to fulfill the demands set out in the local rules and legislation. The information in this SDS is meant to be a description of the safety requirements for our product. It is not to be considered a guarantee of the product's properties.

Annex to the extended Safety Data Sheet (eSDS)



Industrial

Identification of the substance or mixture

Product definition : UVCB
Product name : Q8 Fuelolie 45

Section 1 Title

Short title of the exposure scenario : Manufacture of Heavy Fuel Oil - Industrial

List of use descriptors : **Identified use name:** Manufacture of substance
Process Category: PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC15
Substance supplied to that use in form of: As such
Sector of end use: SU03, SU08, SU09
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC01, ESVOC SPERC 1.1.v1
Market sector by type of chemical product: PC13
Article category related to subsequent service life: Not applicable.

Processes and activities covered by the exposure scenario : Manufacture of the substance or use as a process chemical or extraction agent within closed or contained systems. Includes incidental exposures during recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).

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, vapor pressure < 0.5 kPa at Standard Temperature and Pressure

Amounts used : Not applicable.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours

Human factors not influenced by risk management : Not applicable.

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 (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.

Section 2 Operational conditions and risk management measures

General exposures (closed systems): Handle substance within a closed system. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Process sampling Outdoor: Sample via a closed loop or other system to avoid exposure. Avoid carrying out activities involving exposure for more than 15 minutes. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Bulk product storage: Store substance within a closed system. Sample via a closed loop or other system to avoid exposure. Avoid carrying out activities involving exposure for more than 4 hours. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Laboratory activities: Handle within a fume cupboard or implement suitable equivalent methods to minimise exposure. Wear suitable gloves tested to EN374.

Marine vessel/barge (un)loading: Avoid carrying out activities involving exposure for more than 4 hours. Transfer via enclosed lines. Clear transfer lines prior to de-coupling. Retain drain-downs in sealed storage pending disposal or for subsequent recycle. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Road tanker/rail car loading: Ensure material transfers are under containment or extract ventilation. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Equipment cleaning and maintenance: Drain down and flush system prior to equipment break-in or maintenance. Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

Section 2.2 Control of environmental exposure

Product characteristics	: Substance is complex UVCB.. Predominantly hydrophobic
Amounts used	: Fraction of EU tonnage used in region 0.1 Regional use tonnage 1.1E7 Fraction of regional tonnage used locally 5.2E-2 Annual site tonnage 6.0E5 Maximum daily site tonnage 2.0E6
Frequency and duration of use	: Continuous release Emission days 300
Environment factors not influenced by risk management	: Local freshwater dilution factor 10 Local marine water dilution factor 100
Other conditions affecting environmental exposure	: Release fraction to air from process (initial release prior to RMM) 1.0E-4 Release fraction to wastewater from process (initial release prior to RMM) 3.0E-6 Release fraction to soil from process (initial release prior to RMM) 0.0001
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 humans via indirect exposure (primarily ingestion). On-site wastewater treatment required. Prevent discharge of undissolved substance to or recover from onsite wastewater. Treat air emission to provide a typical removal efficiency of 90 Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 85.9 If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of 0.0
Organizational measures to prevent/limit release from site	: Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	: Estimated substance removal from wastewater via on-site sewage treatment 88.8 Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs 88.8 Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal 2.3E6 Assumed on-site sewage treatment plant flow 10000

Section 2 Operational conditions and risk management measures

Conditions and measures related to external treatment of waste for disposal : During manufacturing, no waste of the substance is generated.

Conditions and measures related to external recovery of waste : During manufacturing, no waste of the substance is generated.

Contributing scenarios: Operational conditions and risk management measures

Section 3 Exposure estimation and reference to its source

Section 3.1: Health

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

Exposure estimation and reference to its source : Not available.

Section 3.2: Environment

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

Exposure estimation and reference to its source : Not available.

Section 4 Guidance to check compliance with the exposure scenario

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.
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. Scaled local assessments for EU refineries have been performed using site-specific data and are attached in PETRORISK file - "Site-Specific Production" worksheet.

Annex to the extended Safety Data Sheet (eSDS)



Industrial

Identification of the substance or mixture

Product definition : UVCB
Product name : Q8 Fuelolie 45

Section 1 Title

Short title of the exposure scenario : Distribution of Heavy Fuel Oil - Industrial

List of use descriptors : **Identified use name:** Distribution of substance
Process Category: PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC15
Substance supplied to that use in form of: As such
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ESVOC SPERC 1.1b.v1
Market sector by type of chemical product: PC13
Article category related to subsequent service life: Not applicable.

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

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, vapor pressure < 0.5 kPa at Standard Temperature and Pressure

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours

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 (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.

Process sampling Outdoor: Sample via a closed loop or other system to avoid exposure. Avoid carrying out activities involving exposure for more than 15 minutes. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

General exposures (closed systems): Handle substance within a closed system. Avoid carrying out activities involving

Section 2 Operational conditions and risk management measures

exposure for more than 4 hours. Sample via a closed loop or other system to avoid exposure. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Bulk product storage: Store substance within a closed system. Avoid carrying out activities involving exposure for more than 4 hours. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Product sampling: Sample via a closed loop or other system to avoid exposure. Avoid carrying out activities involving exposure for more than 15 minutes. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Laboratory activities : Handle within a fume cupboard or implement suitable equivalent methods to minimise exposure. Wear suitable gloves tested to EN374.

Marine vessel/barge (un)loading: Avoid carrying out activities involving exposure for more than 4 hours. Transfer via enclosed lines. Clear transfer lines prior to de-coupling. Retain drain-downs in sealed storage pending disposal or for subsequent recycle. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Road tanker/rail car loading: Ensure material transfers are under containment or extract ventilation. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Equipment cleaning and maintenance: Drain down and flush system prior to equipment break-in or maintenance. Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

Section 2.2 Control of environmental exposure

Product characteristics	: Substance is complex UVCB.. Predominantly hydrophobic
Amounts used	: Fraction of EU tonnage used in region 0.1 Regional use tonnage 1.1E7 Fraction of regional tonnage used locally 2.0E-3 Annual site tonnage 2.3E4 Maximum daily site tonnage 7.7E4
Frequency and duration of use	: Continuous release Emission days 300
Environment factors not influenced by risk management	: Local freshwater dilution factor 10 Local marine water dilution factor 100
Other conditions affecting environmental exposure	: Release fraction to air from process (initial release prior to RMM) 1.0E-4 Release fraction to wastewater from process (initial release prior to RMM) 1.0E-7 Release fraction to soil from process (initial release prior to RMM) 0.00001
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 humans via indirect exposure (primarily ingestion). No wastewater treatment required. Treat air emission to provide a typical removal efficiency of 90 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
Organizational measures to prevent/limit release from site	: Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	: Estimated substance removal from wastewater via on-site sewage treatment 88.8 Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs 88.8 Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal 3.8E5 Assumed on-site sewage treatment plant flow 2000
Conditions and measures related to external treatment of waste for disposal	: External treatment and disposal of waste should comply with applicable local and/or national regulations.

Section 2 Operational conditions and risk management measures

Conditions and measures related to external recovery of waste : External recovery and recycling of waste should comply with applicable local and/or national regulations.

Contributing scenarios: Operational conditions and risk management measures

Section 3 Exposure estimation and reference to its source

Section 3.1: Health

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

Exposure estimation and reference to its source : Not available.

Section 3.2: Environment

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

Exposure estimation and reference to its source : Not available.

Section 4 Guidance to check compliance with the exposure scenario

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.

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.

Annex to the extended Safety Data Sheet (eSDS)



Industrial

Identification of the substance or mixture

Product definition : UVCB
Product name : Q8 Fuelolie 45

Section 1 Title

Short title of the exposure scenario : Formulation & (Re)packing of Heavy Fuel Oil - Industrial

List of use descriptors : **Identified use name:** Formulation and (re)packing of substances and mixtures
Process Category: PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC15
Substance supplied to that use in form of: As such
Sector of end use: SU03, SU10
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC02, ESVOC SPERC 2.2.v1
Market sector by type of chemical product: PC13
Article category related to subsequent service life: Not applicable.

Processes and activities covered by the exposure scenario : Formulation of the substance and its mixtures in batch or continuous operations within closed or contained systems, including incidental exposures during storage, materials transfers, mixing, maintenance, sampling and associated laboratory activities.

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, vapor pressure < 0.5 kPa at Standard Temperature and Pressure

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours

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 (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) Process sampling: Handle substance within a closed system. Sample via a closed loop or other system to avoid exposure. Avoid carrying out activities involving exposure for more than 15 minutes. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

General exposures (closed systems): Handle substance within a closed system. Sample via a closed loop or other system to avoid exposure. Avoid carrying out activities involving exposure for more than 4 hours. Wear chemical-

Section 2 Operational conditions and risk management measures

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

Bulk product storage: Store substance within a closed system. Avoid carrying out activities involving exposure for more than 4 hours. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Product sampling: Sample via a closed loop or other system to avoid exposure. Avoid carrying out activities involving exposure for more than 15 minutes. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Laboratory activities : Handle within a fume cupboard or implement suitable equivalent methods to minimise exposure. Wear suitable gloves tested to EN374.

Marine vessel/barge (un)loading: Transfer via enclosed lines. Avoid carrying out activities involving exposure for more than 4 hours. Clear transfer lines prior to de-coupling. Retain drain-downs in sealed storage pending disposal or for subsequent recycle. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Road tanker/rail car loading: Ensure material transfers are under containment or extract ventilation. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Drum/batch transfers: Ensure material transfers are under containment or extract ventilation. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). or Ensure operation is undertaken outdoors. Avoid carrying out operation for more than 1 hour. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Equipment cleaning and maintenance: Drain down and flush system prior to equipment break-in or maintenance. Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

Section 2.2 Control of environmental exposure

Product characteristics	: Substance is complex UVCB.. Predominantly hydrophobic
Amounts used	: Fraction of EU tonnage used in region 0.1 Regional use tonnage 1.1E7 Fraction of regional tonnage used locally 2.6E-3 Annual site tonnage 3.0E4 Maximum daily site tonnage 1.0E5
Frequency and duration of use	: Continuous release Emission days 300
Environment factors not influenced by risk management	: Local freshwater dilution factor 10 Local marine water dilution factor 100
Other conditions affecting environmental exposure	: Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements) 2.2E-3 Release fraction to wastewater from process (initial release prior to RMM) 5.0E-6 Release fraction to soil from process (initial release prior to RMM) 0.0001
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 humans via indirect exposure (primarily ingestion). If discharging to municipal sewage treatment plant, no on-site wastewater treatment required. Prevent discharge of undissolved substance to or recover from onsite wastewater. Treat air emission to provide a typical removal efficiency of 0 Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of 54.0 If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of 0
Organizational measures to prevent/limit release from site	: Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.

Section 2 Operational conditions and risk management measures

Conditions and measures related to sewage treatment plant	: Estimated substance removal from wastewater via on-site sewage treatment 88.8 Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs 88.8 Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal 1.1E5 Assumed on-site sewage treatment plant flow 2000
Conditions and measures related to external treatment of waste for disposal	: External treatment and disposal of waste should comply with applicable local and/or 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.

Contributing scenarios: Operational conditions and risk management measures

Section 3 Exposure estimation and reference to its source

Section 3.1: Health

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Section 3.2: Environment

Exposure assessment (environment):	: Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	: Not available.

Section 4 Guidance to check compliance with the exposure scenario

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.
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.

Annex to the extended Safety Data Sheet (eSDS)



Industrial

Identification of the substance or mixture

Product definition : UVCB
Product name : Q8 Fuelolie 45

Section 1 Title

Short title of the exposure scenario : Use of Heavy Fuel Oil as a Fuel - Industrial

List of use descriptors : **Identified use name:** Use in fuel - Industrial
Process Category: PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC16
Substance supplied to that use in form of: As such
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC07, ESVOC SPERC 7.12a.v1
Market sector by type of chemical product: PC13
Article category related to subsequent service life: Not applicable.

Processes and activities covered by the exposure scenario : Covers the use as a fuel (or fuel additives and additive components) within closed or contained systems, including incidental exposures during activities associated with its transfer, use, equipment maintenance and handling of waste.

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, vapor pressure < 0.5 kPa at Standard Temperature and Pressure

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours

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 (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): Handle substance within a closed system. Sample via a closed loop or other system to avoid exposure. Avoid carrying out activities involving exposure for more than 4 hours. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

General exposures (closed systems) Product sampling: Handle substance within a closed system. Sample via a closed loop or other system to avoid exposure. Avoid carrying out operation for more than 1 hour. Provide a good

Section 2 Operational conditions and risk management measures

standard of controlled ventilation (10 to 15 air changes per hour). Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Bulk closed unloading Outdoor: Transfer via enclosed lines. Avoid carrying out activities involving exposure for more than 4 hours. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Drum/batch transfers: Ensure material transfers are under containment or extract ventilation. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out operation for more than 1 hour. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Operation of solids filtering equipment: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out activities involving exposure for more than 4 hours. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Bulk product storage: Store substance within a closed system. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Avoid carrying out activities involving exposure for more than 4 hours. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Use in fuel (Closed system): Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Equipment cleaning and maintenance: Drain down and flush system prior to equipment break-in or maintenance. Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

Section 2.2 Control of environmental exposure

Product characteristics	: Substance is complex UVCB.. Predominantly hydrophobic
Amounts used	: Fraction of EU tonnage used in region 0.1 Regional use tonnage 1.1E7 Fraction of regional tonnage used locally 1.4E-1 Annual site tonnage 1.5E6 Maximum daily site tonnage 5.0E6
Frequency and duration of use	: Continuous release Emission days 300
Environment factors not influenced by risk management	: Local freshwater dilution factor 10 Local marine water dilution factor 100
Other conditions affecting environmental exposure	: Release fraction to air from process (initial release prior to RMM) 7.0E-4 Release fraction to wastewater from process (initial release prior to RMM) 4.4E-7 Release fraction to soil from process (initial release prior to RMM) 0
Technical conditions and measures at process level (source) to prevent release	: Common practices vary across sites thus conservative process release estimates used.
Technical 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. On-site wastewater treatment required. Prevent discharge of undissolved substance to or recover from onsite wastewater. 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 87.7 If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of 0
Organizational measures to prevent/limit release from site	: Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	: Estimated substance removal from wastewater via on-site sewage treatment 88.8 Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs 88.8 Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal 5.2E6 Assumed on-site sewage treatment plant flow 2000

Section 2 Operational conditions and risk management measures

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.
Conditions and measures related to external recovery of waste	: This substance is consumed during use and no waste from the substance is generated.
Contributing scenarios: Operational conditions and risk management measures	

Section 3 Exposure estimation and reference to its source

Section 3.1: Health

Exposure assessment (human):	: The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	: Not available.

Section 3.2: Environment

Exposure assessment (environment):	: Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	: Not available.

Section 4 Guidance to check compliance with the exposure scenario

Health	: Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Risk management measures are based on qualitative risk characterisation. Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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. Scaled local assessments for EU refineries have been performed using site-specific data and are attached in PETRORISK file - "Site-Specific Production" worksheet.

Annex to the extended Safety Data Sheet (eSDS)



Professional

Identification of the substance or mixture

Product definition : UVCB
Product name : Q8 Fuelolie 45

Section 1 Title

Short title of the exposure scenario : Use of Heavy Fuel Oil as a Fuel - Professional

List of use descriptors : **Identified use name:** Use in fuel - Professional
Process Category: PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC16
Substance supplied to that use in form of: As such
Sector of end use: SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC09a, ERC09b, ESVOC SPERC 9.12b.v1
Market sector by type of chemical product: PC13
Article category related to subsequent service life: Not applicable.

Processes and activities covered by the exposure scenario : Covers the use as a fuel (or fuel additives and additive components) within closed or contained systems, including incidental exposures during activities associated with its transfer, use, equipment maintenance and handling of waste.

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, vapor pressure < 0.5 kPa at Standard Temperature and Pressure

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours

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 (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) Product sampling: Handle substance within a closed system. Sample via a closed loop or other system to avoid exposure. Avoid carrying out operation for more than 1 hour. Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training.

General exposures (closed systems): Handle substance within a closed system. Sample via a closed loop or other

Section 2 Operational conditions and risk management measures

system to avoid exposure. Avoid carrying out operation for more than 1 hour. Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Bulk closed unloading: Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. Avoid carrying out operation for more than 1 hour. or Ensure material transfers are under containment or extract ventilation.

Drum/batch transfers: Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. Avoid carrying out operation for more than 1 hour. or Ensure material transfers are under containment or extract ventilation.

Refuelling: Ensure material transfers are under containment or extract ventilation. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. Avoid carrying out operation for more than 1 hour.

Use in fuel (Closed system): Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Equipment cleaning and maintenance: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Wear chemical-resistant gloves (tested to EN374) in combination with specific activity training. 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.

Section 2.2 Control of environmental exposure

Product characteristics	: Substance is complex UVCB.. Predominantly hydrophobic
Amounts used	: Fraction of EU tonnage used in region 0.1 Regional use tonnage 3.3E5 Fraction of regional tonnage used locally 5.0E-4 Annual site tonnage 1.7E2 Maximum daily site tonnage 4.6E2
Frequency and duration of use	: Continuous release Emission days 365
Environment factors not influenced by risk management	: Local freshwater dilution factor 10 Local marine water dilution factor 100
Other conditions affecting environmental exposure	: Release fraction to air from wide dispersive use (regional only) 1.0E-4 Release fraction to wastewater from wide dispersive use 0.00001 Release fraction to soil from wide dispersive use (regional only) 0.00001
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 humans via indirect exposure (primarily ingestion). No wastewater treatment required. Treat air emission to provide a typical removal efficiency of N/A 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
Organizational measures to prevent/limit release from site	: Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	: Estimated substance removal from wastewater via on-site sewage treatment 88.8 Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs 88.8 Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal 2.3E3 Assumed on-site sewage treatment plant flow 2000
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.

Section 2 Operational conditions and risk management measures

Conditions and measures related to external recovery of waste : This substance is consumed during use and no waste from the substance is generated.

Contributing scenarios: Operational conditions and risk management measures

Section 3 Exposure estimation and reference to its source

Section 3.1: Health

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

Exposure estimation and reference to its source : Not available.

Section 3.2: Environment

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

Exposure estimation and reference to its source : Not available.

Section 4 Guidance to check compliance with the exposure scenario

Health : Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Risk management measures are based on qualitative risk characterisation.

Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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. Scaled local assessments for EU refineries have been performed using site-specific data and are attached in PETRORISK file - "Site-Specific Production" worksheet.