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

1.1 Product identifiers

Product name : *N*-Bromosuccinimide

Product Number : B81255
Brand : Aldrich
CAS-No. : 128-08-5

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)**

- Oxidizing solids (Category 3), H272
- Corrosive to Metals (Category 1), H290
- Skin irritation (Category 2), H315
- Eye irritation (Category 2A), H319
- Skin sensitization (Sub-category 1B), H317
- Germ cell mutagenicity (Category 2), H341
- Short-term (acute) aquatic hazard (Category 1), H400

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

2.2 GHS Label elements, including precautionary statements

Pictogram
Signal Word: Warning

Hazard statement(s):

H272: May intensify fire; oxidizer.
H290: May be corrosive to metals.
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H319: Causes serious eye irritation.
H341: Suspected of causing genetic defects.
H400: Very toxic to aquatic life.

Precautionary statement(s):

P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P210: Keep away from heat.
P220: Keep/Store away from clothing/combustible materials.
P221: Take any precaution to avoid mixing with combustibles.
P234: Keep only in original container.
P261: Avoid breathing dust.
P264: Wash skin thoroughly after handling.
P272: Contaminated work clothing must not be allowed out of the workplace.
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 soap and water.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313: IF exposed or concerned: Get medical advice/attention.
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 to extinguish.
P390: Absorb spillage to prevent material damage.
P391: Collect spillage.
P405: Store locked up.
P406: Store in corrosive resistant container with a resistant inner liner.
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

Synonyms: NBS

Formula: C₄H₄BrNO₂
Molecular weight: 177.98 g/mol
CAS-No.: 128-08-5

Aldrich - B81255
The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the US and Canada

EC-No. : 204-877-2

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-bromosuccinimide</td>
<td>Ox. Sol. 3; Met. Corr. 1; Skin Irrit. 2; Eye Irrit. 2A; Skin Sens. 1B; Muta. 2; Aquatic Acute 1; H272, H290, H315, H319, H317, H341, H400</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

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
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). 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
No data available

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Nitrogen oxides (NOx)
Hydrogen bromide gas
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.
Has a fire-promoting effect due to release of oxygen.

5.3 **Advice for firefighters**
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 **Further information**
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 **Personal precautions, protective equipment and emergency procedures**
Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 **Environmental precautions**
Do not let product enter drains.

6.3 **Methods and materials for containment and cleaning up**
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 **Reference to other sections**
For disposal see section 13.

SECTION 7: Handling and storage

7.1 **Precautions for safe handling**
**Advice on protection against fire and explosion**
Keep away from open flames, hot surfaces and sources of ignition.

**Hygiene measures**
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 **Conditions for safe storage, including any incompatibilities**
**Storage conditions**
No metal containers.
Tightly closed. Away from combustible materials and sources of ignition and heat. Do not store near combustible materials.

**Storage stability**
Recommended storage temperature
2 - 8 °C
Light sensitive. Moisture sensitive. Store under inert gas.

**Storage class**
Storage class (TRGS 510): 5.1B: Oxidizing hazardous materials
7.3 **Specific end use(s)**
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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**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**
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

**Personal protective equipment**

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

**Body Protection**
protective clothing

**Control of environmental exposure**
Do not let product enter drains.

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**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>a) Appearance</td>
<td>Form: powder, Color: light yellow</td>
</tr>
<tr>
<td>b) Odor</td>
<td>characteristic</td>
</tr>
<tr>
<td>c) Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>d) pH</td>
<td>No data available</td>
</tr>
<tr>
<td>e) Melting point/freezing point</td>
<td>Melting point/range: 175 - 180 °C (347 - 356 °F) - dec.</td>
</tr>
<tr>
<td>f) Initial boiling point and boiling range</td>
<td>No data available</td>
</tr>
<tr>
<td>g) Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>h) Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>i) Flammability (solid, gas)</td>
<td>The product is not flammable. - Test N.1: Test method for readily combustible solids</td>
</tr>
<tr>
<td>j) Upper/lower flammability or explosive limits</td>
<td>No data available</td>
</tr>
<tr>
<td>k) Vapor pressure</td>
<td>&lt; 1 hPa at 20 °C (68 °F) - OECD Test Guideline 104</td>
</tr>
<tr>
<td>l) Vapor density</td>
<td>No data available</td>
</tr>
<tr>
<td>m) Density</td>
<td>2.1 g/cm3 at 20 °C (68 °F)</td>
</tr>
</tbody>
</table>
Relative density
n) Water solubility 14.8 g/l at 20 °C (68 °F) - (decomposition), soluble
o) Partition coefficient: n-octanol/water No data available
p) Autoignition temperature > 400 °C (> 752 °F) - Relative self-ignition temperature for solids
q) Decomposition temperature ca.180 °C (ca.356 °F) -
r) Viscosity No data available
s) Explosive properties No data available
t) Oxidizing properties The substance or mixture is classified as oxidizing with the category 3. strong oxidising agent

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions
Exothermic reaction with:
Violent reactions possible with:
Alcohols
Amines
Ammonia
anilines
Hydrazine hydrate
iron/iron-containing compounds
can decompose violently in contact with:
Water
Risk of explosion with:
Nitriles

10.4 Conditions to avoid
Exposure to light. Exposure to moisture.
no information available

10.5 Incompatible materials
iron/iron-containing compounds
Metals

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**
LD50 Oral - Rat - male and female - > 2,000 mg/kg  
(OECD Test Guideline 401)
Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.
Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages: damage of respiratory tract
Dermal: No data available

**Skin corrosion/irritation**
Skin - Human
Result: irritating  
(OECD Test Guideline 439)
Remarks: (ECHA)

**Serious eye damage/eye irritation**
Eyes - Rabbit
Result: Eye irritation
Remarks: (ECHA)

**Respiratory or skin sensitization**
Local lymph node assay (LLNA) - Mouse
Result: The product is a skin sensitizer, sub-category 1B. 
(OECD Test Guideline 429)

**Germ cell mutagenicity**
Suspected of causing genetic defects.
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: Positive results were obtained in some in vitro tests.
Test Type: in vitro test
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 487
Result: positive

**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.
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

**Specific target organ toxicity - single exposure**
No data available
Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1 Toxicity
Toxicity to fish
semi-static test LC50 - Cyprinus carpio (Carp) - 0.4 mg/l - 96 h (OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates
static test EC50 - Daphnia magna (Water flea) - 0.65 mg/l - 48 h (OECD Test Guideline 202)

Toxicity to algae
static test EC50 - Pseudokirchneriella subcapitata (green algae) - 1.3 mg/l - 72 h (OECD Test Guideline 201)

12.2 Persistence and degradability
Biodegradability
aerobic - Exposure time 35 d
Result: 98 % - Readily biodegradable. (OECD Test Guideline 301A)

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
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 3085  Class: 5.1 (8)  Packing group: III
Proper shipping name: Oxidizing solid, corrosive, n.o.s. (N-bromosuccinimide)
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG
UN number: 3085  Class: 5.1 (8)  Packing group: III  EMS-No: F-A, S-Q
Proper shipping name: OXIDIZING SOLID, CORROSIVE, N.O.S. (N-bromosuccinimide)
Marine pollutant: yes

IATA
UN number: 3085  Class: 5.1 (8)  Packing group: III
Proper shipping name: Oxidizing solid, corrosive, n.o.s. (N-bromosuccinimide)

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

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
Acute Health Hazard

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

SECTION 16: Other information

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See