1 Identification

- **Product identifier**
- **Product name:** N-Nitroso-diphenylamine
- **Part number:** DRE-C15604500
- **CAS Number:** 86-30-6
- **EC number:** 201-663-0
- **Application of the substance / the mixture** Reference material for laboratory use only
- **Details of the supplier of the safety data sheet**
  - **Manufacturer/Supplier:**
    - VHG Labs, Inc
    - LGC Standards
    - 276 Abby Road
    - Manchester, NH 03103
    - UNITED STATES OF AMERICA
    - Fax: +1 (603) 622-5180
    - eMail: custsvc@vhglabs.com
    - Web: www.vhglabs.com
- **Information department:**
  - Product safety department
  - eMail: sds-request@lgcgroup.com
- **Emergency telephone number:**
  - INFOTRAC 24-hour Emergency telephone number:
    - 800-535-5053 (US & Canada);
    - 352-323-3500 (International)

2 Hazard(s) identification

- **Classification of the substance or mixture**
  - **GHS08 Health hazard**
    - Carc. 2 H351 Suspected of causing cancer.
    - STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.
  - **GHS09 Environment**
    - Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.
  - **GHS07**
    - Acute Tox. 4 H302 Harmful if swallowed.
    - Aquatic Acute 2 H401 Toxic to aquatic life.

(Contd. on page 2)
Product name: N-Nitroso-diphenylamine

- Label elements
- GHS label elements
  The substance is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms

[Images of hazard pictograms]

- Signal word Warning
- Hazard statements
  H302 Harmful if swallowed.
  H351 Suspected of causing cancer.
  H373 May cause damage to organs through prolonged or repeated exposure.
  H401 Toxic to aquatic life.
  H411 Toxic to aquatic life with long lasting effects.
- Precautionary statements
  P260 Do not breathe dust/fume/gas/mist/vapors/spray.
  P273 Avoid release to the environment.
  P280 Wear protective gloves/protective clothing/eye protection/face protection.
  P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
  P405 Store locked up.
  P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- Classification system:
- NFPA ratings (scale 0 - 4)
  ![NFPA ratings]
  Health = 2
  Fire = 0
  Reactivity = 0

- HMIS-ratings (scale 0 - 4)
  ![HMIS-ratings]
  Health = 2
  Fire = 0
  Reactivity = 0

- Other hazards
- Results of PBT and vPvB assessment
  PBT: Not applicable.
  vPvB: Not applicable.

(Contd. of page 3)
Product name: N-Nitroso-diphenylamine

3 Composition/information on ingredients
- Chemical characterization: Substances
  - CAS No. Description
  86-30-6 N-Nitrosodiphenylamine
- Identification number(s)
  - EC number: 201-663-0
  - RTECS: JJ9800000

4 First-aid measures
- Description of first aid measures
  - General information:
    Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
  - After inhalation: Supply fresh air; consult doctor in case of complaints.
  - After skin contact: Immediately wash with water and soap and rinse thoroughly.
  - After eye contact: Rinse opened eye for several minutes under running water.
  - After swallowing:
    Rinse mouth. Do not induce vomiting.
    Seek medical treatment.
- Information for doctor:
  - Most important symptoms and effects, both acute and delayed No further relevant information available.
  - Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures
- Extinguishing media
  - Suitable extinguishing agents: Use fire fighting measures that suit the environment.
  - Special hazards arising from the substance or mixture
    During heating or in case of fire poisonous gases are produced.
- Advice for firefighters
- Protective equipment:
  - Mouth respiratory protective device.
  - Wear self-contained respiratory protective device.

6 Accidental release measures
- Personal precautions, protective equipment and emergency procedures Mount respiratory protective device.
- Environmental precautions:
  - Inform respective authorities in case of seepage into water course or sewage system.
    Do not allow to enter sewers/surface or ground water.
  - Methods and material for containment and cleaning up:
    Dispose contaminated material as waste according to item 13.
7 Handling and storage

· Handling:
  · Precautions for safe handling
  Ensure good ventilation/exhaustion at the workplace.
  Store in cool, dry place in tightly closed receptacles.
  Open and handle receptacle with care.
  · Information about protection against explosions and fires: Keep respiratory protective device available.

· Conditions for safe storage, including any incompatibilities

· Storage:
  · Requirements to be met by storerooms and receptacles:
    Please refer to the manufacturers certificate for specific storage and transport temperature conditions.
    Store only in the original receptacle.
    Keep container in a well-ventilated place. Keep away from sources of ignition and heat.
  · Information about storage in one common storage facility: Store away from foodstuffs.
  · Further information about storage conditions: Keep receptacle tightly sealed.

· Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

· Additional information about design of technical systems: No further data; see item 7.

· Control parameters

· Components with limit values that require monitoring at the workplace: Not required.

· Additional information: The lists that were valid during the creation were used as basis.

· Exposure controls

· Personal protective equipment:
  · General protective and hygienic measures:
    Keep away from foodstuffs, beverages and feed.
    Wash hands before breaks and at the end of work.
    Store protective clothing separately.
  · Breathing equipment:
    In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
Product name: N-Nitroso-diphenylamine

- **Protection of hands:**
  The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
  Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
  The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374
  Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

  ![Protective gloves]

  - **Material of gloves** Nitrile rubber, NBR
  - **Penetration time of glove material**
    The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**
  Tightly sealed goggles

### 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
  - **General Information**
  - **Appearance:**
    - Form: Crystalline
    - Color: Light green
    - Odor: Odorless
    - Odor threshold: Not determined.
    - **pH-value:** Not applicable.
  - **Change in condition**
    - Melting point/Melting range: 65-66 °C (149-151 °F)
    - Boiling point/Boiling range: Not determined.
  - **Flash point:** Not applicable.
  - **Flammability (solid, gaseous):** Not determined.
  - **Ignition temperature:** Not determined
  - **Decomposition temperature:** Not determined.
  - **Auto igniting:** Not determined.
**Product name: N-Nitroso-diphenylamine**

(Contd. of page 5)

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danger of explosion</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Explosion limits</td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Upper</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Density at 20 °C (68 °F)</td>
<td>0.56 g/cm³ (4.673 lbs/gal)</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td></td>
</tr>
<tr>
<td>Solubility in / Miscibility with</td>
<td>Methanol, Acetone, Carbon disulfide</td>
</tr>
<tr>
<td>Water at 25 °C (77 °F):</td>
<td>0.035 g/l</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water):</td>
<td>3.13</td>
</tr>
<tr>
<td>Viscosity:</td>
<td></td>
</tr>
<tr>
<td>Dynamic</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Kinematic</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Other information</td>
<td>No further relevant information available.</td>
</tr>
</tbody>
</table>

**10 Stability and reactivity**

- **Reactivity**: Stable under normal conditions.
- **Chemical stability**: Stable under normal conditions.
- **Thermal decomposition / conditions to be avoided**: Formation of toxic gases is possible during heating or in case of fire.
- **Possibility of hazardous reactions**: No dangerous reactions known.
- **Conditions to avoid**: Heat.
- **Incompatible materials**: Strong oxidizing agents.
- **Hazardous decomposition products**: Formation of toxic gases is possible during heating or in case of fire.

**11 Toxicological information**

- **Information on toxicological effects**
- **Acute toxicity**: 
  - **LD/LC50 values that are relevant for classification**:
    - Oral LD50: 1825 mg/kg (rat)
    - Dermal LD50: >7940 mg/kg (rabbit)
    - LD 50 (Intraperitoneal): 1000 mg/kg (mouse)
  - **Primary irritant effect**:
    - on the skin: Based on available data, the classification criteria are not met.
    - on the eye: Based on available data, the classification criteria are not met.
    - Sensitization: Based on available data, the classification criteria are not met.
12 Ecological information

- Toxicity
  - Aquatic toxicity:
    - LC50/48: 7.8 mg/l (daphnia)
    - LC50/96 h: 5.8 mg/l (fish)
- Persistence and degradability: No further relevant information available.
- Behavior in environmental systems:
- Bioaccumulative potential: No further relevant information available.
- Mobility in soil: No further relevant information available.
- Ecotoxic effects:
- Remark: Toxic for fish
- Additional ecological information:
- General notes:
  - Water hazard class 3 (Self-assessment): extremely hazardous for water
  - Do not allow product to reach ground water, water course or sewage system, even in small quantities.
  - Danger to drinking water if even extremely small quantities leak into the ground.
  - Also poisonous for fish and plankton in water bodies.
  - Toxic for aquatic organisms
- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.
- Other adverse effects: No further relevant information available.

