

### SECTION 1: Identification

#### 1.1. Identification

Product form : Substance  
 Trade name : Primary Reference Fuel n-Heptane  
 CAS-No. : 142-82-5  
 Product code : HF3002  
 Formula : C7H16  
 Synonyms : Heptane (n-) / Heptane / Normal heptane / Heptane, n- / HEPTANE

#### 1.2. Recommended use and restrictions on use

Use of the substance/mixture : Fuel for engine development and testing

#### 1.3. Supplier

##### Manufacturer

Haltermann Solutions™  
 15600 West Hardy Rd.  
 Houston, TX, 77060  
 USA  
 T 1-800-969-2542 - F 281-457-1469

#### 1.4. Emergency telephone number

Emergency number : 24 HR CHEMTREC: 1-800-424-9300; Emergency Assistance: 1-800-969-2542 (8 AM to 5 PM CDT)

### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

##### GHS US classification

|  |      |  |
|--|------|--|
| Flammable liquids Category 2   | H225 | Highly flammable liquid and vapor                    |
| Skin corrosion/irritation Category 2                                   | H315 | Causes skin irritation                               |
| Specific target organ toxicity – Single exposure, Category 3, Narcosis | H336 | May cause drowsiness or dizziness                    |
| Aspiration hazard Category 1   | H304 | May be fatal if swallowed and enters airways         |
| Hazardous to the aquatic environment – Acute Hazard Category 1         | H400 | Very toxic to aquatic life                           |
| Hazardous to the aquatic environment – Chronic Hazard Category 1       | H410 | Very toxic to aquatic life with long lasting effects |

Full text of H statements : see section 16

#### 2.2. GHS Label elements, including precautionary statements

##### GHS US labeling

Hazard pictograms (GHS US) :



Signal word (GHS US) :

Danger

Hazard statements (GHS US) :

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  
 H400 - Very toxic to aquatic life  
 H410 - Very toxic to aquatic life with long lasting effects

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Precautionary statements (GHS US) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233 - Keep container tightly closed.  
P240 - Ground/Bond container and receiving equipment.  
P241 - Use explosion-proof electrical, lighting, ventilating equipment.  
P242 - Use only non-sparking tools.  
P243 - Take precautionary measures against static discharge.  
P261 - Avoid breathing dust, fume, gas, mist, spray, vapors.  
P264 - Wash hands thoroughly after handling.  
P271 - Use only outdoors or in a well-ventilated area.  
P273 - Avoid release to the environment.  
P280 - Wear eye protection, protective clothing, protective gloves.  
P301+P310 - If swallowed: Immediately call a doctor, a POISON CENTER.  
P302+P352 - If on skin: Wash with plenty of water.  
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.  
P312 - Call a doctor, a POISON CENTER if you feel unwell.  
P321 - Specific treatment (see a doctor on this label).  
P331 - Do NOT induce vomiting.  
P332+P313 - If skin irritation occurs: Get medical advice/attention.  
P362+P364 - Take off contaminated clothing and wash it before reuse.  
P370+P378 - In case of fire: Use alcohol resistant foam, carbon dioxide (CO<sub>2</sub>), dry extinguishing powder, Water spray to extinguish.  
P391 - Collect spillage.  
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.  
P403+P235 - Store in a well-ventilated place. Keep cool.  
P405 - Store locked up.  
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

### 2.3. Other hazards which do not result in classification

No additional information available

### 2.4. Unknown acute toxicity (GHS US)

No additional information available

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

| Name   | Product identifier | %   |
|--|--------------------|-----|
| Primary Reference Fuel n-Heptane<br>(Main constituent) | CAS-No.: 142-82-5  | 100 |

Full text of hazard classes and H-statements : see section 16

### 3.2. Mixtures

Not applicable

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### SECTION 4: First-aid measures

#### 4.1. Description of first aid measures

|                                       |   |
|---------------------------------------|---|
| First-aid measures general            | : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).   |
| First-aid measures after inhalation   | : Remove person to fresh air and keep comfortable for breathing. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.  |
| First-aid measures after skin contact | : Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Gently wash with plenty of soap and water, Get medical advice/attention. Get medical advice/attention. Specific treatment (see Consult a doctor/medical service on this label). Wash skin with plenty of water. |
| First-aid measures after eye contact  | : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists. Rinse eyes with water as a precaution.  |
| First-aid measures after ingestion    | : Rinse mouth. Do NOT induce vomiting. Immediately call a poison center or doctor/physician. Call a poison center/doctor/physician if you feel unwell.  |

