

# Material Safety Data Sheet



## Super Diesel Additive

### 1. Product and company identification

|                              |  |
|------------------------------|--|
| <b>Product name</b>          | : Super Diesel Additive  |
| <b>Material uses</b>         | : Additives to lubricating agents.   |
| <b>Code</b>                  | : 2002   |
| <b>Supplier/Manufacturer</b> | : LIQUI MOLY GmbH<br>Jerg-Wieland-Strasse 4<br>D-89081 Ulm-Lehr, Germany<br>Tel.: +49(0)731 / 1420-0<br>Fax: +49(0)731 / 1420-88 |
| <b>Validation date</b>       | : 06/09/2010.  |
| <b>Prepared by</b>           | : Chemical Check GmbH  |
| <b>In case of emergency</b>  | : INFOTRAC: 1-800-535-5053   |

### 2. Hazards identification

|   |   |
|---|---|
| <b>Physical state</b>                   | : Liquid.   |
| <b>Color</b>                            | : Brown. [Light]  |
| <b>Odor</b>                             | : Characteristic.   |
| <b>Emergency overview</b>               |   |
| <b>Signal word</b>                      | : WARNING!  |
| <b>Hazard statements</b>                | : COMBUSTIBLE LIQUID AND VAPOR. HARMFUL IF INHALED. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION. HARMFUL OR FATAL IF SWALLOWED. CAN ENTER LUNGS AND CAUSE DAMAGE. MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.                          |
| <b>Precautions</b>                      | : Keep away from heat, sparks and flame. Do not breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling. |
| <b>OSHA/HCS status</b>                  | : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).   |
| <b>Routes of entry</b>                  | : Dermal contact. Eye contact. Inhalation. Ingestion.   |
| <b>Potential acute health effects</b>   |   |
| <b>Inhalation</b>                       | : Toxic by inhalation. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.   |
| <b>Ingestion</b>                        | : Aspiration hazard if swallowed. Can enter lungs and cause damage.   |
| <b>Skin</b>                             | : May cause skin dryness and irritation.  |
| <b>Eyes</b>                             | : May cause eye irritation.   |
| <b>Potential chronic health effects</b> |   |
| <b>Chronic effects</b>                  | : May cause target organ damage, based on animal data. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.   |
| <b>Carcinogenicity</b>                  | : No known significant effects or critical hazards.   |
| <b>Mutagenicity</b>                     | : No known significant effects or critical hazards.   |
| <b>Teratogenicity</b>                   | : No known significant effects or critical hazards.   |
| <b>Developmental effects</b>            | : No known significant effects or critical hazards.   |
| <b>Fertility effects</b>                | : No known significant effects or critical hazards.   |
| <b>Target organs</b>                    | : May cause damage to the following organs: blood, kidneys, lungs, liver, upper respiratory tract, skin, eyes, central nervous system (CNS).  |

## 2. Hazards identification

### Over-exposure signs/symptoms

- Inhalation** : No specific data.
- Ingestion** : Adverse symptoms may include the following:  
nausea or vomiting
- Skin** : Adverse symptoms may include the following:  
irritation  
dryness  
cracking
- Eyes** : No specific data.
- Other adverse symptoms** : Adverse symptoms may include the following:  
Ingestion:  
pulmonary edema
- Medical conditions aggravated by over-exposure** : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

## 3. Composition/information on ingredients

| Name   | CAS number | %      |
|--|------------|--------|
| Naphtha (petroleum), hydrodesulfurized heavy | 64742-82-1 | 60-100 |
| 2-ethylhexyl nitrate                         | 27247-96-7 | 10-30  |
| Fatty acids, tall-oil                        | 61790-12-3 | 1-5    |

**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 and hence require reporting in this section.**

## 4. First aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

## 5. Fire-fighting measures

- Flammability of the product** : Combustible liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back.
- Extinguishing media**
- Suitable** : In case of fire, use water spray (fog), foam, dry chemical or CO<sub>2</sub>. Cool closed containers exposed to fire with water.
- Not suitable** : Do not use water jet.
- Special exposure hazards** : 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. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
nitrogen oxides  
Hydrocarbons  
Toxic pyrolysis products
- 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.
- Special remarks on fire hazards** : In use, may form flammable/explosive vapor-air mixture.

## 6. Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.
- Methods for cleaning up**
- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

## 7. Handling and storage

- Handling**
- Put on appropriate personal protective equipment (see section 8). 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. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. 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 non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage**
- 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. 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 unlabeled containers. Use appropriate containment to avoid environmental contamination.

## 8. Exposure controls/personal protection

| Ingredient                                   | Exposure limits  |
|--|--|
| Naphtha (petroleum), hydrodesulfurized heavy | <b>ACGIH TLV (United States, 1/2009).</b><br>TWA: 5 mg/m <sup>3</sup> 8 hour(s). Form: Mist<br>STEL: 10 mg/m <sup>3</sup> 15 minute(s). Form: Mist |
| Fatty acids, tall-oil                        | <b>OSHA PEL (United States).</b><br>TWA: 15 mg/m <sup>3</sup> , (Total dust) 8 hour(s). Form: Mist   |

- 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.
- Engineering measures**
- 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, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- 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.
- Personal protection**
- Respiratory**
- Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: organic vapor filter (Type A)
- Hands**
- 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.
- Recommended: Chemical-resistant gloves should conform to AS/NZS 2161.1.  
If applicable : Nitrile gloves. Viton Gloves. Protective hand cream.