13 Disposal considerations

- Waste treatment methods
- Recommendation:
  - Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- Uncleaned packagings:
- Recommendation: Dispose in accordance with national regulations.
### 14 Transport information

- **UN-Number**
  - DOT, ADR, IMDG, IATA: UN3077

- **DOT**
  - Environmentally hazardous substances, solid, n.o.s. (N-Nitrosodiphenylamine)

- **ADR**
  - UN3077 Environmentally hazardous substances, solid, n.o.s. (N-Nitrosodiphenylamine)

- **IMDG**
  - ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (N-Nitrosodiphenylamine)

- **IATA**
  - ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (N-Nitrosodiphenylamine)

- **Transport hazard class(es)**
  - DOT, ADR, IMDG, IATA

- **Class**
  - 9 Miscellaneous dangerous substances and articles

- **Label**
  - 9

- **Packing group**
  - DOT, ADR, IMDG, IATA
  - III

- **Environmental hazards:**
  - Yes (P)

- **Marine pollutant:**
  - Symbol (fish and tree)

- **Special marking (ADR):**
  - Symbol (fish and tree)

- **Special marking (IATA):**
  - Symbol (fish and tree)

- **Special precautions for user**
  - Warning: Miscellaneous dangerous substances and articles

- **Danger code (Kemler):**
  - 90

- **EMS Number:**
  - F-A,S-F

- **Stowage Category**
  - A

- **Stowage Code**
  - SW23 When transported in BK3 bulk container, see 7.6.2.12 and 7.7.3.9.

- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**
  - Not applicable.

- **Transport/Additional information:**
  - DOT
  - Remarks: Special marking with the symbol (fish and tree).
Safety Data Sheet
acc. to OSHA HCS

Product name: N-Nitroso-diphenylamine

(Contd. of page 8)

- ADR
- Excepted quantities (EQ)
  Code: E1
  Maximum net quantity per inner packaging: 30 g
  Maximum net quantity per outer packaging: 1000 g
- UN "Model Regulation":
  UN3077, Environmentally hazardous substances, solid, n.o.s.
  (N-Nitrosodiphenylamine), 9, III

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - Sara
  - Section 355 (extremely hazardous substances): Substance is not listed.
  - Section 313 (Specific toxic chemical listings): Substance is listed.
  - TSCA (Toxic Substances Control Act): Substance is listed.
  - Proposition 65
    - Chemicals known to cause cancer: Substance is not listed.
    - Chemicals known to cause reproductive toxicity for females: Substance is not listed.
    - Chemicals known to cause reproductive toxicity for males: Substance is not listed.
    - Chemicals known to cause developmental toxicity: Substance is not listed.
  - Carcinogenic categories
    - EPA (Environmental Protection Agency) B2
  - TLV (Threshold Limit Value established by ACGIH) Substance is not listed.
  - NIOSH-Ca (National Institute for Occupational Safety and Health) Substance is not listed.
  - GHS label elements
    The substance is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms

  GHS07  GHS08  GHS09

- Signal word Warning
- Hazard statements
  H302 Harmful if swallowed.
  H351 Suspected of causing cancer.
  H373 May cause damage to organs through prolonged or repeated exposure.
  H401 Toxic to aquatic life.
  H411 Toxic to aquatic life with long lasting effects.
- Precautionary statements
  P260 Do not breathe dust/fume/gas/mist/vapors/spray.
  P273 Avoid release to the environment.
  P280 Wear protective gloves/protective clothing/eye protection/face protection.
  P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
Product name: N-Nitroso-diphenylamine

P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

The information in this Safety Data Sheet meets the requirements of the United States OCCUPATIONAL SAFETY AND HEALTH ACT and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.) This document is intended only as a guide to the appropriate precautionary handling of the material by a person trained in, or supervised by a person trained in, chemical handling. The user is responsible for determining the application. Depending on usage, protective clothing including eye and face guards and respirators must be used to avoid contact with material or breathing chemical vapors/fumes. Exposure to this product may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, we cannot warn of all of the potential dangers of use or interaction with other chemicals or materials. We warrant that the chemical meets the specifications set forth on the label. We (LGC/VHG/ARMI) disclaim any other warranties, expressed or implied with regard to the product supplied hereunder, its merchantability or its fitness for a particular purpose. The user should recognize that this product can cause severe injury and even death, especially if improperly handled or the known dangers of use are not heeded. Read all precautionary information.

Date of preparation / last revision 11/07/2017 /

Abbreviations and acronyms:
- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation
- IATA: International Air Transport Association
- P: Marine Pollutant
- ACGIH: American Conference of Governmental Industrial Hygienists
- EINECS: European Inventory of Existing Commercial Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- NFPA: National Fire Protection Association (USA)
- HMIS: Hazardous Materials Identification System (USA)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety
- OSHA: Occupational Safety & Health
- TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit
- REL: Recommended Exposure Limit
- Acute Tox. 4: Acute toxicity – Category 4
- Carc. 2: Carcinogenicity – Category 2
- STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
- Aquatic Acute 2: Hazardous to the aquatic environment - acute aquatic hazard – Category 2
- Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2
- Sources

Data compared to the previous version altered. All sections have been updated.