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

1.1. Product identification

Product Description: Petroleum ether, boiling range 35-60°C
Cat No.: 413140000; 413140010
Synonyms: Ligroine
CAS-No: 64742-49-0
EC-No: 265-151-9

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

Recommended Use: Laboratory chemicals.
Uses advised against: No Information available

1.3. Details of the supplier of the safety data sheet

Company: Acros Organics BVBA
Address: Janssen Pharmaceuticaan 3a
Geel, Belgium
E-mail address: begel.sdsdesk@thermofishcer.com

1.4. Emergency telephone number

For information US call: 001-800-ACROS-01 / Europe call: +32 14 57 52 11
Emergency Number US: 001-201-796-7100 / Europe: +32 14 57 52 99
CHEMTREC Tel. No. US: 001-800-424-9300 / Europe: 001-703-527-3887

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards
Flammable liquids Category 2

Health hazards
Aspiration Toxicity Category 1
Skin Corrosion/irritation Category 2
Specific target organ toxicity - (single exposure) Category 3

Environmental hazards
Chronic aquatic toxicity Category 2

2.2. Label elements
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Signal Word Danger

Hazard Statements
H225 - Highly flammable liquid and vapor
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H336 - May cause drowsiness or dizziness
H411 - Toxic to aquatic life with long lasting effects

Precautionary Statements
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P240 - Ground/bond container and receiving equipment
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P262 - Do not get in eyes, on skin, or on clothing
P273 - Avoid release to the environment
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting

2.3. Other hazards
No information available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>EC-No.</th>
<th>Weight %</th>
<th>CLP Classification - Regulation (EC) No 1272/2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphtha (petroleum), hydrotreated light</td>
<td>64742-49-0</td>
<td>EEC No. 265-151-9</td>
<td>&gt;95</td>
<td>Flam. Liq. 2 (H225)</td>
</tr>
</tbody>
</table>

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

Ingestion
Aspiration hazard. Do not induce vomiting. Call a physician or Poison Control Center immediately. If vomiting occurs naturally, have victim lean forward.

Inhalation
Move to fresh air. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Obtain medical attention. If not breathing, give artificial respiration. Risk of serious damage to the lungs.
SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
CO₂, dry chemical, dry sand, alcohol-resistant foam. Cool closed containers exposed to fire with water spray.

Extinguishing media which must not be used for safety reasons
Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Carbon monoxide (CO), Carbon dioxide (CO₂).

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges. Avoid contact with skin, eyes and clothing.

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system.

6.3. Methods and material for containment and cleaning up

Remove all sources of ignition. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Use only under a chemical fume hood. Wear personal protective equipment. Use spark-proof tools and explosion-proof equipment.
Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Avoid contact with skin, eyes and clothing. Do not breathe vapors or spray mist. Do not ingest. Use only non-sparking tools. Use explosion-proof equipment. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

**Hygiene Measures**
Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use. Wash hands before breaks and at the end of workday.

**7.2. Conditions for safe storage, including any incompatibilities**
Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Flammables area.

**7.3. Specific end use(s)**
Use in laboratories

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**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1. Control parameters**

**Exposure limits**
This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

**Biological limit values**
This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

**Monitoring methods**
BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
MDHS70 General methods for sampling airborne gases and vapours
MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography
MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

<table>
<thead>
<tr>
<th>Derived No Effect Level (DNEL)</th>
<th>No information available</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Route of exposure</strong></td>
<td><strong>Acute effects (local)</strong></td>
</tr>
<tr>
<td>Oral</td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
</tr>
</tbody>
</table>

| Predicted No Effect Concentration (PNEC) | No information available |

**8.2. Exposure controls**
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Engineering Measures
Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

Personal protective equipment

| Eye Protection | Safety glasses with side-shields (European standard - EN 166) |
| Hand Protection | Protective gloves |

<table>
<thead>
<tr>
<th>Glove material</th>
<th>Breakthrough time</th>
<th>Glove thickness</th>
<th>EU standard</th>
<th>Glove comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrile rubber</td>
<td>See manufacturers recommendations</td>
<td>-</td>
<td>EN 374</td>
<td>(minimum requirement)</td>
</tr>
<tr>
<td>Viton (R)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Skin and body protection
Wear appropriate protective gloves and clothing to prevent skin exposure

Inspect gloves before use.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.
(Refer to manufacturer/supplier for information)
Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.
Remove gloves with care avoiding skin contamination.