## 8. Exposure controls/personal protection

- Eyes** : 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 or dusts. Recommended: Tight fitting protective goggles with side shields.
- Skin** : 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.  
Recommended: Safety shoes. Long-sleeved protective clothing.
- 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.

## 9. Physical and chemical properties

- Physical state** : Liquid.
- Flash point** : 63°C (145.4°F)
- Flammable limits** : Lower: 0.6%\*  
Upper: 7%\*
- Color** : Brown. [Light]
- Odor** : Characteristic.
- Boiling/condensation point** : 145°C (293°F)
- Density** : 0.841 g/cm<sup>3</sup> [15°C (59°F)]
- Viscosity** : Kinematic (40°C (104°F)): <0.07 cm<sup>2</sup>/s (<7 cSt)
- Solubility** : Insoluble in the following materials: cold water.
- LogK<sub>ow</sub>** : 4.2 to 7.2\*
- Physical/chemical properties comments** : Partition Coefficient (LogKow): 3.7 to 5.2\*\*  
\*Naphtha (petroleum), hydrodesulfurized heavy  
\*\*2-ethylhexyl nitrate

## 10. Stability and reactivity

- Chemical stability** : The product is stable.
- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
- Incompatible materials** : Reactive or incompatible with the following materials:  
oxidizing materials
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.  
  
Under normal conditions of storage and use, hazardous polymerization will not occur.

## 11. Toxicological information

### Acute toxicity

| Product/ingredient name | Result | Species | Dose | Exposure |
|-------------------------|--------|---------|------|----------|
|                         |        |         |      |          |

## 11. Toxicological information

|  |                                 |        |              |         |
|--|---------------------------------|--------|--------------|---------|
| Naphtha (petroleum), hydrodesulfurized heavy | LC50 Inhalation Vapor           | Rat    | >3 mg/l      | 4 hours |
| 2-ethylhexyl nitrate                         | LD50 Dermal                     | Rat    | >3000 mg/kg  | -       |
|  | LD50 Oral                       | Rat    | >5000 mg/kg  | -       |
|  | LC50 Inhalation Dusts and mists | Rat    | 4.6 mg/L     | 1 hours |
|  | LD50 Dermal                     | Rabbit | >4820 mg/kg  | -       |
| Fatty acids, tall-oil                        | LD50 Dermal                     | Rat    | >9640 mg/kg  | -       |
|  | LD50 Oral                       | Rabbit | >2000 mg/kg  | -       |
|  | LD50 Oral                       | Rat    | >10000 mg/kg | -       |

**Conclusion/Summary** : Not available.

**Chronic toxicity**

Not available.

**Conclusion/Summary** : Not available.

**Irritation/Corrosion**

Not available.

**Sensitizer**

Not available.

**Conclusion/Summary** : Not available.

**Carcinogenicity**

**Classification**

Not available.

**Mutagenicity**

Not available.

**Teratogenicity**

Not available.

**Reproductive toxicity**

Not available.

## 12. Ecological information

**Ecotoxicity** : This product shows a high bioaccumulation potential. Water polluting material. May be harmful to the environment if released in large quantities. This material is harmful to aquatic life with long lasting effects.

**Aquatic ecotoxicity**

| Product/ingredient name                      | Result                    | Species | Exposure |
|--|---------------------------|---------|----------|
| Naphtha (petroleum), hydrodesulfurized heavy | Acute EC50 >100 mg/l      | Daphnia | 48 hours |
|  | Acute IC50 10 to 100 mg/l | Algae   | 72 hours |
|  | Acute LC50 10 to 100 mg/l | Fish    | 96 hours |
| 2-ethylhexyl nitrate                         | Acute EC50 >12.6 mg/l     | Algae   | 72 hours |
|  | Acute EC50 >12.6 mg/l     | Daphnia | 48 hours |
|  | Acute LC50 >12.6 mg/l     | Fish    | 96 hours |
| Fatty acids, tall-oil                        | Acute EC50 >1000 mg/l     | Daphnia | 48 hours |
|  | Acute IC50 >1000 mg/l     | Algae   | 72 hours |
|  | Acute LC50 >1000 mg/l     | Fish    | 96 hours |

**Persistence/degradability**

## 12. Ecological information

| Product/ingredient name                      | Test   | Result              | Dose | Inoculum |
|--|--|---------------------|------|----------|
| Naphtha (petroleum), hydrodesulfurized heavy | -  | 43 to 60 % - 5 days | -    | -        |
| Fatty acids, tall-oil                        | OECD 301F 301F Ready Biodegradability - Manometric Respirometry Test | 70 % - 28 days      | -    | -        |

