SAFETY DATA SHEET
Hydrocarbon mix, Part Number G3440-85013

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

1.1 Product identifier
Product name : Hydrocarbon mix, Part Number G3440-85013
Part No. : G3440-85013

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

<table>
<thead>
<tr>
<th>Identified uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytical chemistry.</td>
</tr>
<tr>
<td>3 x 2 ml</td>
</tr>
</tbody>
</table>

1.3 Details of the supplier of the safety data sheet
Agilent Technologies Manufacturing GmbH & Co. KG
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany
0800 603 1000
e-mail address of person responsible for this SDS: pdl-msds_author@agilent.com

1.4 Emergency telephone number
Emergency telephone number (with hours of operation): CHEMTREC®: +(44)-870-8200418

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Product definition : Mixture

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

H225 FLAMMABLE LIQUIDS - Category 2
H332 ACUTE TOXICITY (inhalation) - Category 4
H315 SKIN CORROSION/IRRITATION - Category 2
H319 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
H361f REPRODUCTIVE TOXICITY (Fertility) - Category 2
H336 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Narcotic effects) - Category 3
H373 SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2
H304 ASPIRATION HAZARD - Category 1
H400 SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
H410 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1

Ingredients of unknown toxicity : Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 1 - 10%

Ingredients of unknown ecotoxicity : Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 30%

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.

Date of issue/Date of revision : 17/10/2017
SECTION 2: Hazards identification

2.2 Label elements

Hazard pictograms:

- Flammable
- Overexposure
- Poison
- Reactivity

Signal word: Danger

Hazard statements:
P225 - Highly flammable liquid and vapour.
H332 - Harmful if inhaled.
H319 - Causes serious eye irritation.
H315 - Causes skin irritation.
H361f - Suspected of damaging fertility.
H304 - May be fatal if swallowed and enters airways.
H336 - May cause drowsiness or dizziness.
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.
P280 - Wear protective gloves. Wear protective clothing. Wear eye or face protection.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P273 - Avoid release to the environment.
P260 - Do not breathe vapour.

Response:
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P301 + P310 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

Storage:
P405 - Store locked up.

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

Hazardous ingredients:
-n-hexane
- Nonane

Supplemental label elements:
- Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles:
- Not applicable.

Special packaging requirements:
Tactile warning of danger:
- Not applicable.

2.3 Other hazards

Other hazards which do not result in classification:
- None known.
### SECTION 3: Composition/information on ingredients

#### 3.2 Mixtures

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Identifiers</th>
<th>%</th>
<th>Regulation (EC) No. 1272/2008 [CLP]</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Hexane</td>
<td>EC: 203-777-6 CAS: 110-54-3 Index: 601-037-00-0</td>
<td>≥10 - ≤25</td>
<td>Flam. Liq. 2, H225&lt;br&gt;Skin Irrit. 2, H315&lt;br&gt;Repr. 2, H361f (Fertility)&lt;br&gt;STOT SE 3, H336&lt;br&gt;STOT RE 2, H373&lt;br&gt;Asp. Tox. 1, H304&lt;br&gt;Aquatic Chronic 2, H411</td>
<td>[1][2]</td>
</tr>
<tr>
<td>nonane</td>
<td>EC: 203-913-4 CAS: 111-84-2</td>
<td>≥10 - ≤25</td>
<td>Flam. Liq. 3, H226&lt;br&gt;Acute Tox. 4, H332&lt;br&gt;Skin Irrit. 2, H315&lt;br&gt;Eye Irrit. 2, H319&lt;br&gt;STOT SE 3, H336&lt;br&gt;Asp. Tox. 1, H304&lt;br&gt;Aquatic Acute 1, H400 (M=1)&lt;br&gt;Aquatic Chronic 1, H410 (M=1)</td>
<td>[1]</td>
</tr>
<tr>
<td>n-Heptane</td>
<td>EC: 205-563-8 CAS: 142-82-5 Index: 601-008-00-2</td>
<td>≥10 - ≤25</td>
<td>Flam. Liq. 2, H225&lt;br&gt;Skin Irrit. 2, H315&lt;br&gt;STOT SE 3, H336&lt;br&gt;Asp. Tox. 1, H304&lt;br&gt;Aquatic Acute 1, H400 (M=1)&lt;br&gt;Aquatic Chronic 1, H410 (M=1)</td>
<td>[1][2]</td>
</tr>
<tr>
<td>Octane</td>
<td>EC: 203-892-1 CAS: 111-65-9 Index: 601-009-00-8</td>
<td>≥10 - ≤25</td>
<td>Flam. Liq. 2, H225&lt;br&gt;Skin Irrit. 2, H315&lt;br&gt;STOT SE 3, H336&lt;br&gt;Asp. Tox. 1, H304&lt;br&gt;Aquatic Acute 1, H400 (M=1)&lt;br&gt;Aquatic Chronic 1, H410 (M=1)</td>
<td>[1]</td>
</tr>
<tr>
<td>undecane</td>
<td>EC: 214-300-6 CAS: 1120-21-4</td>
<td>≥10 - ≤25</td>
<td>Asp. Tox. 1, H304&lt;br&gt;EUH066</td>
<td>See Section 16 for the full text of the H statements declared above.</td>
</tr>
</tbody>
</table>

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

**Type**

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [5] Substance of equivalent concern
- [6] Additional disclosure due to company policy
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 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**: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. 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.

4.2 Most important symptoms and effects, both acute and delayed

**Potential acute health effects**

**Eye contact**: Causes serious eye irritation.

**Inhalation**: Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.

**Skin contact**: Causes skin irritation.

**Ingestion**: Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

**Over-exposure signs/symptoms**

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

**Inhalation**: Adverse symptoms may include the following:
- nausea or vomiting
- headache
- drowsiness/fatigue
- dizziness/vertigo
- unconsciousness
- reduced foetal weight
- increase in foetal deaths
- skeletal malformations
SECTION 4: First aid measures

**Skin contact**
- Adverse symptoms may include the following:
  - irritation
  - redness
  - reduced foetal weight
  - increase in foetal deaths
  - skeletal malformations

**Ingestion**
- Adverse symptoms may include the following:
  - nausea or vomiting
  - reduced foetal weight
  - increase in foetal 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.

**Specific treatments**
- Skin contact:
  - Irritation
  - Redness
  - Reduced foetal weight
  - Increase in foetal deaths
  - Skeletal malformations

- Ingestion:
  - Nausea or vomiting
  - Reduced foetal weight
  - Increase in foetal deaths
  - Skeletal malformations

SECTION 5: Firefighting measures

5.1 Extinguishing media
- **Suitable extinguishing media**
  - Use dry chemical, CO₂, water spray (fog) or foam.
- **Unsuitable extinguishing media**
  - Do not use water jet.

5.2 Special hazards arising from the substance or mixture
- **Hazardous combustion products**
  - Decomposition products may include the following materials:
    - Carbon dioxide
    - Carbon monoxide

5.3 Advice for firefighters
- **Special precautions 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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

- **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 spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

- **For emergency responders**
  - If specialised 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".

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SECTION 6: Accidental release measures

6.2 Environmental precautions: Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

6.3 Methods and material for containment and cleaning up
Methods for cleaning up: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. 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.

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

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 vapour or mist. Do not swallow. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

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
Storage: Store between the following temperatures: 18 to 25°C (64.4 to 77°F). Store in accordance with local regulations. Store in a segregated and approved area. 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. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Danger criteria

<table>
<thead>
<tr>
<th>Category</th>
<th>Notification and MAPP threshold</th>
<th>Safety report threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>P5c: Flammable liquids 2 and 3 not falling under P5a or P5b</td>
<td>5000</td>
<td>50000</td>
</tr>
<tr>
<td>E1: Hazardous to the aquatic environment - Acute 1 or Chronic 1</td>
<td>100</td>
<td>200</td>
</tr>
</tbody>
</table>

7.3 Specific end use(s)
Recommendations: Industrial applications, Professional applications.

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SECTION 7: Handling and storage

Industrial sector specific solutions : Not applicable.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Exposure limit values</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Hexane</td>
<td>EH40/2005 WELs (United Kingdom (UK), 12/2011). TWA: 72 mg/m³ 8 hours. TWA: 20 ppm 8 hours.</td>
</tr>
</tbody>
</table>

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. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

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: chemical splash goggles.

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.

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SECTION 8: Exposure controls/personal protection

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. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.

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.