#### 4.2. Most important symptoms and effects (acute and delayed)

|   |   |
|---|---|
| Potential Adverse human health effects and symptoms | : Based on available data, the classification criteria are not met. |
| Symptoms/effects after inhalation                   | : May cause drowsiness or dizziness.                                |
| Symptoms/effects after skin contact                 | : Causes skin irritation.   |

#### 4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

### SECTION 5: Fire-fighting measures

#### 5.1. Suitable (and unsuitable) extinguishing media

|                                |  |
|--------------------------------|--|
| Suitable extinguishing media   | : Sand. Water spray. Dry powder. Foam. Carbon dioxide. |
| Unsuitable extinguishing media | : Do not use a heavy water stream.                     |

#### 5.2. Specific hazards arising from the chemical

|  |   |
|--|---|
| Explosion hazard                                 | : May form flammable/explosive vapor-air mixture. |
| Hazardous decomposition products in case of fire | : Toxic fumes may be released.                    |

#### 5.3. Special protective equipment and precautions for fire-fighters

|                                |  |
|--------------------------------|--|
| Firefighting instructions      | : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.  |
| Protection during firefighting | : Do not enter fire area without proper protective equipment, including respiratory protection. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing. |

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

|                  |   |
|------------------|---|
| General measures | : Remove ignition sources. Use special care to avoid static electric charges. No open flames. No smoking. |
|------------------|---|

##### 6.1.1. For non-emergency personnel

|                      |  |
|----------------------|--|
| Emergency procedures | : Ventilate spillage area. Evacuate unnecessary personnel. |
|----------------------|--|

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### 6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. Avoid breathing dust, fume, gas, mist, spray, vapors. For further information refer to section 8: "Exposure controls/personal protection".
- Emergency procedures : Ventilate area.

### 6.2. Environmental precautions

Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

### 6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : Take up liquid spill into absorbent material. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.
- Other information : Dispose of materials or solid residues at an authorized site.

### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection. For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

- Additional hazards when processed : Handle empty containers with care because residual vapors are flammable.
- Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. No open flames. No smoking.
- Hygiene measures : Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

### 7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof electrical, lighting, Ventilation equipment.
- Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Heat sources, Ignition sources. Keep in fireproof place. Store in a well-ventilated place. Keep cool.
- Incompatible products : Strong bases. Strong acids.
- Incompatible materials : Sources of ignition. Direct sunlight. Heat sources.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

| Primary Reference Fuel n-Heptane (142-82-5) |                                |
|---|--------------------------------|
| USA - ACGIH - Occupational Exposure Limits  |                                |
| ACGIH OEL STEL [ppm]                        | 500 ppm (Heptane, all isomers) |
| USA - OSHA - Occupational Exposure Limits   |                                |
| Local name                                  | Heptane (n-Heptane)            |
| OSHA PEL (TWA) [1]                          | 2000 mg/m <sup>3</sup>         |
| OSHA PEL (TWA) [2]                          | 500 ppm                        |
| Regulatory reference (US-OSHA)              | OSHA Annotated Table Z-1       |

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#### USA - IDLH - Occupational Exposure Limits

|            |         |
|------------|---------|
| IDLH [ppm] | 750 ppm |
|------------|---------|

#### USA - NIOSH - Occupational Exposure Limits

|                 |                       |
|-----------------|-----------------------|
| NIOSH REL (TWA) | 350 mg/m <sup>3</sup> |
|-----------------|-----------------------|

|                     |        |
|---------------------|--------|
| NIOSH REL TWA [ppm] | 85 ppm |
|---------------------|--------|

|                     |                        |
|---------------------|------------------------|
| NIOSH REL (Ceiling) | 1800 mg/m <sup>3</sup> |
|---------------------|------------------------|

|                   |         |
|-------------------|---------|
| NIOSH REL C [ppm] | 440 ppm |
|-------------------|---------|

### 8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.  
Environmental exposure controls : Avoid release to the environment.

### 8.3. Individual protection measures/Personal protective equipment

#### Personal protective equipment:

Avoid all unnecessary exposure.

#### Hand protection:

Wear protective gloves.

#### Eye protection:

Chemical goggles or safety glasses. Safety glasses

#### Skin and body protection:

Wear suitable protective clothing

#### Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. [In case of inadequate ventilation] wear respiratory protection.

#### Personal protective equipment symbol(s):



#### Other information:

Do not eat, drink or smoke during use.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

|                |  |
|----------------|--|
| Physical state | : Liquid   |
| Appearance     | : Colorless liquid.                                |
| Color          | : Colorless  |
| Odor           | : gasoline-like                                    |
| Odor threshold | : 48,8 – 312,3 ppm<br>200 – 1280 mg/m <sup>3</sup> |
| pH             | : No data available                                |
| Melting point  | : -90,6 °C ; -131.1 °F                             |

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|   |                                      |
|---|--------------------------------------|
| Freezing point                                  | : No data available                  |
| Boiling point                                   | : 98,5 °C ; 209.3 °F                 |
| Flash point                                     | : -4 °C ; 24.8 °F closed cup         |
| Relative evaporation rate (butyl acetate=1)     | : No data available                  |
| Flammability (solid, gas)                       | : Non flammable.                     |
| Vapor pressure                                  | : 53 hPa (at 22.3 °C)                |
| Relative vapor density at 20°C                  | : 3,45                               |
| Relative density                                | : 0,68                               |
| Density   | : 0,688 g/cm <sup>3</sup> (at 15 °C) |
| Molecular mass                                  | : 100,2 g/mol                        |
| Solubility                                      | : Water: 3 µg/mL (at 20 °C)          |
| Partition coefficient n-octanol/water (Log Pow) | : 4,66                               |
| Auto-ignition temperature                       | : 285 °C ; 545.0 °F                  |
| Decomposition temperature                       | : No data available                  |
| Viscosity, kinematic                            | : No data available                  |
| Viscosity, dynamic                              | : No data available                  |
| Explosion limits                                | : 1,05 – 6,7 vol %                   |
| Explosive properties                            | : No data available                  |
| Oxidizing properties                            | : No data available                  |

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

### 10.2. Chemical stability

Highly flammable liquid and vapor. May form flammable/explosive vapor-air mixture.

### 10.3. Possibility of hazardous reactions

Not established.

### 10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Open flame.

### 10.5. Incompatible materials

Strong acids. Strong bases.

### 10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide. May release flammable gases.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

|                             |                  |
|-----------------------------|------------------|
| Acute toxicity (oral)       | : Not classified |
| Acute toxicity (dermal)     | : Not classified |
| Acute toxicity (inhalation) | : Not classified |

### Primary Reference Fuel n-Heptane (142-82-5)

|               |              |
|---------------|--------------|
| LD50 oral rat | > 5000 mg/kg |
|---------------|--------------|

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| Primary Reference Fuel n-Heptane (142-82-5) |                        |
|---|------------------------|
| LD50 dermal rabbit                          | 3000 mg/kg             |
| LC50 Inhalation - Rat                       | > 73,5 mg/l/4h         |
| ATE US (dermal)                             | 3000 mg/kg body weight |

|   |   |
|---|---|
| Skin corrosion/irritation                           | : Causes skin irritation.   |
| Serious eye damage/irritation                       | : Not classified  |
| Respiratory or skin sensitization                   | : Not classified  |
| Germ cell mutagenicity                              | : Not classified  |
| Carcinogenicity                                     | : Not classified  |
| Reproductive toxicity                               | : Not classified  |
| STOT-single exposure                                | : May cause drowsiness or dizziness.                                |
| STOT-repeated exposure                              | : Not classified  |
| Aspiration hazard                                   | : May be fatal if swallowed and enters airways.                     |
| Viscosity, kinematic                                | : No data available   |
| Potential Adverse human health effects and symptoms | : Based on available data, the classification criteria are not met. |
| Symptoms/effects after inhalation                   | : May cause drowsiness or dizziness.                                |
| Symptoms/effects after skin contact                 | : Causes skin irritation.   |

## SECTION 12: Ecological information

### 12.1. Toxicity

|                   |  |
|-------------------|--|
| Ecology - general | : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment. |
| Ecology - water   | : Very toxic to aquatic life with long lasting effects.  |

| Primary Reference Fuel n-Heptane (142-82-5) |  |
|---|--|
| LC50 - Fish [1]                             | 375 mg/l (Exposure time: 96 h - Species: Cichlid fish) |
| EC50 - Crustacea [1]                        | > 10 mg/l 24hr   |
| LC50 - Fish [2]                             | 0,1 mg/l Mysidopsis Bahia                              |

### 12.2. Persistence and degradability

| Primary Reference Fuel n-Heptane (142-82-5) |                  |
|---|------------------|
| Persistence and degradability               | Not established. |

### 12.3. Bioaccumulative potential

| Primary Reference Fuel n-Heptane (142-82-5)     |                  |
|---|------------------|
| Partition coefficient n-octanol/water (Log Pow) | 4,66             |
| Bioaccumulative potential                       | Not established. |

### 12.4. Mobility in soil

No additional information available

### 12.5. Other adverse effects

|                   |                                     |
|-------------------|-------------------------------------|
| Other information | : Avoid release to the environment. |
|-------------------|-------------------------------------|

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### SECTION 13: Disposal considerations

#### 13.1. Disposal methods

|  |   |
|--|---|
| Waste treatment methods                    | : Dispose of contents/container in accordance with licensed collector's sorting instructions.   |
| Product/Packaging disposal recommendations | : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation. |
| Additional information                     | : Handle empty containers with care because residual vapors are flammable.  |
| Ecology - waste materials                  | : Avoid release to the environment. Hazardous waste due to toxicity.  |

### SECTION 14: Transport information

In accordance with DOT / IMDG / IATA

#### 14.1. UN number

|               |          |
|---------------|----------|
| DOT NA No     | : UN1206 |
| UN-No. (IMDG) | : 1206   |
| UN-No. (IATA) | : 1206   |

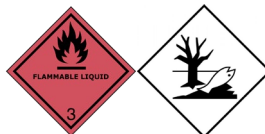
#### 14.2. UN proper shipping name

|                                       |   |
|---------------------------------------|---|
| Proper Shipping Name (DOT)            | : Heptanes  |
| Proper Shipping Name (IMDG)           | : HEPTANES  |
| Proper Shipping Name (IATA)           | : Heptanes  |
| Transport document description (DOT)  | : UN1206 Heptanes, 3, II  |
| Transport document description (IMDG) | : UN 1206 HEPTANES, 3, II, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS |
| Transport document description (IATA) | : UN 1206 Heptanes, 3, II, ENVIRONMENTALLY HAZARDOUS                  |

#### 14.3. Transport hazard class(es)

##### DOT

|                                  |     |
|----------------------------------|-----|
| Transport hazard class(es) (DOT) | : 3 |
| Hazard labels (DOT)              | : 3 |



##### IMDG

|                                   |     |
|-----------------------------------|-----|
| Transport hazard class(es) (IMDG) | : 3 |
| Hazard labels (IMDG)              | : 3 |



##### IATA

|                                   |     |
|-----------------------------------|-----|
| Transport hazard class(es) (IATA) | : 3 |
| Hazard labels (IATA)              | : 3 |



#### 14.4. Packing group

|                     |      |
|---------------------|------|
| Packing group (DOT) | : II |
|---------------------|------|



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Packing group (IMDG) : II  
Packing group (IATA) : II

### 14.5. Environmental hazards

Dangerous for the environment : Yes  
Marine pollutant : Yes



Other information : No supplementary information available.

### 14.6. Special precautions for user

#### DOT

UN-No.(DOT) : UN1206  
DOT Special Provisions (49 CFR 172.102) : IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.  
T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3)  
TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.  
DOT Packaging Exceptions (49 CFR 173.xxx) : 150  
DOT Packaging Non Bulk (49 CFR 173.xxx) : 202  
DOT Packaging Bulk (49 CFR 173.xxx) : 242  
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 5 L  
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 60 L  
DOT Vessel Stowage Location : B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

#### IMDG

Limited quantities (IMDG) : 1 L  
Excepted quantities (IMDG) : E2  
Packing instructions (IMDG) : P001  
IBC packing instructions (IMDG) : IBC02  
Tank instructions (IMDG) : T4  
Tank special provisions (IMDG) : TP2  
EmS-No. (Fire) : F-E - FIRE SCHEDULE Echo - NON-WATER-REACTIVE FLAMMABLE LIQUIDS  
EmS-No. (Spillage) : S-D - SPILLAGE SCHEDULE Delta - FLAMMABLE LIQUIDS  
Stowage category (IMDG) : B  
Properties and observations (IMDG) : Colourless, volatile liquids. Explosive limits: 1.1% to 6.7% n-HEPTANE: flashpoint -4°C c.c. Immiscible with water. Irritating to skin, eyes and mucous membranes.

