SECTION 1: Identification

1.1. Identification

Product name: NEODYMIUM NEODECANOATE, 60% in heptane
Product code: CXND060
Product form: Mixture
Physical state: Liquid
Formula: C30H57NdO6
Synonyms: NEODECANOIC ACID, NEODYMIUM SALT
Chemical family: RARE EARTH COMPOUND

1.2. Recommended use and restrictions on use

Recommended use: Chemical intermediate

1.3. Supplier

GELEST, INC.
11 East Steel Road
Morrisville, PA 19067
USA
T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST
info@gelest.com - www.gelest.com

1.4. Emergency telephone number

Emergency number: CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

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: H336 May cause drowsiness or dizziness
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
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

Precautionary statements (GHS US): P210 - Keep away from heat, open flames, sparks. - No smoking.
P233 - Keep container tightly closed.
P240 - Ground/Bond container and receiving equipment
P241 - Use explosion-proof electrical equipment
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P261 - Avoid breathing 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 protective gloves/protective clothing/eye protection/face protection.
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 POISON CENTER if you feel unwell
P321 - Specific treatment (see first aid instructions on this label)
NEODYMIUM NEODECANOATE, 60% in heptane
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P332+P313 - If skin irritation occurs: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash before reuse.
P370+P378 - In case of fire: Use water spray, foam, carbon dioxide, dry chemical to extinguish.
P391 - Collect spillage.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P403+P235 - Keep in a cool place.
P405 - Store locked up.
P501 - Dispose of contents/container to licensed waste disposal facility.

2.3. Hazards not otherwise classified (HNOC)
No additional information available

2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neodymium neodecanoate</td>
<td>(CAS No.) 106726-11-8</td>
<td>58 - 62</td>
<td>Not classified</td>
</tr>
<tr>
<td>n-Heptane</td>
<td>(CAS No.) 142-82-5</td>
<td>38 - 42</td>
<td>Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410</td>
</tr>
</tbody>
</table>

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

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general: Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

First-aid measures after inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact: Wash with plenty of soap and water. Get medical advice/attention.

First-aid measures after eye contact: Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.

First-aid measures after ingestion: Never give anything by mouth to an unconscious person. Get medical advice/attention.

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

Symptoms/effects after inhalation: May cause drowsiness or dizziness. May cause irritation to the respiratory tract. Heptane can cause vertigo, incoordination and stupor at 5000ppm. Vapor inhalation of heptane may lead to impairment of coordination mental alertness, and reaction times, leading to accident proneness.

Symptoms/effects after skin contact: Causes skin irritation.

Symptoms/effects after eye contact: Causes serious eye irritation.

Symptoms/effects after ingestion: May be harmful if swallowed.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media


Unsuitable extinguishing media: Do not use straight streams.

5.2. Specific hazards arising from the chemical

Fire hazard: Highly flammable liquid and vapor. Irritating fumes and acid vapors may develop when material is exposed to elevated temperatures or open flame.

Explosion hazard: May form flammable/explosive vapor-air mixture.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions: Exercise caution when fighting any chemical fire. Use water spray to cool exposed surfaces.

Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Avoid all eye and skin contact and do not breathe vapor and mist.
NEODYMIUM NEODECANOATE, 60% in heptane
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures:
- Eliminate every possible source of ignition. Use special care to avoid static electric charges.

6.1.1. For non-emergency personnel

Protective equipment:
- Wear protective equipment as described in Section 8.

Emergency procedures:
- Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment:
- For further information refer to section 8: “Exposure controls/personal protection”. Equip cleanup crew with proper protection. Do not attempt to take action without suitable protective equipment.

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

For containment:
- Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for cleaning up:
- Clean up any spills as soon as possible, using an absorbent material to collect it. Collect spillage. Use only non-sparking tools.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

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. Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Precautions for safe handling:
- Avoid all eye and skin contact and do not breathe vapor and mist. Ground/bond container and receiving equipment. Take precautionary measures against static discharge. Use only outdoors or in a well-ventilated area. Use only non-sparking tools.

Hygiene measures:
- Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

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 equipment.

Storage conditions:
- Keep container tightly closed. Keep in a cool place. Store locked up.

Incompatible materials:
- Water.

Storage area:
- Store in a well-ventilated place. Store away from heat.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>n-Heptane (142-82-5)</th>
<th>ACGIH TWA (ppm)</th>
<th>400 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ACGIH STEL (ppm)</td>
<td>500 ppm</td>
</tr>
<tr>
<td>OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
<td>2000 mg/m³</td>
</tr>
<tr>
<td>OSHA</td>
<td>OSHA PEL (TWA) (ppm)</td>
<td>500 ppm</td>
</tr>
<tr>
<td>IDLH</td>
<td>US IDLH (ppm)</td>
<td>750 ppm</td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (TWA) (mg/m³)</td>
<td>350 mg/m³</td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (TWA) (ppm)</td>
<td>85 ppm</td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (ceiling) (mg/m³)</td>
<td>1800 mg/m³</td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (ceiling) (ppm)</td>
<td>440 ppm</td>
</tr>
</tbody>
</table>

8.2. Appropriate engineering controls

Appropriate engineering controls:
- Provide local exhaust or general room ventilation.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:
- Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.
NEODYMIUM NEODECANOATE, 60% in heptane
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Hand protection:
Neoprene or nitrile rubber gloves

Eye protection:
Chemical goggles. Contact lenses should not be worn

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified combination organic vapor - amine gas (brown cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Liquid</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>658.01 g/mol</td>
</tr>
<tr>
<td>Color</td>
<td>Light purple.</td>
</tr>
<tr>
<td>Odor</td>
<td>Characteristic.</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Refractive index</td>
<td>1.4357</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>98 °C initial (heptane)</td>
</tr>
<tr>
<td>Flash point</td>
<td>-8 °C</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>204 °C (heptane)</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Highly flammable liquid and vapor</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>40 mm Hg @ 22°C (heptane)</td>
</tr>
<tr>
<td>Relative vapor density at 20 °C</td>
<td>3.45 (heptane)</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.944</td>
</tr>
<tr>
<td>% Volatiles</td>
<td>&gt; 40 %</td>
</tr>
<tr>
<td>Solubility</td>
<td>Reacts with water.</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Kow</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>1 - 6.7 vol % (lower; upper: heptane)</td>
</tr>
</tbody>
</table>

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
No additional information available

10.2. Chemical stability
Stable.

10.3. Possibility of hazardous reactions
Material decomposes slowly in contact with water.

10.4. Conditions to avoid
Heat. Open flame. Sparks.

10.5. Incompatible materials
Water.
10.6. Hazardous decomposition products


SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

<table>
<thead>
<tr>
<th>Substance</th>
<th>Route</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Heptane (142-82-5)</td>
<td>LD50 oral mouse</td>
<td>5000 mg/kg</td>
</tr>
<tr>
<td>n-Heptane (142-82-5)</td>
<td>LD50 dermal rabbit</td>
<td>3000 mg/kg</td>
</tr>
<tr>
<td>n-Heptane (142-82-5)</td>
<td>LC50 inhalation rat (mg/l)</td>
<td>103 g/m³ (Exposure time: 4 h)</td>
</tr>
<tr>
<td>n-Heptane (142-82-5)</td>
<td>ATE US (dermal)</td>
<td>3000 mg/kg body weight</td>
</tr>
<tr>
<td>n-Heptane (142-82-5)</td>
<td>ATE US (vapors)</td>
<td>103 mg/l/4h</td>
</tr>
<tr>
<td>n-Heptane (142-82-5)</td>
<td>ATE US (dust, mist)</td>
<td>103 mg/l/4h</td>
</tr>
<tr>
<td>n-Heptane (142-82-5)</td>
<td>Toxicity information</td>
<td>1000 ppm Inhalation (heptane)-human, TCLo</td>
</tr>
</tbody>
</table>

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

None of the components in this product at concentrations >0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

Reproductive toxicity : Not classified

Specific target organ toxicity – single exposure : May cause drowsiness or dizziness.

Specific target organ toxicity – repeated exposure : Not classified
Aspiration hazard : Not classified
Symptoms/effects after inhalation : May cause drowsiness or dizziness. May cause irritation to the respiratory tract. Heptane can cause vertigo, incoordination and stupor at 5000 ppm. Vapor inhalation of heptane may lead to impairment of coordination mental alertness, and reaction times, leading to accident proneness.
Symptoms/effects after skin contact : Causes skin irritation.
Symptoms/effects after eye contact : Causes serious eye irritation.
Symptoms/effects after ingestion : May be harmful if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Route</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Heptane (142-82-5)</td>
<td>LC50 fish 1</td>
<td>375 mg/l (Exposure time: 96 h - Species: Cichlid fish)</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Substance</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Heptane (142-82-5)</td>
<td>4.66</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on the ozone layer : No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Sewage disposal recommendations : Do not dispose of waste into sewer.
Product/Packaging disposal recommendations : Incinerate. Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.

Additional information : Handle empty containers with care because residual vapors are flammable.

Ecology - waste materials : Avoid release to the environment.
NEODYMIUM NEODECANOATE, 60% in heptane
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SECTION 14: Transport information

14.1. UN number
UN-No.(DOT) : 1993
DOT NA no. : UN1993

14.2. UN proper shipping name
Transport document description : UN1993 Flammable liquids, n.o.s. (NEODYMIUM NEODECANOATE, 60% in heptane), 3, II
Proper Shipping Name (DOT) : Flammable liquids, n.o.s. (NEODYMIUM NEODECANOATE, 60% in heptane)
Class (DOT) : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
Packing group (DOT) : II - Medium Danger
Hazard labels (DOT) : 3 - Flammable liquid

Dangerous for the environment : Yes
Marine pollutant : Yes

DOT Packaging Non Bulk (49 CFR 173.xxx) : 202
DOT Packaging Bulk (49 CFR 173.xxx) : 242
DOT Packaging Exceptions (49 CFR 173.xxx) : 150
DOT Symbols : G - Identifies PSN requiring a technical name

14.3. Additional information
Emergency Response Guide (ERG) Number : 128
Other information : No supplementary information available.

Transport by sea
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.

Air transport
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 60 L

SECTION 15: Regulatory information

15.1. US Federal regulations

n-Heptane (142-82-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

EPA TSCA Regulatory Flag : T - T - indicates a substance that is the subject of a final TSCA section 4 test rule.

Neodymium neodecanoate (106726-11-8)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

n-Heptane (142-82-5)
Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification : Class B Division 2 - Flammable Liquid
Class D Division 2 Subdivision B - Toxic material causing other toxic effects
NEODYMIUM NEODECANOATE, 60% in heptane
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Neodymium neodecanoate (106726-11-8)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations
n-Heptane (142-82-5)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations
n-Heptane (142-82-5)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Canadian IDL (Ingredient Disclosure List)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on CICR (Turkish Inventory and Control of Chemicals)

Neodymium neodecanoate (106726-11-8)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory

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

n-Heptane (142-82-5)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information
Full text of H-phrase:

<table>
<thead>
<tr>
<th>H-phrase</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H225</td>
<td>Highly flammable liquid and vapor</td>
</tr>
<tr>
<td>H304</td>
<td>May be fatal if swallowed and enters airways</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation</td>
</tr>
<tr>
<td>H336</td>
<td>May cause drowsiness or dizziness</td>
</tr>
<tr>
<td>H400</td>
<td>Very toxic to aquatic life</td>
</tr>
<tr>
<td>H410</td>
<td>Very toxic to aquatic life with long lasting effects</td>
</tr>
</tbody>
</table>

Abbreviations and acronyms:
Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor.

Hazard Rating
Health : 2 Moderate Hazard - Temporary or minor injury may occur
Flammability : 3 Serious Hazard - Materials capable of ignition under almost all normal temperature conditions. Includes flammable liquids with flash points below 73 F and boiling points above 100 F. as well as liquids with flash points between 73 F and 100 F. (Classes IB & IC)
Physical : 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Prepared by safety and environmental affairs.

Date of issue: 06/29/2017 Version: 1.0

SDS US (GHS HazCom 2012) - Custom

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

Print date: 04/10/2019 EN (English US) SDS ID: CXND060
NEODYMIUM NEODECANOATE, 60% in heptane
Safety Data Sheet

The information contained in this document has been gathered from reference materials and/or Gelest, Inc. test data and is to the best knowledge and belief of Gelest, Inc. accurate and reliable. Such information is offered solely for your consideration, investigation and verification. It is not suggested or guaranteed that the hazard precautions or procedures described are the only ones which exist. Gelest, Inc. makes no warranties, express or implied, with respect to the use of such information and assumes no responsibility therefore. Information on this safety data sheet is not intended to constitute a basis for product specifications.

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