**Octanol/water partition coefficient** : 4.2 to 7.2\*

**Bioconcentration factor** : Not available.

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


## 13. Disposal considerations

**Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## 14. Transport information

| Regulatory information    | UN number      | Proper shipping name   | Classes             | PG* | Label   | Additional information  |
|---------------------------|----------------|--|---------------------|-----|---|---|
| <b>DOT Classification</b> | NA1993         | Combustible liquid, n.o.s. (Naphtha (petroleum), hydrodesulfurized heavy). Marine pollutant (2-ethylhexyl nitrate) | Combustible liquid. | III |  | Marine pollutant<br><b>Limited quantity</b><br>Yes.<br><b>Packaging instruction</b><br><b>Passenger aircraft</b><br>Quantity limitation: 60 to 60 L<br><b>Cargo aircraft</b><br>Quantity limitation: 220 to 220 L<br><b>Special provisions</b><br>IB3,T1, T4, TP1 |
| <b>IMDG Class</b>         | Not regulated. |  |                     |     |   |   |
| <b>IATA-DGR Class</b>     | Not regulated. |  |                     |     |   |   |

PG\* : Packing group

## 15. Regulatory information

|   |  |
|---|--|
| <b>HCS Classification</b>   | : Combustible liquid<br>Toxic material<br>Irritating material<br>Target organ effects  |
| <b>U.S. Federal regulations</b>                                     | : <b>TSCA 8(a) IUR</b> : Naphtha (petroleum), hydrodesulfurized heavy; Distillates (petroleum), hydrotreated light<br><b>United States inventory (TSCA 8b)</b> : All components are listed or exempted.<br><b>SARA 302/304/311/312 extremely hazardous substances</b> : No products were found.<br><b>SARA 302/304 emergency planning and notification</b> : No products were found.<br><b>SARA 302/304/311/312 hazardous chemicals</b> : Naphtha (petroleum), hydrodesulfurized heavy; Distillates (petroleum), hydrotreated light<br><b>SARA 311/312 MSDS distribution - chemical inventory - hazard identification</b> : Naphtha (petroleum), hydrodesulfurized heavy: Immediate (acute) health hazard; Distillates (petroleum), hydrotreated light: Immediate (acute) health hazard, Delayed (chronic) health hazard<br><br><b>Clean Water Act (CWA) 307</b> : No products were found.<br><b>Clean Water Act (CWA) 311</b> : No products were found.<br><b>Clean Air Act (CAA) 112 accidental release prevention</b> : No products were found.<br><b>Clean Air Act (CAA) 112 regulated flammable substances</b> : No products were found.<br><b>Clean Air Act (CAA) 112 regulated toxic substances</b> : No products were found. |
| <b>Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)</b> | : Not listed   |
| <b>Clean Air Act Section 602 Class I Substances</b>                 | : Not listed   |
| <b>Clean Air Act Section 602 Class II Substances</b>                | : Not listed   |
| <b>DEA List I Chemicals (Precursor Chemicals)</b>                   | : Not listed   |
| <b>DEA List II Chemicals (Essential Chemicals)</b>                  | : Not listed   |
| <b>State regulations</b>  |  |
| <b>Massachusetts</b>  | : None of the components are listed.   |
| <b>New York</b>   | : None of the components are listed.   |
| <b>New Jersey</b>   | : None of the components are listed.   |
| <b>Pennsylvania</b>   | : None of the components are listed.   |
| <b>California Prop. 65</b>  | : No listed substance  |
| <b>Canada inventory</b>   | : All components are listed or exempted.   |
| <b>International regulations</b>                                    |  |
| <b>International lists</b>  | : <b>Australia inventory (AICS)</b> : All components are listed or exempted.<br><b>China inventory (IECSC)</b> : All components are listed or exempted.<br><b>Japan inventory</b> : Not determined.<br><b>Korea inventory</b> : All components are listed or exempted.<br><b>New Zealand Inventory of Chemicals (NZIoC)</b> : All components are listed or exempted.<br><b>Philippines inventory (PICCS)</b> : All components are listed or exempted.  |
| <b>Chemical Weapons Convention List Schedule I Chemicals</b>        | : Not listed   |

## 15. Regulatory information

**Chemical Weapons Convention List Schedule II Chemicals** : Not listed

**Chemical Weapons Convention List Schedule III Chemicals** : Not listed

## 16. Other information

**Label requirements** : COMBUSTIBLE LIQUID AND VAPOR. HARMFUL IF INHALED. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION. HARMFUL OR FATAL IF SWALLOWED. CAN ENTER LUNGS AND CAUSE DAMAGE. MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

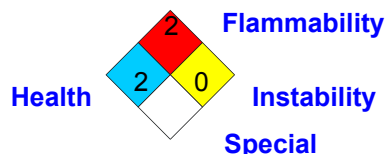
**Hazardous Material Information System (U.S.A.)** :

|                  |   |   |
|------------------|---|---|
| Health           | * | 2 |
| Flammability     |   | 2 |
| Physical hazards |   | 0 |
|                  |   |   |

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

**National Fire Protection Association (U.S.A.)** :



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

**Date of issue** : 06/09/2010.

**Date of previous issue** : No previous validation

**Version** : 1

Indicates information that has changed from previously issued version.

[Notice to reader](#)

## **16. Other information**

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.