Respiratory Protection
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly.

Large scale/emergency use
Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
Recommended Filter type: low boiling organic solvent Type AX Brown conforming to EN371

Small scale/Laboratory use
Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141
When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls
Prevent product from entering drains. Do not allow material to contaminate ground water system.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td>Colorless</td>
</tr>
<tr>
<td><strong>Physical State</strong></td>
<td>Liquid</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>Petroleum distillates</td>
</tr>
<tr>
<td><strong>Odor Threshold</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Melting Point/Range</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Softening Point</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Boiling Point/Range</strong></td>
<td>35 - 60 °C / 95 - 140 °F</td>
</tr>
<tr>
<td><strong>Flash Point</strong></td>
<td>-30 °C / -22 °F</td>
</tr>
<tr>
<td><strong>Evaporation Rate</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Flammability (solid, gas)</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Explosion Limits</strong></td>
<td>Lower 0.8 vol%</td>
</tr>
<tr>
<td><strong>Upper 7.4 vol%</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Vapor Pressure</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Vapor Density</strong></td>
<td>&gt; 1</td>
</tr>
<tr>
<td><strong>Specific Gravity / Density</strong></td>
<td>0.648</td>
</tr>
</tbody>
</table>
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Bulk Density
Water Solubility
Solubility in other solvents
Partition Coefficient (n-octanol/water)
Autoignition Temperature
Decomposition Temperature
Viscosity
Explosive Properties
Oxidizing Properties

9.2. Other information

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity
None known, based on information available

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
Hazardous Polymerization
Hazardous polymerization does not occur.

Hazardous Reactions
None under normal processing.

10.4. Conditions to avoid
Keep away from open flames, hot surfaces and sources of ignition. Incompatible products. Excess heat.

10.5. Incompatible materials
Strong oxidizing agents.

10.6. Hazardous decomposition products
Carbon monoxide (CO). Carbon dioxide (CO₂).

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects
Product Information

(a) acute toxicity;
   Oral
   Based on available data, the classification criteria are not met
   Dermal
   Based on available data, the classification criteria are not met
   Inhalation
   Based on available data, the classification criteria are not met

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphtha (petroleum), hydrotreated light</td>
<td>LD50 &gt; 5000 mg/kg ( Rat )</td>
<td>LD50 &gt; 3160 mg/kg ( Rabbit )</td>
<td>LC50 = 73680 ppm ( Rat ) 4 h</td>
</tr>
</tbody>
</table>

(b) skin corrosion/irritation;
Category 2

(c) serious eye damage/irritation;
No data available

(d) respiratory or skin sensitization;
   Respiratory
   No data available
   Skin
   No data available

(e) germ cell mutagenicity;
No data available

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Component | EU | UK | Germany | IARC
---|---|---|---|---
Naphtha (petroleum), hydrotreated light | Carc Cat. 1B | | | |

(f) carcinogenicity; Not Classified

The table below indicates whether each agency has listed any ingredient as a carcinogen. The classification as a carcinogen need not apply if the full refining history is known and it can be shown that the substance from which it is produced is not a carcinogen. This note applies only to certain complex oil derived substances in Annex I.

(g) reproductive toxicity; No data available

(h) STOT-single exposure; Category 3

Results / Target organs Central nervous system (CNS).

(i) STOT-repeated exposure; No data available

Target Organs None known.

(j) aspiration hazard; Category 1

Symptoms / effects, both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity
Ecotoxicity effects Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

| Component | Freshwater Fish | Water Flea | Freshwater Algae | Microtox |
---|---|---|---|---|
Naphtha (petroleum), hydrotreated light | | LC50: = 2.6 mg/L, 96h (Chaetogammarus marinus) | |

12.2. Persistence and degradability
Persistence is unlikely, based on information available. Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

12.3. Bioaccumulative potential
Bioaccumulation is unlikely

12.4. Mobility in soil
The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces. Will likely be mobile in the environment due to its volatility. Disperses rapidly in air

12.5. Results of PBT and vPvB assessment
No data available for assessment.

12.6. Other adverse effects
Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors
Persistent Organic Pollutant This product does not contain any known or suspected substance
Ozone Depletion Potential This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods
Waste from Residues / Unused Products Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.
Contaminated Packaging

Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

European Waste Catalogue (EWC)

According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.

Other Information

Do not dispose of waste into sewer. Waste codes should be assigned by the user based on the application for which the product was used. Can be incinerated, when in compliance with local regulations. Do not let this chemical enter the environment. Do not empty into drains.

**SECTION 14: TRANSPORT INFORMATION**

**IMDG/IMO**

14.1. UN number UN1268
14.2. UN proper shipping name Petroleum distillates, n.o.s
14.3. Transport hazard class(es) 3
14.4. Packing group II

**ADR**

14.1. UN number UN1268
14.2. UN proper shipping name Petroleum distillates, n.o.s
14.3. Transport hazard class(es) 3
14.4. Packing group II

**IATA**

14.1. UN number UN1268
14.2. UN proper shipping name Petroleum distillates, n.o.s
14.3. Transport hazard class(es) 3
14.4. Packing group II
14.5. Environmental hazards Dangerous for the environment
Product is a marine pollutant according to the criteria set by IMDG/IMO
14.6. Special precautions for user No special precautions required
14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable, packaged goods

**SECTION 15: REGULATORY INFORMATION**

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

<table>
<thead>
<tr>
<th>International Inventories</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>PICCS</th>
<th>ENCS</th>
<th>IECSC</th>
<th>AICS</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphtha (petroleum), hydrotreated light</td>
<td>265-151-9</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>


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(see http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32006R1907:EN:NOT for restriction details)

National Regulations

<table>
<thead>
<tr>
<th>Component</th>
<th>Germany - Water Classification (VwVwS)</th>
<th>Germany - TA-Luft Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphtha (petroleum), hydrotreated light</td>
<td>WGK 3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>France - INRS (Tables of occupational diseases)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphtha (petroleum), hydrotreated light</td>
<td>Tableaux des maladies professionnelles (TMP) - RG 84</td>
</tr>
</tbody>
</table>

Take note of Control of Substances Hazardous to Health Regulations (COSHHR) 2002 and 2005 Amendment.
Take note of Dir 94/33/EC on the protection of young people at work
Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

Full Text of H-/EUH-Statements Referred to Under Section 3
H225 - Highly flammable liquid and vapor
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H336 - May cause drowsiness or dizziness
H411 - Toxic to aquatic life with long lasting effects

Legend

CAS - Chemical Abstracts Service
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
WEL - Workplace Exposure Limit
ACGIH - American Conference of Governmental Industrial Hygienists
DNEL - Derived No Effect Level
RPE - Respiratory Protective Equipment
LC50 - Lethal Concentration 50%
NOEC - No Observed Effect Concentration
PBT - Persistent, Bioaccumulative, Toxic
ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
OECD - Organisation for Economic Co-operation and Development
BCF - Bioconcentration factor
Key literature references and sources for data
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice
Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.
Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.
First aid for chemical exposure, including the use of eye wash and safety showers.

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Creation Date 26-Nov-2009
Revision Date 21-Jun-2016
Revision Summary Update to Format.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet