1. IDENTIFICATION

Product code: N1542
Product Name: Nonafluorobutyl Iodide

Other means of identification
Synonyms: Perfluoro-n-butyl iodide, 3-Propanediol, 2-amino-1-(p-nitrophenyl)-, D-threo-(-)-, 1,1,1,2,2,3,3,4,4-nonafluoro-4-iodo-
CAS #: 423-39-2
RTECS #: EK5360000
Cl#: Not available

Recommended use of the chemical and restrictions on use
Recommended use: For manufacturing or laboratory use only.
Uses advised against: No information available

Supplier: Spectrum Chemical Mfg. Corp
14422 South San Pedro St.
Gardena, CA  90248
(310) 516-8000

Order Online At: https://www.spectrumchemical.com
Emergency telephone number: Chemtrec 1-800-424-9300
Contact Person: Tom Tyner (USA - West Coast)
Contact Person: Ibad Tirmiz (USA - East Coast)

2. HAZARDS IDENTIFICATION

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)
Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

<table>
<thead>
<tr>
<th>Skin corrosion/irritation</th>
<th>Category 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 2A</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>Category 3</td>
</tr>
</tbody>
</table>

Label elements

Warning

Hazard statements
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation
Hazards not otherwise classified (HNOC)
Not Applicable

Other hazards
Not available

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling
Avoid breathing mist or vapors
Use only outdoors or in a well-ventilated area
Wear protective gloves
Wear eye/face protection

Precautionary Statements - Response
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
IF ON SKIN: Wash with plenty of water
If skin irritation occurs: Get medical attention
Take off contaminated clothing and wash it before reuse
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.

Precautionary Statements - Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up

Precautionary Statements - Disposal
Dispose of contents and container to an approved waste disposal plant in accordance with local, regional, national and international regulations as applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonafluorobutyl Iodide</td>
<td>423-39-2</td>
<td>100</td>
</tr>
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</table>

4. FIRST AID MEASURES

First aid measures

General Advice: National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222.

Skin Contact: Wash off immediately with soap and plenty of water removing all contaminated clothing and shoes. Get medical attention. If skin irritation persists, call a physician.

Eye Contact: Flush eyes with water for 15 minutes. Get medical attention. If symptoms persist, call a physician.

Inhalation: Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention.

**Most important symptoms and effects, both acute and delayed**

**Symptoms**
- Causes skin irritation
- Causes serious eye irritation
- Irritating to respiratory system

**Indication of any immediate medical attention and special treatment needed**

**Notes to Physician:** Treat symptomatically.

**Protection of first-aiders**
First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

---

**5. FIRE-FIGHTING MEASURES**

**Extinguishing Media**

*Suitable Extinguishing Media:* Dry chemical. Carbon dioxide (CO2). Water spray mist, or foam.

*Unsuitable Extinguishing Media:* No information available.

**Specific hazards arising from the chemical**

**Hazardous combustion products**
- Burns rapidly, releasing dense, white, irritating fumes.
- Hydrocarbons.

**Specific hazards**
- May be ignited by heat, sparks or flames.

**Special Protective Actions for Firefighters**

**Specific Methods:** No information available

**Special Protective Equipment for Firefighters:** As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

---

**6. ACCIDENTAL RELEASE MEASURES**

**Personal precautions, protective equipment and emergency procedures**

**Personal Precautions:** Ensure adequate ventilation. Evacuate personnel to safe areas. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use personal protective equipment. Remove all sources of ignition.

**Environmental precautions**
- Prevent further leakage or spillage. Prevent product from entering drains. Prevent entry into waterways, sewers.

**Methods and material for containment and cleaning up**

**Methods for containment**
- Stop leak if you can do it without risk. In case of large spill, dike if needed. Dike far ahead of liquid spill for later disposal.

**Methods for cleaning up**
- Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. Absorb spill with inert material (e.g. vermiculite, dry sand or earth). Clean contaminated surface thoroughly.
7. HANDLING AND STORAGE

Precautions for safe handling

**Technical Measures/Precautions:**
Provide sufficient air exchange and/or exhaust in work rooms. Use only in area provided with appropriate exhaust ventilation. Keep away from incompatible materials.

**Safe Handling Advice:**
Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe vapors or spray mist. Do not ingest. Handle in accordance with good industrial hygiene and safety practice.

**Conditions for safe storage, including any incompatibilities**

**Technical Measures/Storage Conditions:**

**Incompatible Materials:**
Strong oxidizing agents
Alkali Metals

---

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control parameters**

**National occupational exposure limits**

**United States**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>OSHA</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>AIHA WEEL</th>
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**Canada**

<table>
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<tr>
<th>Component</th>
<th>CAS No</th>
<th>Canada - Alberta</th>
<th>Canada - British Columbia</th>
<th>Canada - Ontario</th>
<th>Canada - Quebec</th>
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**Australia and Mexico**

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<th>Mexico</th>
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<tbody>
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<td>423-39-2</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

**Appropriate engineering controls**

**Engineering measures to reduce exposure:**
Ensure adequate ventilation, especially in confined areas. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

**Individual protection measures, such as personal protective equipment**

**Personal Protective Equipment**

**Eye protection:**
Goggles

---

Product code: N1542  
Product name: Nonafluorobutyl Iodide
Skin and body protection: Gloves
Long sleeved clothing
Chemical resistant apron

Respiratory protection: Vapor respirator. Be sure to use an approved/certified respirator or equivalent.

Hygiene measures: Avoid contact with skin, eyes and clothing. When using do not eat or drink. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical state:</th>
<th>Appearance:</th>
<th>Color:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid</td>
<td>Clear</td>
<td>Pale yellow. Red.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Odor:</th>
<th>Taste</th>
<th>Formula</th>
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</thead>
<tbody>
<tr>
<td>Pungent</td>
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<td>C4F9I</td>
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<table>
<thead>
<tr>
<th>Molecular/Formula weight (g/mole):</th>
<th>Flammability (solid, gas)</th>
<th>Flashpoint (°C/°F):</th>
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<tbody>
<tr>
<td>345.93</td>
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<td>&gt;115°C (239°F)</td>
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<table>
<thead>
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<th>Autoignition Temperature (°C/°F):</th>
<th>Lower Explosion Limit (%):</th>
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<table>
<thead>
<tr>
<th>Upper Explosion Limit (%):</th>
<th>Melting point/range(°C/°F):</th>
<th>Decomposition temperature(°C/°F):</th>
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<table>
<thead>
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<th>Boiling point/range(°C/°F):</th>
<th>Bulk density:</th>
<th>Density (g/cm3):</th>
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<td>67°C (153°F)</td>
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<table>
<thead>
<tr>
<th>Specific gravity:</th>
<th>pH</th>
<th>Vapor pressure @ 20°C (kPa):</th>
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<table>
<thead>
<tr>
<th>Evaporation rate:</th>
<th>Vapor density:</th>
<th>VOC content (g/L):</th>
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<td>No information available</td>
<td>No information available</td>
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</table>

<table>
<thead>
<tr>
<th>Odor threshold (ppm):</th>
<th>Partition coefficient (n-octanol/water):</th>
<th>Viscosity:</th>
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<tbody>
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</tbody>
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<table>
<thead>
<tr>
<th>Miscibility:</th>
<th>Solubility:</th>
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</thead>
<tbody>
<tr>
<td>No information available</td>
<td>No information available</td>
<td></td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity: Reactive with oxidizing agents

Chemical stability


Possibility of Hazardous Reactions: Hazardous polymerization does not occur


Incompatible Materials: Strong oxidizing agents
Alkali Metals


Product code: N1542
Product name: Nonafluorobutyl Iodide
products: compounds.

Other Information
Corrosivity: No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
Skin. Eyes. Inhalation. Ingestion.

Acute Toxicity

Component Information

<table>
<thead>
<tr>
<th>Nonafluorobutyl Iodide</th>
<th>CAS No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>423-39-2</td>
</tr>
</tbody>
</table>

LD50/oral/rat = No information available
LD50/oral/mouse = No information available
LD50/dermal/rabbit = No information available
LD50/dermal/rat = No information available
LC50/inhalation/rat = 14000 ppm Inhalation LC50 Rat
LC50/inhalation/mouse = No information available
Other LD50 or LC50 information = No information available

Product Information

LD50/oral/rat =
Value - Acute Toxicity = No information available

LD50/oral/mouse =
Value - Acute Tox = No information available

LD50/dermal/rabbit
Value - Acute Toxicity = No information available

LD50/dermal/rat
VALUE - Acute Tox = No information available

LC50/inhalation/rat
VALUE-Vapor = 14000 ppm
VALUE-Gas = No information available
VALUE-Dust/Mist = No information available

LC50/inhalation/mouse
VALUE-Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = No information available

Symptoms

Skin Contact: Causes skin irritation.
Eye Contact: Causes eye irritation.

Inhalation Irritating to respiratory system. Symptoms may include coughing and wheezing. Other symptoms may include sore throat, chest tightness, coughing.

Ingestion Health injuries are not known or expected under normal use.

Aspiration hazard No information available.

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

Chronic Toxicity No information available.

Sensitization: No information available.

Mutagenic Effects: No information available

Carcinogenic effects: Not considered carcinogenic.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>IARC</th>
<th>ACGIH - Carcinogens</th>
<th>NTP</th>
<th>OSHA HCS - Carcinogens</th>
<th>Australia - Notifiable Carcinogenic Substances</th>
<th>Australia - Prohibited Carcinogenic Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonafluorobutyl Iodide</td>
<td>423-39-2</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

_ACGIH (American Conference of Governmental Industrial Hygienists)_

_IARC (International Agency for Research on Cancer)_

_NTP (National Toxicology Program)_

_OSHA (Occupational Safety and Health Administration of the US Department of Labor)_

Reproductive toxicity No data is available

Reproductive Effects: No information available

Developmental Effects: No information available

Teratogenic Effects: No information available

**Specific Target Organ Toxicity**

STOT - single exposure respiratory system.

STOT - repeated exposure No information available.

Target Organs: No information available.

**12. ECOLOGICAL INFORMATION**

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available

Bioaccumulative potential: No information available.

Mobility in soil No information available

Other adverse effects No information available.
13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:
Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:
Empty containers should be taken for local recycling, recovery or waste disposal

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonafluorobutyl iodide</td>
<td>423-39-2</td>
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<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

DOT
UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Class: No information available
Packing group: No information available
Emergency Response Guide Number: No information available
Marine Pollutant: No data available
DOT RQ (lbs): No information available
Special Provisions: No Information available
Symbol(s): No information available
Description: No information available

TDG (Canada)
UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Marine Pollutant: No Information available
Description: No information available

ADR
UN Number: Not regulated
Proper Shipping Name: No information available
Transport hazard class(es): No information available
Packing group: No information available
Subsidiary Risk: No information available

IMDG
UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Marine Pollutant: No information available

RID
UN Number: Not Regulated

Product code: N1542  Product name: Nonafluorobutyl iodide
Proper Shipping Name: No information available
Transport hazard class(es) No information available
Subsidiary Risk: No information available
Packing group No information available

ICAO (air)
UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available

IATA
UN Number: Not Regulated
Proper Shipping Name: No information available
Transport hazard class(es) No information available
Subsidiary Risk: No information available
Packing group: No information available
Precautionary Statements - Response: No information available
Special Provisions: No information available

15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>U.S. TSCA</th>
<th>KOREA KECL</th>
<th>Philippines (PICCS)</th>
<th>Japan ENCS</th>
<th>China IECSC</th>
<th>Australia (AICS)</th>
<th>EINECS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonafluorobutyl Iodide</td>
<td>423-39-2</td>
<td>Present</td>
<td>Not present</td>
<td>Present</td>
<td>Present (2)-90</td>
<td>Present</td>
<td>Not listed</td>
<td>Present 207-025-8</td>
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</table>

U.S. Regulations


Chemicals Known to the State of California to Cause Cancer:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>Carcinogen</th>
<th>Developmental Toxicity</th>
<th>Male Reproductive Toxicity</th>
<th>Female Reproductive Toxicity:</th>
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<tbody>
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<td>423-39-2</td>
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<td>Not Listed</td>
<td>Not Listed</td>
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</table>

CERCLA/SARA

<table>
<thead>
<tr>
<th>Component</th>
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<th>CERCLA - Hazardous Substances and their Reportable Quantities</th>
<th>Section 302 Extremely Hazardous Substances and TPOs</th>
<th>Section 302 Extremely Hazardous Substances and RQs</th>
<th>Section 313 - Chemical Category</th>
<th>Section 313 - Reporting de minimis</th>
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<tr>
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U.S. TSCA

<table>
<thead>
<tr>
<th>Component</th>
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<th>TSCA Section 5(a)2 - Chemicals</th>
<th>TSCA 8(d) - Health and Safety</th>
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<tbody>
<tr>
<td>Nonafluorobutyl Iodide</td>
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</table>
With Significant New Use Rules (SNURS) Reporting

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<th>Canada (DSL)</th>
<th>Canada (NDSL)</th>
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</table>

**Canada**

**WHIMIS 2015 - GHS Classifications**

WHIMIS 2015 Hazard Classification Information: The WHIMIS 2015 classification of this product has not been validated or reviewed yet.

**Canada Hazardous Products Regulation** This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

**DSL/NDSL**

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**EU Classification**

**EU GHS - SV - CLP 1272/2008**

<table>
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<th>CAS No</th>
<th>Classification</th>
<th>EU GHS - SV - CLP (1272/2008)</th>
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</thead>
</table>

**EU - CLP (1272/2008)**

**R-phrase(s)**

R36/37/38 - Irritating to eyes, respiratory system and skin

**S-phrase(s)**

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S37 - Wear suitable gloves
S36 - Wear suitable protective clothing

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>Classification</th>
<th>Concentration Limits:</th>
<th>Safety Phrases</th>
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<td>423-39-2</td>
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</table>

The product is classified in accordance with Annex VI to Directive 67/548/EEC

**Indication of danger:**

Xi - Irritant

**Product code:** N1542  **Product name:** Nonafluorobutyl Iodide
16. OTHER INFORMATION

Preparation Date: 11/15/2016
Revision date 07/23/2019
Prepared by: Roumann Pangilinan

Disclaimer: All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet