International SDS Documents

*FOR INFORMATION REFERENCE ONLY.* A product specific SDS is included with each shipment. Use the SDS sent with each sample for information related to the product supplied per program cycle.
“FOR INFORMATION REFERENCE ONLY. A product specific SDS is included with each shipment. Use the SDS sent with each sample for information related to the product supplied per program cycle.”

Safety Data Sheet

SECTION 1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier
AVIATION TURBINE JET FUEL

1.1 Product identifier

Name of the substance  Aviation Turbine Jet Fuel
Synonyms  Laboratory Aviation Kerosene Sample
Product Numbers  N/A

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Laboratory test sample
Uses advised against: Other uses are not recommended unless an assessment is completed, prior to commencement of that use, which demonstrates that the use will be controlled.

1.3 Details of the supplier of the safety data sheet
Clark Laboratories
1801 Route 51 South
Jefferson Hills, PA 15025
412-387-1001

1.4 Emergency Telephone #

Transportation Emergency Response
Chemetrec (United States Only) - 24 hour emergency response: (800) 424-9300
International Collect: +1 703 741 5970
SDS Assistance Email: sds@clarktesting.com

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)
Flam. Liq 3, H226  
Skin Irrit. 2, H315  
STOT SE 3, H336  
Aquatic Toxic, 2 H401

Asp. Tox 1, H304  
Aquatic Chronic 2, H411

2.2 Label elements  
Hazardous Pictograms

Signal Word: DANGER

Hazards
H226 - Flammable liquid and vapor.  
H240 - Heating may cause an explosion  
H242 – Heating may cause a fire  
H301 – Toxic if swallowed  
H313 – May be harmful if in contact with skin  
H319 – Causes serious eye irritation  
H315 - Causes skin irritation.  
H333 – May be harmful if inhaled  
H340 – May cause genetic defects  
H350 - May cause cancer.  
H360 – May damage fertility of the unborn child.  
H401 - Toxic to aquatic life.  
H413 – May cause long lasting harmful effects to aquatic life.

Precautions
P202 – Do not handle until all safety precautions have been read and understood  
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P381 –Eliminate all ignition sources if safe to do so.  
2.3 Other hazards Not applicable.

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Mixtures

<table>
<thead>
<tr>
<th>Product/Ingredient Name</th>
<th>Common Names</th>
<th>CAS #</th>
<th>EC #</th>
<th>Weight %</th>
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<tr>
<td>Kerosene</td>
<td>Jet fuel, aviation kerosene</td>
<td>8008-20-6</td>
<td>232-366-4</td>
<td>5-100</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>White tar</td>
<td>91-20-3</td>
<td>202-049-5</td>
<td>0-5</td>
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<td>Substances</td>
<td>Chemical Names</td>
<td>CAS Numbers</td>
<td>Fire Point</td>
<td>Flash Point</td>
</tr>
<tr>
<td>------------------</td>
<td>----------------------</td>
<td>-------------</td>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Toluene</td>
<td>Methyl benzene</td>
<td>108-88-3</td>
<td>203-625-9</td>
<td>0-5</td>
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<tr>
<td>Xylene</td>
<td>dimethylbenzenes</td>
<td>1330-20-7</td>
<td>215-535-7</td>
<td>0-3</td>
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<tr>
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<td>benzol</td>
<td>71-43-2</td>
<td>200-753-7</td>
<td>&lt;1</td>
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<tr>
<td>Ethylbenzene</td>
<td>phenylethane</td>
<td>100-41-4</td>
<td>202-849-4</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>

SECTION 4 FIRST AID MEASURES
4.1 Description of first aid measures
Eye: This product can cause eye irritation with short-term contact with liquid, mists or vapor. Symptoms include stinging, watering, redness and swelling. In severe cases, permanent eye damage can result.
Skin: Wash skin with water immediately and remove contaminated clothing and shoes. Get medical attention if any symptoms develop. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: If swallowed, this material may irritate the mouth, throat, and esophagus. It can be absorbed into the blood stream through the stomach and intestinal tract. Symptoms may include a burning sensation of the mouth and esophagus, nausea and vomiting. In addition, it can cause central nervous system effects characterized by dizziness, staggering, drowsiness, delirium and/or loss of consciousness.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

4.2 Most important symptoms and effects, both acute and delayed
IMMEDIATE SYMPTOMS AND HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin causes irritation. Symptoms may include pain, itching, discoloration, swelling, and blistering.
Ingestion: Because of its low viscosity, this material can directly enter the lungs, if swallowed, or if subsequently vomited. Once in the lungs it is very difficult to remove and can cause severe injury or death. May be irritating to mouth, throat, and stomach. Symptoms may include pain, nausea, vomiting, and diarrhea.
Inhalation: Not expected to be harmful if inhaled.
DELAYED OR OTHER SYMPTOMS AND HEALTH EFFECTS: Not classified.

