SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name: 4-Nitrophenylhydrazine
Product Number: 642983
Brand: Aldrich
CAS-No.: 100-16-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company: Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone: +1 314 771-5765
Fax: +1 800 325-5052

1.4 Emergency telephone

Emergency Phone #: 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable solids (Category 2), H228
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Dermal (Category 4), H312
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Skin sensitization (Category 1), H317
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the US and Canada
Signal word                  Warning
Hazard statement(s)         Flammable solid.
H228                        Harmful if swallowed or in contact with skin.
H302 + H312                 Causes skin irritation.
H317                        May cause an allergic skin reaction.
H319                        Causes serious eye irritation.
H335                        May cause respiratory irritation.
Precautionary statement(s) Keep away from heat/ sparks/ open flames/ hot surfaces. No
P210                        smoking.
P240                        Ground/bond container and receiving equipment.
P241                        Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P261                        Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P264                        Wash skin thoroughly after handling.
P270                        Do not eat, drink or smoke when using this product.
P271                        Use only outdoors or in a well-ventilated area.
P272                        Contaminated work clothing should not be allowed out of the
                            workplace.
P280                        Wear protective gloves/ protective clothing/ eye protection/ face
                            protection.
P301 + P312                 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel
                            unwell.
P302 + P352                 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340                 IF INHALED: Remove victim to fresh air and keep at rest in a
                            position comfortable for breathing.
P305 + P351 + P338          IF IN EYES: Rinse cautiously with water for several minutes.
                            Remove contact lenses, if present and easy to do. Continue
                            rinsing.
P312                        Call a POISON CENTER/ doctor if you feel unwell.
P322                        Specific measures (see supplemental first aid instructions on
                            this label).
P330                        Rinse mouth.
P333 + P313                 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313                 If eye irritation persists: Get medical advice/ attention.
P362                        Take off contaminated clothing and wash before reuse.
P370 + P378                 In case of fire: Use dry sand, dry chemical or alcohol-resistant
                            foam for extinction.
P403 + P233                 Store in a well-ventilated place. Keep container tightly closed.
P405                        Store locked up.
P501                        Dispose of contents/ container to an approved waste disposal
                            plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

<table>
<thead>
<tr>
<th>Formula</th>
<th>C₆H₇N₃O₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular weight</td>
<td>153.14 g/mol</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>100-16-3</td>
</tr>
<tr>
<td>EC-No.</td>
<td>202-824-8</td>
</tr>
</tbody>
</table>

Aldrich - 642983
For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Consult a physician. Show this material safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Nitrogen oxides (NOx)

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal. Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Advice on safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

Advice on protection against fire and explosion
Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Storage conditions
Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

Storage class
Storage class (TRGS 510): 4.1B: Flammable solid hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.
8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance
   Form: crystalline
   Color: orange

b) Odor
   No data available

c) Odor Threshold
   No data available

d) pH
   No data available

e) Melting point/freezing point
   Melting point/range: 156 °C (313 °F) - dec.

f) Initial boiling point and boiling range
   No data available

g) Flash point
   () No data available

h) Evaporation rate
   No data available

i) Flammability (solid, gas)
   The substance or mixture is a flammable solid with the category 2.

j) Upper/lower flammability or explosive limits
   No data available

k) Vapor pressure
   No data available

l) Vapor density
   No data available

m) Density
   No data available
   Relative density
   No data available

n) Water solubility
   No data available

o) Partition coefficient: n-octanol/water
   No data available

p) Autoignition temperature
   No data available

q) Decomposition temperature
   No data available

r) Viscosity
   No data available

s) Explosive properties
   Not classified as explosive.

t) Oxidizing properties
   none

9.2 Other safety information
   No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
   No data available
10.2 Chemical stability
Stable under recommended storage conditions.
Contains the following stabilizer(s):
water (>=30 %)

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
Inhalation: No data available
LD50 Dermal - 1,100 mg/kg
Dermal: No data available
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.
Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated., Blood disorders
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated., Blood disorders
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated., Blood disorders
Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information
12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

SECTION 13: Disposal considerations
13.1 Waste treatment methods
Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.
SECTION 14: Transport information

**DOT (US)**
- UN number: 3376  Class: 4.1  Packing group: I
- Proper shipping name: 4-Nitrophenylhydrazine
- Poison Inhalation Hazard: No

**IMDG**
- UN number: 3376  Class: 4.1  Packing group: I
- Proper shipping name: 4-NITROPHENYLHYDRAZINE
- EMS-No: F-B, S-J

**IATA**
- UN number: 3376  Class: 4.1
- Proper shipping name: 4-Nitrophenylhydrazine
- IATA Passenger: Not permitted for transport
- IATA Cargo: Not permitted for transport

SECTION 15: Regulatory information

**SARA 302 Components**
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**
No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
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</thead>
<tbody>
<tr>
<td>water</td>
<td>7732-18-5</td>
<td></td>
</tr>
<tr>
<td>DO NOT USE 4-nitrophenylhydrazine</td>
<td>100-16-3</td>
<td></td>
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</table>

**New Jersey Right To Know Components**

<table>
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**California Prop. 65 Components**
This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.
SECTION 16: Other information

Further information
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Version: 6.3 Revision Date: 03/26/2022 Print Date: 08/12/2023