#### IATA

PCA Excepted quantities (IATA) : E2  
PCA Limited quantities (IATA) : Y341  
PCA limited quantity max net quantity (IATA) : 1L

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|                                 |       |
|---------------------------------|-------|
| PCA packing instructions (IATA) | : 353 |
| PCA max net quantity (IATA)     | : 5L  |
| CAO packing instructions (IATA) | : 364 |
| CAO max net quantity (IATA)     | : 60L |
| ERG code (IATA)                 | : 3H  |

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

Not applicable

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

This product or mixture is not known to contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

### 15.2. International regulations

#### CANADA

##### Primary Reference Fuel n-Heptane (142-82-5)

Listed on the Canadian DSL (Domestic Substances List)

#### EU-Regulations

##### Primary Reference Fuel n-Heptane (142-82-5)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

#### National regulations

##### Primary Reference Fuel n-Heptane (142-82-5)

Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the Japanese ENCS (Existing New Chemical Substances) inventory  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemical Inventory)

### 15.3. US State regulations

##### Primary Reference Fuel n-Heptane (142-82-5)

|                            |   |
|----------------------------|---|
| State or local regulations | U.S. - New Jersey - Right to Know Hazardous Substance List<br>U.S. - Pennsylvania - RTK (Right to Know) List<br>U.S. - Massachusetts - Right To Know List<br>U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)<br>U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations |
|----------------------------|---|

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California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

### SECTION 16: Other information

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Revision date : 16.08.2023

Other information : None.

| Full text of H-phrases |  |
|------------------------|--|
| 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                    |
| H400                   | Very toxic to aquatic life                           |
| H410                   | Very toxic to aquatic life with long lasting effects |

| Abbreviations and acronyms |   |
|----------------------------|---|
| ADN                        | European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways |
| ADR                        | European Agreement concerning the International Carriage of Dangerous Goods by Road             |
| ATE                        | Acute Toxicity Estimate   |
| BCF                        | Bioconcentration factor   |
| BLV                        | Biological limit value  |
| BOD                        | Biochemical oxygen demand (BOD)   |
| COD                        | Chemical oxygen demand (COD)  |
| DMEL                       | Derived Minimal Effect level  |
| DNEL                       | Derived-No Effect Level   |
| EC-No.                     | European Community number   |
| EC50                       | Median effective concentration  |
| EN                         | European Standard   |
| IARC                       | International Agency for Research on Cancer   |
| IATA                       | International Air Transport Association   |
| IMDG                       | International Maritime Dangerous Goods  |
| LC50                       | Median lethal concentration   |
| LD50                       | Median lethal dose  |
| LOAEL                      | Lowest Observed Adverse Effect Level  |
| NOAEC                      | No-Observed Adverse Effect Concentration  |
| NOAEL                      | No-Observed Adverse Effect Level  |
| NOEC                       | No-Observed Effect Concentration  |
| OECD                       | Organisation for Economic Co-operation and Development  |

# Primary Reference Fuel n-Heptane

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

| Abbreviations and acronyms |  |
|----------------------------|--|
| OEL                        | Occupational Exposure Limit  |
| PBT                        | Persistent Bioaccumulative Toxic   |
| PNEC                       | Predicted No-Effect Concentration  |
| RID                        | Regulations concerning the International Carriage of Dangerous Goods by Rail |
| SDS                        | Safety Data Sheet  |
| STP                        | Sewage treatment plant   |
| ThOD                       | Theoretical oxygen demand (ThOD)   |
| TLM                        | Median Tolerance Limit   |
| VOC                        | Volatile Organic Compounds   |
| CAS-No.                    | Chemical Abstract Service number   |
| N.O.S.                     | Not Otherwise Specified  |
| vPvB                       | Very Persistent and Very Bioaccumulative                                     |
| ED                         | Endocrine disrupting properties  |

Safety Data Sheet (SDS), USA