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

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance
- Physical state: Liquid.
- Colour: Not available.
- Odour: Not available.
- Odour threshold: Not available.
- pH: Not available.
- Melting point/freezing point: Not available.
- Initial boiling point and boiling range: Not available.
- Flash point: Closed cup: -18 to 23°C
- Evaporation rate: Not available.
- Flammability (solid, gas): Not applicable.
- Upper/lower flammability or explosive limits: Not available.
- Vapour pressure: Not available.
- Vapour density: Not available.
- Relative density: Not available.
- Solubility(ies): Insoluble in the following materials: cold water and hot water.
- Partition coefficient: n-octanol/water: Not available.
- Auto-ignition temperature: Not available.
- Decomposition temperature: Not available.
- Viscosity: Not available.
- Explosive properties: Not available.
- Oxidising properties: Not available.

9.2 Other information
No additional 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: Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

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

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

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Hexane</td>
<td>LC50 Inhalation Vapour</td>
<td>Rat - Male, Female</td>
<td>&gt;31.86 mg/l</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LC50 Inhalation Vapour</td>
<td>Rat</td>
<td>48000 ppm</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>15840 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>nonane</td>
<td>LC50 Inhalation Gas.</td>
<td>Rat</td>
<td>3200 ppm</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat - Male, Female</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>dodecane</td>
<td>LC50 Inhalation Dusts and mist</td>
<td>Rat - Male, Female</td>
<td>5.6 mg/l</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rabbit - Male, Female</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat - Male, Female</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>n-Heptane</td>
<td>LC50 Inhalation Vapour</td>
<td>Rat</td>
<td>103 g/m³</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LC50 Inhalation Vapour</td>
<td>Rat</td>
<td>48000 ppm</td>
<td>4 hours</td>
</tr>
<tr>
<td>Octane</td>
<td>LC50 Inhalation Vapour</td>
<td>Rat</td>
<td>118 g/m³</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LC50 Inhalation Vapour</td>
<td>Rat</td>
<td>25260 ppm</td>
<td>4 hours</td>
</tr>
<tr>
<td>Decane</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rabbit - Male, Female</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat - Male, Female</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>undecane</td>
<td>LC50 Inhalation Dusts and mist</td>
<td>Rat - Male, Female</td>
<td>&gt;5600 mg/m³</td>
<td>4 hours</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat - Male, Female</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

Acute toxicity estimates

<table>
<thead>
<tr>
<th>Route</th>
<th>ATE value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation (gases)</td>
<td>16000 ppm</td>
</tr>
</tbody>
</table>

Irritation/Corrosion

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SECTION 11: Toxicological information

Potential acute health effects

Inhalation: Harmful if inhaled. Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.

Ingestion: Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Skin contact: Causes skin irritation.

Eye contact: Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation: Adverse symptoms may include the following:
- nausea or vomiting
- headache
- drowsiness/fatigue
- dizziness/vertigo
- unconsciousness
- reduced foetal weight
- increase in foetal deaths
- skeletal malformations

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

Product/ingredient name | Result | Species | Score | Exposure | Observation
--- | --- | --- | --- | --- | ---
**n-Hexane**
nonane
**Skin - Moderate irritant**
**Rabbit**
- 10 milligrams
- 96 hours 300 microliters
- 96 hours 300 microliters
- 24 hours 0.05 Mililiters

**dodecane**
**Skin - Moderate irritant**
**Rat**
- - -

**Skin contact**

**Eye contact**
Adverse symptoms may include the following:
- nausea or vomiting
- headache
- drowsiness/fatigue
- dizziness/vertigo
- unconsciousness
- reduced foetal weight
- increase in foetal deaths
- skeletal malformations

Sensitiser
Conclusion/Summary:
Not available.

Specific target organ toxicity (single exposure)

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
</table>
**n-Hexane**
nonane
n-Heptane
Octane
| Category 3 | Not applicable. | Narcotic effects |

Specific target organ toxicity (repeated exposure)

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
</table>
**n-Hexane**
nonane
n-Heptane
Octane
| Category 3 | Not applicable. | Narcotic effects |

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
</table>
**Hydrocarbon mix, Part Number G3440-85013**
**n-Hexane**
nonane
dodecane
n-Heptane
Octane
Decane
undecane
| ASPIRATION HAZARD - Category 1 | ASPIRATION HAZARD - Category 1 | ASPIRATION HAZARD - Category 1 | ASPIRATION HAZARD - Category 1 | ASPIRATION HAZARD - Category 1 | ASPIRATION HAZARD - Category 1 | ASPIRATION HAZARD - Category 1

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

**n-Hexane**
nonane
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| ASPIRATION HAZARD - Category 1 | ASPIRATION HAZARD - Category 1 | ASPIRATION HAZARD - Category 1 | ASPIRATION HAZARD - Category 1 | ASPIRATION HAZARD - Category 1 | ASPIRATION HAZARD - Category 1 | ASPIRATION HAZARD - Category 1

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

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10/16
SECTION 11: Toxicological information

Ingestion:
Adverse symptoms may include the following:
- nausea or vomiting
- reduced foetal weight
- increase in foetal deaths
- skeletal malformations

Skin contact:
Adverse symptoms may include the following:
- irritation
- redness
- reduced foetal weight
- increase in foetal deaths
- skeletal malformations

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

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

Short term exposure

Potential immediate effects: Not available.
Potential delayed effects: Not available.

Long term exposure

Potential immediate effects: Not available.
Potential delayed effects: Not available.

Potential chronic health effects

General: May cause damage to organs through prolonged or repeated exposure.
Carcinogenicity: No known significant effects or critical hazards.
Mutagenicity: No known significant effects or critical hazards.
Teratogenicity: No known significant effects or critical hazards.
Developmental effects: No known significant effects or critical hazards.
Fertility effects: Suspected of damaging fertility.

SECTION 12: Ecological information

12.1 Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Hexane</td>
<td>Acute LC50 2500 μg/l Fresh water</td>
<td>Fish - Pimephales promelas</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 375000 μg/l Fresh water</td>
<td>Fish - Oreochromis mossambicus</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 89 mg/l Fresh water</td>
<td>Algae - Pseudokirchneriella subcapitata</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 18000 μg/l Fresh water</td>
<td>Daphnia - Daphnia magna</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 &gt;500 ppm Marine water</td>
<td>Fish - Cyprinodon variegatus - Juvenile (Fledgling, Hatchling, Weanling)</td>
<td>96 hours</td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability

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Hydrocarbon mix, Part Number G3440-85013

SECTION 12: Ecological information

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Result</th>
<th>Dose</th>
<th>Inoculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>dodecane</td>
<td>OECD 301F Ready Biodegradability Manometric Respirometry Test</td>
<td>76.6 % - Readily - 28 days</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>undecane</td>
<td>OECD 301F Ready Biodegradability Manometric Respirometry Test</td>
<td>80 % - Readily - 28 days</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Aquatic half-life</th>
<th>Photolysis</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>dodecane</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
</tr>
<tr>
<td>Octane</td>
<td>-</td>
<td>Readily</td>
<td>Readily</td>
</tr>
<tr>
<td>undecane</td>
<td>-</td>
<td>Readily</td>
<td>Readily</td>
</tr>
</tbody>
</table>

12.3 Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP&lt;sub&gt;ow&lt;/sub&gt;</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Hexane</td>
<td>4</td>
<td>501.187</td>
<td>high</td>
</tr>
<tr>
<td>nonane</td>
<td>5.65</td>
<td>105</td>
<td>low</td>
</tr>
<tr>
<td>dodecane</td>
<td>6.98</td>
<td>239.88</td>
<td>low</td>
</tr>
<tr>
<td>n-Heptane</td>
<td>4.66</td>
<td>552</td>
<td>high</td>
</tr>
<tr>
<td>Octane</td>
<td>5.18</td>
<td>198.7</td>
<td>low</td>
</tr>
<tr>
<td>Decane</td>
<td>5.86</td>
<td>-</td>
<td>high</td>
</tr>
<tr>
<td>undecane</td>
<td>6.42</td>
<td>-</td>
<td>high</td>
</tr>
</tbody>
</table>

12.4 Mobility in soil

- Soil/water partition coefficient (K<sub>oc</sub>): Not available.
- Mobility: Not available.

12.5 Results of PBT and vPvB assessment

- PBT: Not applicable.
- vPvB: Not applicable.

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

- Methods of disposal: The generation of waste should be avoided or minimised 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

- Packaging

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

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SECTION 13: Disposal considerations

Special precautions: This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spill material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

<table>
<thead>
<tr>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.1 UN number</td>
<td>UN3295</td>
<td>UN3295</td>
</tr>
<tr>
<td>14.2 UN proper shipping name</td>
<td>HYDROCARBONS, LIQUID, N.O.S.</td>
<td>HYDROCARBONS, LIQUID, N.O.S.</td>
</tr>
<tr>
<td>14.3 Transport hazard class(es)</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

14.4 Packing group: II

14.5 Environmental hazards: Yes. The environmentally hazardous substance mark is not required.

Additional information

Remarks: Excepted Quantity

ADR/RID

- Hazard identification number: 33
- Limited quantity: 1 L
- Special provisions: 640D
- Tunnel code: (D/E)

IMDG

- The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.
- Emergency schedules: F-E, S-D

IATA

- The environmentally hazardous substance mark may appear if required by other transportation regulations.
- Special provisions: A3, A324
- Remarks: Excepted Quantity

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.

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SECTION 15: Regulatory information

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

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

Annex XIV - List of substances subject to authorisation

Annex XIV
None of the components are listed.

Substances of very high concern
None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Not applicable.

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.

Danger criteria

<table>
<thead>
<tr>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>P5c: Flammable liquids 2 and 3 not falling under P5a or P5b</td>
</tr>
<tr>
<td>E1: Hazardous to the aquatic environment - Acute 1 or Chronic 1</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Country</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Canada</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>China</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Europe</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Japan</td>
<td>Japan inventory (ENCS): All components are listed or exempted. Japan inventory (ISHL): All components are listed or exempted.</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Not determined.</td>
</tr>
<tr>
<td>New Zealand</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Philippines</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>All components are listed or exempted.</td>
</tr>
</tbody>
</table>

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SECTION 15: Regulatory information

Taiwan: All components are listed or exempted.
Thailand: Not determined.
Turkey: Not determined.
United States: All components are listed or exempted.
Viet Nam: Not determined.

15.2 Chemical safety assessment: This product contains substances for which Chemical Safety Assessments might still be required.

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]
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number

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

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flam. Liq. 2, H225</td>
<td>On basis of test data</td>
</tr>
<tr>
<td>Acute Tox. 4, H332</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Skin Irrit. 2, H315</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Eye Irrit. 2, H319</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Repr. 2, H361f (Fertility)</td>
<td>Calculation method</td>
</tr>
<tr>
<td>STOT SE 3, H336</td>
<td>Calculation method</td>
</tr>
<tr>
<td>STOT RE 2, H373</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Asp. Tox. 1, H304</td>
<td>Expert judgment</td>
</tr>
<tr>
<td>Aquatic Acute 1, H400</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Aquatic Chronic 1, H410</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

Full text of abbreviated H statements

H225: Highly flammable liquid and vapour.
H226: Flammable liquid and vapour.
H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H332: Harmful if inhaled.
H336: May cause drowsiness or dizziness.
H361f: Suspected of damaging fertility.
H373: May cause damage to organs through prolonged or repeated exposure.
H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long lasting effects.
H411: Toxic to aquatic life with long lasting effects.
H412: Harmful to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

Acute Tox. 4, H332: ACUTE TOXICITY (inhalation) - Category 4
Aquatic Acute 1, H400: SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1, H410: LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
Aquatic Chronic 2, H411: LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
Aquatic Chronic 3, H412: LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3
Asp. Tox. 1, H304: ASPIRATION HAZARD - Category 1
EUH066: Repeated exposure may cause skin dryness or cracking.
Eye Irrit. 2, H319: SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Flam. Liq. 2, H225: FLAMMABLE LIQUIDS - Category 2

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## SECTION 16: Other information

<table>
<thead>
<tr>
<th>Flamm. Liq. 3, H226</th>
<th>FLAMMABLE LIQUIDS - Category 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repr. 2, H361f</td>
<td>REPRODUCTIVE TOXICITY (Fertility) - Category 2</td>
</tr>
<tr>
<td>Skin Irrit. 2, H315</td>
<td>SKIN CORROSION/IRRITATION - Category 2</td>
</tr>
<tr>
<td>STOT RE 2, H373</td>
<td>SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2</td>
</tr>
<tr>
<td>STOT SE 3, H336</td>
<td>SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Narcotic effects) - Category 3</td>
</tr>
</tbody>
</table>

**Date of issue/Date of revision**: 17/10/2017

**Date of previous issue**: 29/01/2016.

**Version**: 2

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