4.3 Indication of any immediate medical attention and special treatment needed
Note to Physicians: Ingestion of this product or subsequent vomiting may result in aspiration of light hydrocarbon liquid, which may cause pneumonitis.

SECTION 5 FIRE FIGHTING MEASURES
5.1 Extinguishing media
Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.
5.2 Special hazards arising from the substance or mixture
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

5.1 Advice for firefighters
Protection of firefighters

5.3.1 FIRE CLASSIFICATION:
NFPA RATINGS: Health: 0 Flammability: 2 Reactivity: 0

5.3.2 FLAMMABLE PROPERTIES:
Flashpoint: >100 deg. F
OSHA/NFPA FLAMIBILITY CLASS: 3 (combustible) (see se
This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

SECTION 6 ACCIDENTAL RELEASE MEASURES
6.1 Personal precautions, protective equipment and emergency procedures
Eliminate all sources of ignition in the vicinity of the spill or released vapor. If this material is released into the work area, evacuate the area immediately. Monitor area with combustible gas indicator.
6.2 Environmental precautions
Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater.
6.3 Methods and material for containment and cleaning up/Spill Management
Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. All equipment used when handling the product must be grounded. A vapor suppressing foam may be used to reduce vapors. Use clean nonsparking tools to collect absorbed material. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.

SECTION 7 HANDLING AND STORAGE
7.1 Precautions for safe handling/Precautionary Measures
Liquid evaporates and forms vapor (fumes) which can catch fire and burn with explosive force. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Fire hazard is greater as liquid temperature rises above 29C (85F). Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe vapor or fumes. Do not breathe mist. Wash thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities
General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode.
and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

General Storage Information: Do not use or store near heat, sparks or open flames. Use and store only in well ventilated areas. Keep container closed when not in use.

7.3 Specific end use(s): Fuel

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION
GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances. Refer to appropriate CEN standards.

8.1 Control parameters
Occupational Exposure Limits:
Component Country/Agency
TWA STEL Ceiling Notation
Kerosine (petroleum) CVX -- 1000 mg/m3 -- --
Kerosine (petroleum), hydrodesulfurized CVX -- 1000 mg/m3 -- --
Naphthalene EU-Indicative 50 mg/m3 -- -- --
Naphthalene United Kingdom 80 mg/m3 53 mg/m3 -- --

8.2 Exposure controls
ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: Wear protective clothing to prevent skin contact. Selection of protective clothing may include gloves, apron, boots, and complete facial protection depending on operations conducted. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Polyvinyl Alcohol (PVA) (Note: Avoid contact with water. PVA deteriorates in water.), Viton.
Respiratory Protection: No respiratory protection is normally required. If exposure to harmful levels of airborne material may occur when working with this material, wear an approved respirator that provides protection, such as: Air-Purifying Respirator for Organic Vapors.
ENVIRONMENTAL EXPOSURE CONTROLS:
See relevant Community environmental protection legislation or the Annex, as applicable.
SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES
Attention: the data below are typical values and do not constitute a specification.
9.1 Information on basic physical and chemical properties
Appearance
Color: Colorless to yellow
Physical State: Liquid
Odor: Kerosene odor
Odor Threshold: No data available
pH: Not Applicable
Freezing Point: -40°C (-40°F) (Max)
Initial Boiling Point: 305-518°F (152-270°C)
Flashpoint: (Tagliabue Closed Cup ASTM D56) 37.8 °C (>100 °F) (Min)
Evaporation Rate: No data available
Flammability (solid, gas): No Data Available
Flammability (Explosive) Limits (% by volume in air):
Lower: 0.7 Upper: 5
Vapor Pressure: 75 mm Hg 20°C (68 °F)
Vapor Density (Air = 1): 3-4
Relative Density: 0.75 - 0.84 g/ml @ 15°C (59°F)
Solubility: Low PPM range in water.
Partition coefficient: n-octanol/water: No data available
Auto-ignition temperature: <204.4 °C (399.9 °F)
Decomposition temperature: No Data Available
Viscosity: 8 mm2/s @ -20°C (-4°F)
Explosive Properties: No Data Available
Oxidising properties: No Data Available
9.2 Other Information: No Data Available

SECTION 10 STABILITY AND REACTIVITY
10.1 Reactivity: This material is not expected to react.
10.2 Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
10.3 Possibility of hazardous reactions: Hazardous polymerization will not occur.
10.4 Conditions to Avoid: Not applicable
10.5 Incompatible materials to avoid: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
10.6 Hazardous decomposition products: None known (None expected)

SECTION 11 TOXICOLOGICAL INFORMATION
11.1 Information on toxicological effects
Serious Eye Damage/Irritation: The Draize eye irritation mean score in rabbits for a 24-hour exposure was: 0.0/110.
Skin Corrosion/Irritation: For a 4-hour exposure, the Primary Irritation Index (PII) in rabbits is: 5.5/8.

Revision Number: 4
Revision Date: MARCH 01, 2011
6 of 8 AVIATION TURBINE JET FUEL
MSDS : 23756
Skin Sensitization: This material did not cause skin sensitization reactions in a Buehler guinea pig test.
Acute Dermal Toxicity: LD50: >5g/kg (rabbit).
Acute Oral Toxicity: LD50: >5 g/kg (rat)
Acute Inhalation Toxicity: 4 hour(s) LC50: >5ml/l (rat).

Germ Cell Mutagenicity: The hazard evaluation is based on data for components or a similar material.

Carcinogenicity: Carcinogenicity: OSHA: No  IARC: No  NTP: No  ACGIH: 1997  NIOC: A3  
Dermal carcinogenicity: positive
Reproductive Toxicity: The hazard evaluation is based on data for components or a similar material.
Specific Target Organ Toxicity - Single Exposure: The hazard evaluation is based on data for components or a similar material.
Specific Target Organ Toxicity - Repeated Exposure: The hazard evaluation is based on data for components or a similar material.

SECTION 12 ECOLOGICAL INFORMATION
12.1 Toxicity
This material is expected to be toxic to aquatic organisms. 
7 day(s) EC50: 1.19 mg/l (Mysidopsis bahia)

12.2 Persistence and degradability
This material is not expected to be readily biodegradable. May cause long-term adverse effects in the aquatic environment. The results of a 28-day ready biodegradability test (% degraded): ND .The product has not been tested. The statement has been derived from products of a similar structure and composition.

12.3 Bioaccumulative potential
Bioconcentration Factor: No Data Available
Octanol/Water Partition Coefficient: No data available

12.4 Mobility in soil
No data available.

12.5 Results of PBT and vPvB assessment
This product is not, or does not contain, a substance that is a potential PBT or a vPvB.

12.6 Other adverse effects
No other adverse effects identified.

SECTION 13 DISPOSAL CONSIDERATIONS
13.1 Waste treatment methods
Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by international, country, or local laws and regulations.
In accordance with European Waste Catalogue (E.W.C.) the codification is the following: 13 07 03

SECTION 14 TRANSPORT INFORMATION
The description shown may not apply to all shipping situations. Consult appropriate Dangerous Goods Regulations for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

IATA/DOT/ICAO Shipping Name: FUEL, AVIATION, TURBINE ENGINE

IATA/DOT/ICAO Hazard Class and packing group: 3, PGIII

IATA/DOT/ICAO Identification Number: UN1863

IATA/DOT/ICAO Shipping Label: Flammable Liquid
May be reclassified for transportation as a combustible liquid under conditions of DOT 49 CFR 173.150(b)(2)

ADR/RID
14.1 UN number: UN1863
14.2 UN proper shipping name: FUEL, AVIATION, TURBINE ENGINE
14.3 Transport hazard class(es): 3
14.4 Packing group: III
14.5 Environmental hazards: Yes
14.6 Special precautions for user: Hazard ID No: 30

ICAO
14.1 UN number: UN1863
14.2 UN proper shipping name: FUEL, AVIATION, TURBINE ENGINE
14.3 Transport hazard class(es): 3
14.4 Packing group: III
14.5 Environmental hazards: Yes
14.6 Special precautions for user: Not applicable

IMO
14.1 UN number: UN1863
14.2 UN proper shipping name: FUEL, AVIATION, TURBINE ENGINE
14.3 Transport hazard class(es): 3
14.4 Packing group: III
14.5 Environmental hazards: MARINE POLLUTANT
14.6 Special precautions for user: Not applicable
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code: Not applicable

SECTION 15 REGULATORY INFORMATION
SARA 311/312 CATEGORIES:
1. Immediate (Acute) Health Effects: YES
2. Delayed (Chronic) Health Effects: YES
3. Fire Hazard: YES
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:
4_I1=IARC Group 1 15=SARA Section 313
4_I2A=IARC Group 2A 16=CA Proposition 65
4_I2B=IARC Group 2B 17=MA RTK
05=NTP Carcinogen 18=NJ RTK
06=OSHA Carcinogen 19=DOT Marine Pollutant
09=TSCA 12(b) 20=PA RTK
15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

REGULATORY LISTS SEARCHED:
02=EU Directive 90/394/EEC: Carcinogens at work.
03=EU Directive 92/85/EEC: Pregnant or breastfeeding workers.
04=EU Directive 96/82/EC (Seveso II): Article 9.
05=EU Directive 96/82/EC (Seveso II): Articles 6 and 7.
06=EU Directive 98/24/EC: Chemical agents at work.
08=EU Regulation EC No. 689/2008: Annex 1, Part 1.
09=EU Regulation EC No. 689/2008: Annex 1, Part 2.
10=EU Regulation EC No. 689/2008: Annex 1, Part 3.
12=EU REACH, Annex XVII: Restrictions on manufacture, placing on the market and use of certain dangerous substances, mixture & article.

The following components of this material are found on the regulatory lists indicated.
Kerosine (petroleum) 06
Naphthalene 03, 04, 05, 06

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), ENCS (Japan), KECI (Korea), PICCS (Philippines), TSCA (United States).

15.2 Chemical safety assessment
No chemical safety assessment.

SECTION 16 OTHER INFORMATION

Full text of R-phrases:
R10; Flammable.
R22; Harmful if swallowed.
R38; Irritating to skin.
R40; Limited evidence of a carcinogenic effect.
R50/53; Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R51/53; Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R65; Harmful: may cause lung damage if swallowed.
R66; Repeated exposure may cause skin dryness or cracking.
R67; Vapors may cause drowsiness and dizziness.

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:
TLV - Threshold Limit Value TWA - Time Weighted Average
STEL - Short-term Exposure Limit PEL - Permissible Exposure Limit
CVX - Chevron CAS - Chemical Abstract Service Number
NQ - Not Quantifiable

References:
EU Regulation 1907/2006
NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Safety Data Sheet. Adequate training and instruction should be given by you to your employees and affected personnel. Appropriate warnings and safe handling procedures should be provided by you to handlers and users. Additionally, the user should review this information, satisfy itself as to its suitability and completeness, and pass on the information to its employees or customers in accordance with the applicable federal, state, provincial or local hazard communication requirements. This SDS may not be used as a commercial specification sheet of manufacturer or seller, and no warranty or representation, expressed or implied, is made as to the fitness for use of the material, or the accuracy or comprehensiveness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. In addition, vendor neither assumes nor retains any responsibility for any damage or injury resulting from abnormal use, from any failure to adhere to appropriate practices, or from any hazards inherent in the nature of the material. Moreover, unless an employee or a customer accesses or receives a SDS directly from the company, there is no assurance that a document obtained from alternate sources is the most currently available SDS. The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Completed by Clark PTP Staff

No Annex
Domestic SDS Documents

*FOR INFORMATION REFERENCE ONLY*. A product specific SDS is included with each shipment. Use the SDS sent with each sample for information related to the product supplied per program cycle.
SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
Name of the substance: Residual Fuel Oils - All Grades (Refer to Synonyms for Product Name)
Identification number: 649-024-00-9
Registration number: 01-2119474894-22-0031

1.2. Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Laboratory test sample
Uses advised against: Other uses are not recommended unless an assessment is completed, prior to commencement of that use, which demonstrates that the use will be controlled.

1.3. Details of the supplier of the safety data sheet
Supplier:
Clark Laboratories
1801 Route 51 South
Jefferson Hills, PA 15025
412-387-1001

1.4. Emergency telephone number
Transportation Emergency Response
Chemtrec - 24 hour emergency response: (800) 424-9300
International Collect: +1 703 741 5970
SDS Assistance Email: sds@clarktesting.com

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
The substance has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Directive 67/548/EEC or 1999/45/EC as amended
Classification: Carc. Cat. 2; R45, Repr. Cat. 3; R63, Xn; R20-48/21, R66, N; R50/53
The full text for all R-phrases is displayed in section 16.

Classification according to Regulation (EC) No 1272/2008 as amended
Health hazards
- Flammable liquid and Vapor: Category 3, Hazard: H226-Flammable Liquid & Vapor Category 4
- Acute toxicity, inhalation: Not
- Specific target organ toxicity - repeated exposure: Classified
- Aspiration hazard: Category 1

Environmental
H332 - Harmful if inhaled.

H373 - May cause damage to organs (blood, thymus, liver) through prolonged or repeated exposure.

H304 - May be fatal if swallowed and enters airways.
Hazard summary

Physical hazards
Not classified for physical hazards.

Health hazards
May cause cancer. Also harmful by inhalation. Also harmful: danger of serious damage to health by prolonged exposure in contact with skin. Possible risk of harm to the unborn child. Repeated exposure may cause skin dryness or cracking.

Environmental hazards
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Specific hazards
Breathing of high vapour concentrations may cause dizziness, light-headedness, headache, nausea and loss of co-ordination. Continued inhalation may result in unconsciousness. Prolonged or repeated contact with skin may cause redness, itching, irritation, eczema/chapping and oil acne. Components of the product may be absorbed into the body through the skin.

Main symptoms
In high concentrations, vapours are narcotic and may cause headache, fatigue, dizziness and nausea. Defatting of the skin. Dermatitis. Ingestion may cause irritation and malaise.

2.2. Label elements
Label according to Regulation (EC) No. 1272/2008 as amended
Contains: Fuel oil, residual
Identification number 649-024-00-9

Hazard pictograms

Signal word
Danger

Hazard Statements:
Flammable liquid and vapor.
May be fatal if swallowed and enters airways.
May cause damage to organs (Thymus, Liver, Bone Marrow) through prolonged or repeated exposure.
Causes skin irritation

Precautionary statements:
Keep away from heat/sparks/open flames/hot surfaces- no smoking.
Avoid breathing dust/fume/gas mist/vapors/spray.
Keep container tightly closed. Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wash thoroughly after handling.

Response
In case of fire: Use appropriate media to extinguish.
IF ON SKIN (or hair): Take off immediately all contaminated clothing.
Rinse skin with water/shower. If skin irritation occurs: Get medical attention/advice.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.

Use only outdoors or in well ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. IF SWALLOWED: Immediately call a POISON CENTER or Doctor. Do not induce vomiting.

Storage
Store in a well ventilated place. Keep cool. Store locked up.
Dispose of contents/container at an approved waste disposal plant.

2.3. Other hazards
Not a PBT or vPvB substance or mixture. Hydrogen sulfide (H2S) can accumulate in the headspace of storage tanks and reach potentially hazardous concentrations. Static accumulator -
Static accumulating flammable materials can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite material and vapor may cause flash fire (or explosion).

SECTION 3: Composition/information on ingredients

3.1. Substances

General information

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>%</th>
<th>CAS-No. / EC No.</th>
<th>REACH Registration No.</th>
<th>INDEX No.</th>
<th>Notes</th>
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</thead>
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<td>Fuel oil, residual</td>
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<td>68476-33-5</td>
<td>01-2119474894-22-0031</td>
<td>649-024-00-9</td>
<td></td>
</tr>
</tbody>
</table>
SECTION 4: First aid measures

General information
Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

4.1. Description of first aid measures

Inhalation
Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

If there is any suspicion of inhalation of H2S:
Rescuers must wear breathing apparatus, belt and safety rope, and follow rescue procedures.
Remove casualty to fresh air as quickly as possible.
Immediately begin artificial respiration if breathing has ceased.
Provision of oxygen may help.
Obtain medical advice for further treatment.

Skin contact
Remove contaminated clothing and shoes. Wash off immediately with soap and plenty of water.
Get medical attention if irritation develops or persists. Wash clothing separately before reuse.
Destroy or thoroughly clean contaminated shoes. If high pressure injection under the skin occurs, always seek medical attention.

Eye contact
Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyelids wide apart. Get medical attention if irritation develops or persists.

Ingestion
Immediately rinse mouth and drink plenty of water or milk. Keep person under observation. Do not induce vomiting. If vomiting occurs, keep head low. Transport immediately to hospital and take these instructions.

4.2. Most important symptoms and effects, both acute and delayed
Defatting of the skin. May cause eye irritation on direct contact. In high concentrations, vapours are narcotic and may cause headache, fatigue, dizziness and nausea. May cause damage to organs () through prolonged or repeated exposure.

4.3. Indication of any immediate medical attention and special treatment needed
Treat symptomatically. Symptoms may be delayed.

SECTION 5: Firefighting measures

General fire hazards
The product is combustible, and heating may generate vapours which may form explosive vapour/air mixtures. Material will float and can be re-ignited on surface of water.

5.1. Extinguishing media
Suitable extinguishing media
Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media
Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture
Thermal decomposition may produce smoke, oxides of carbon and lower molecular weight organic compounds whose composition have not been characterised. Sulfur Oxides (SOx). Nitrogen Oxides (NOx).

5.3. Advice for firefighters
Special protective equipment for firefighters
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Special fire fighting procedures
Move containers from fire area if you can do it without risk. Use water spray to cool unopened containers. Cool containers with flooding quantities of water until well after fire is out.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel
Keep upwind. Keep out of low areas. Ventilate closed spaces before entering. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Local authorities should be advised if significant spillages cannot be contained.

For emergency responders
Keep unnecessary personnel away. Wear protective clothing as described in Section 8 of this safety data sheet.

6.2. Environmental precautions
Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. If facility or operation has an "oil or hazardous substance contingency plan", activate its procedures. Stay upwind and away from spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Extremely flammable. Review Fire and Explosion Hazard Data before proceeding with clean up. Keep all sources of ignition (flames, smoking, flares, etc.) and hot surfaces away from release. Contain spill in smallest possible area. Recover as much product as possible (e.g., by vacuuming). Stop leak if it can be done without risk. Use water spray to disperse vapors. Spilled material may be absorbed by an appropriate absorbent, and then handled in accordance with environmental regulations. Prevent spilled material from entering sewers, storm drains, other unauthorized treatment or drainage systems and natural waterways. Contact fire authorities and appropriate federal, state and local agencies.
6.3. Methods and material for containment and cleaning up

6.4. Reference to other sections  ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Use non-sparking tools and explosion-proof equipment. Stop leak if you can do so without risk. This material is a water pollutant and should be prevented from contaminating soil or from entering sewage and drainage systems and bodies of water. Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basements or confined areas.

Small Spills: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. This material and its container must be disposed of as hazardous waste.

Large Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent product from entering drains. Do not allow material to contaminate ground water system. Should not be released into the environment.

For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling  Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Before entering storage tanks and commencing any operation in a confined area check the atmosphere for oxygen content and flammability. (Subject to applicability) If sulfur compounds are suspected to be present in the product, check the atmosphere for H2S content. Access to work area should be restricted to people handling the product only. Should be handled in closed systems, if possible. Avoid inhalation of vapors and contact with skin, eyes and clothing. Avoid release to the environment. Wear appropriate personal protective equipment. Immediately change contaminated clothes. Do not eat, drink or smoke when using the product. Be aware of potential for surfaces to become slippery. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities  Store in a cool, dry place with adequate ventilation. Keep away from incompatible materials, open flames and high temperatures. Keep away from food, drink and animal feeding stuffs.

7.3. Specific end use(s)  Distribution of a substance. Formulation & (re) packaging of substances and mixtures. Manufacture of substance. Use as a Fuel.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Material</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil, residual (CAS 68476-33-5)</td>
<td>TWA</td>
<td>300 mg/m3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Material</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil, residual (CAS 68476-33-5)</td>
<td>Ceiling</td>
<td>1000 mg/m3</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>400 mg/m3</td>
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</table>

<table>
<thead>
<tr>
<th>Material</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil, residual (CAS 68476-33-5)</td>
<td>TWA</td>
<td>180 mg/m3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Material</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil, residual (CAS 68476-33-5)</td>
<td>Derived no-effect level (DNEL)</td>
<td>25 ppm</td>
</tr>
</tbody>
</table>

Romania

Biological limit values  No biological exposure limits noted for the ingredient(s).

Recommended monitoring procedures  No recommended monitoring procedures.
<table>
<thead>
<tr>
<th>Material</th>
<th>Type</th>
<th>Route</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil, residual (CAS 68476-33-5)</td>
<td>Workers</td>
<td>Dermal</td>
<td>0.065 mg/kg/8h</td>
<td>Long term exposure systemic effects</td>
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<tr>
<td></td>
<td></td>
<td>Inhalation</td>
<td>4700 mg/m³/15min</td>
<td>Aerosol, Acute exposure systemic effects</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inhalation</td>
<td>0.12 mg/m³/8h</td>
<td>Aerosol, Long term exposure systemic effects</td>
</tr>
</tbody>
</table>

Predicted no effect concentrations (PNECs) Not available.

8.2. Exposure controls

Appropriate engineering controls
Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment.

Individual protection measures, such as personal protective equipment

General information
Use personal protective equipment as required. Personal protective equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. Keep working clothes separately. Launder contaminated clothing before reuse.

Eye/face protection
Wear safety glasses. If splash potential exists, wear full face shield or chemical goggles.

Skin protection

- Hand protection
Chlorinated Polyethylene (or Chlorosulfonated Polyethylene), Viton, Polyurethane, Nitrile rubber. Suitable gloves can be recommended by the glove supplier. Be aware that the liquid may penetrate the gloves. Frequent change is advisable. Wear suitable gloves tested to EN374.

- Other
Full body suit and boots are recommended when handling large volumes or in emergency situations. Flame retardant protective clothing is recommended.

Respiratory protection
In case of inadequate ventilation or risk of inhalation of oil mist, suitable respiratory equipment with combination filter (type A2/P2) can be used. Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

Thermal hazards
Wear appropriate thermal protective clothing, when necessary.

Hygiene measures
When using, do not eat, drink or smoke. Wash hands after handling. Launder contaminated clothing before reuse. Private clothes and working clothes should be kept separately. Handle in accordance with good industrial hygiene and safety practices. Follow up on any medical surveillance requirements.

Environmental exposure controls
Contain spills and prevent releases and observe national regulations on emissions.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance Clear
Physical state Liquid
Form Liquid
Colour Water white

Odour Kerosene
Odour threshold Not available.
pH Not applicable.
Melting point/freezing point Not available.

Initial boiling point and boiling range
160 - 600 °C (320 - 1112 °F)

Flash point 62,0 °C (143,6 °F) Pensky-Martens Closed Cup

Evaporation rate Not available.

Flammability (solid, gas) Non flammable.

Upper/lower flammability or explosive limits

- Flammability limit - lower (%)
  Not available.

- Flammability limit - upper (%)
  Not available.
Vapour pressure < 0.04 psi estimated
Vapour density > 1 estimated
Relative density Not available.
Solubility(ies) Insoluble in water.
Partition coefficient (n-octanol/water) Not applicable.
Auto-ignition temperature 263 °C (505.4 °F)
Decomposition temperature Not available.
Viscosity 10 - 55 mm²/s (100°C)
Explosive properties Not explosive.
Oxidizing properties Not oxidizing.

9.1. Other information
Density 840.00 - 1100.00 kg/m³ (15 °C)
300 ppm

SECTION 10: Stability and reactivity

10.1. Reactivity The product is stable and non reactive under normal conditions of use, storage and transport.
10.2. Chemical stability Stable under normal temperature conditions and recommended use.
10.3. Possibility of hazardous reactions Hazardous polymerisation does not occur.
10.4. Conditions to avoid Heat, flames and sparks. Ignition sources. Contact with incompatible materials. Do not pressurize, cut, weld, braze, solder, drill, grind or expose empty containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode and cause injury or death.
10.5. Incompatible materials Strong acids. Strong oxidizers such as nitrates, chlorates, peroxides.
10.6. Hazardous decomposition products Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

SECTION 11: Toxicological information

General information Occupational exposure to the substance or mixture may cause adverse effects.
Information on likely routes of exposure
  Ingestion Ingestion may cause irritation and malaise.
  Inhalation Harmful if inhaled. In high concentrations, vapours and spray mists are narcotic and may cause headache, fatigue, dizziness and nausea.
  Skin contact Repeated exposure may cause skin dryness or cracking. May be absorbed through the skin.
  Eye contact Direct contact with eyes may cause temporary irritation.
Symptoms Skin irritation. Defatting of the skin. Rash. May cause eye irritation on direct contact. In high concentrations, vapours and spray mists are narcotic and may cause headache, fatigue, dizziness and nausea.

11.1. Information on toxicological effects
  Acute toxicity Harmful if inhaled.
  Skin corrosion/irritation Based on available data, the classification criteria are not met.
  Serious eye damage/eye irritation Direct contact with eyes may cause temporary irritation.
Skin sensitisation
Based on available data, the classification criteria are not met.

Germ cell mutagenicity
Based on available data, the classification criteria are not met.

Carcinogenicity
Suspected of causing cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity
Fuel oil, residual (CAS 68476-33-5) 2B Possibly carcinogenic to humans.

Reproductive toxicity
Suspected of damaging fertility or the unborn child.

Flammability limit - lower (%)
Not available.

Flammability limit - upper (%)
Not available.

Not available.

Vapour pressure < 0.04 psi estimated

Vapour density > 1 estimated

Relative density Not available.

Solubility(ies) Insoluble in water.

Partition coefficient (n-octanol/water)
Not applicable.

Auto-ignition temperature 263 °C (505.4 °F)

Decomposition temperature Not available.

Viscosity 10 - 55 mm²/s (100°C)

Explosive properties Not explosive.

Oxidizing properties Not oxidizing.

9.1. Other information

Density 840.00 - 1100.00 kg/m³ (15 °C)

Specific target organ toxicity - single exposure

Specific target organ toxicity - repeated exposure
Based on available data, the classification criteria are not met.

May cause damage to organs through prolonged or repeated exposure: Blood. Thymus. Liver.

Aspiration hazard May be fatal if swallowed and enters airways.

Mixture versus substance information
Not available.

Other information Symptoms may be delayed.

SECTION 12: Ecological information

12.1. Toxicity Oil spills are generally hazardous to the environment.

<table>
<thead>
<tr>
<th>Product</th>
<th>Test results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel oil, residual (CAS 68476-33-5)</td>
<td></td>
</tr>
<tr>
<td>Aquatic</td>
<td></td>
</tr>
<tr>
<td>Algae</td>
<td>EL50 Pseudokirchneriella subcapitata 0,75 mg/l, 72 Hours</td>
</tr>
<tr>
<td>Crustacea</td>
<td>EL50 Daphnia magna 2 mg/l, 48 Hours</td>
</tr>
<tr>
<td>Fish</td>
<td>LL50 Oncorhynchus mykiss 79 mg/l, 96 Hours</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability
The degradability of the product has not been stated.

12.3. Bioaccumulative potential
No data available on bioaccumulation.

Partition coefficient
n-octanol/water (log Kow)
Not available.

Bioconcentration factor (BCF)
Not available.
12.4. Mobility in soil
Mobility in general
The product is insoluble in water. It will spread on the water surface while some of the components will eventually sediment in water systems. The volatile components of the product will spread in the atmosphere.

12.5. Results of PBT and vPvB assessment
Not a PBT or vPvB substance or mixture.

12.6. Other adverse effects
Very toxic to aquatic life with long lasting effects. Oil spills are generally hazardous to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Residual waste
Dispose of in accordance with local regulations.

Contaminated packaging
Since emptied containers may retain product residue, follow label warnings even after container is emptied.

EU waste code
13 07 03*
The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Disposal methods/information
Dispose in accordance with all applicable regulations. This material and its container must be disposed of as hazardous waste. Do not discharge into drains, water courses or onto the ground.

SECTION 14: Transport information

Environmentally hazardous substances may be shipped as non restricted when meeting the descriptions of UN3082 as they are not subject to the IMO-IMDG or IATA/ICAO Codes when transported in packaging that does not exceed 5L or 5kg net and the packaging used meets defined standards (Special Provision A197)

ADR
14.1. UN number
UN3082

14.2. UN proper shipping name
Environmentally hazardous substance, liquid, n.o.s. (Fuel oil, residual)

14.3. Transport hazard class(es)
9

14.4. Packing group
III

14.5. Environmental hazards
Yes

Tunnel restriction code
E

Labels required
9

Read safety instructions, SDS and emergency procedures before handling.

RID
14.1. UN number
UN3082

14.2. UN proper shipping name
Environmentally hazardous substance, liquid, n.o.s. (Fuel oil, residual)

14.3. Transport hazard class(es)
9

14.4. Packing group
III
### 14.5. Environmental hazards

Labels required: Yes

Read safety instructions, SDS and emergency procedures before handling.

UN3082

Environmental Hazardous Liquid, N.o.s. (Fuel oil, residual)

### 14.6. Special precautions for user

Read safety instructions, SDS and emergency procedures before handling.

### ADN

14.1. UN number: UN3082

14.2. UN proper shipping name: Environmentally Hazardous Liquid, N.o.s. (Fuel oil, residual)

14.3. Transport hazard class(es): 9

Subsidiary class(es): -

14.4. Packing group: III

14.5. Environmental hazards: Yes

Labels required: 9

### IATA

14.1. UN number: UN3082

14.2. UN proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (Fuel oil, residual)

14.3. Transport hazard class(es): 9

Subsidiary class(es): -

14.4. Packing group: III

14.5. Environmental hazards: Yes

Labels required: 9

ERG code: 9L

14.6. Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.

### IMDG

14.1. UN number: UN3082

14.2. UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Residues (petroleum), atmospheric)

14.3. Transport hazard class(es): 9

Subsidiary class(es): -

14.4. Packing group: III

14.5. Environmental hazards: Yes

Marine pollutant: Yes

Labels required: 9

EmS: F-A, S-F

14.6. Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.

### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable. However, this product is a liquid and if transported in bulk covered under MARPOL 73/78, Annex I.

### SECTION 15: Regulatory information

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

**EU regulations**


Page 11 of 13
Section 16: Other information

List of abbreviations
- DSD: Directive 67/548/EEC
- CLP: Regulation No. 1272/2008
- DNEL: Derived No-Effect Level
- PNEC: Predicted No-Effect Concentration
- PBT: Persistent, bioaccumulative and toxic
- vPvB: Very Persistent and very Bioaccumulative

References
- Chemical safety report
- CLP files – http://concawe.org/

Information on evaluation method leading to the classification of mixture
- The mixture is classified based on test data for physical hazards. The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available. For details, refer to Sections 9, 11 and 12.

Full text of any statements or R-phrases and H-statements under Sections 2 to 15
- R20 Harmful by inhalation.
- R45 May cause cancer.
- R48/21 Harmful: danger of serious damage to health by prolonged exposure in contact with skin.
- R63 Possible risk of harm to the unborn child.
- R66 Repeated exposure may cause skin dryness or cracking.
- H332 Harmful if inhaled.
- H373 May cause damage to organs through prolonged or repeated exposure.

This safety data sheet contains revisions in the following section(s): 2, 3, 5, 7, 11, 12.
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Completed by Clark PTP Staff

NO ANNEX