SAFETY DATA SHEET

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SECTION 1. IDENTIFICATION

Product Name: Sodium Borohydride Solution

Product Number: All applicable American Elements product codes, e.g. NA-BH-01-SOL.NAOH , NA-BH-01-SOL.TGDE , NA-BH-01-SOL.2MEE

CAS #: 16940-66-2

Relevant identified uses of the substance: Scientific research and development

Supplier details:
American Elements
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Los Angeles, CA 90024
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Emergency telephone number:
+1 800-424-9300

SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008
GHS02 Flame
Water-react. 1 H260 In contact with water releases flammable gases which may ignite spontaneously.
GHS06 Skull and crossbones
Acute Tox. 3 H301 Toxic if swallowed.
Acute Tox. 3 H311 Toxic in contact with skin.
Acute Tox. 2 H330 Fatal if inhaled.
GHS05 Corrosion
Skin Corr. 1B H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.
Classification according to Directive 67/548/EEC or Directive 1999/45/EC
T; Toxic
R23/24/25: Toxic by inhalation, in contact with skin and if swallowed.
C; Corrosive
R34: Causes burns.
F; Highly flammable
R15: Contact with water liberates extremely flammable gases.
Information concerning particular hazards for human and environment:
N/A

Hazards not otherwise classified
No data available
Label elements
Labelling according to Regulation (EC) No 1272/2008
The substance is classified and labeled according to the CLP regulation.
Hazard pictograms



GHS02
GHS05
GHS06
Signal word
Danger
Hazard statements
H260 In contact with water releases flammable gases which may ignite spontaneously.
H301+H311 Toxic if swallowed or in contact with skin.
H330 Fatal if inhaled.
H314 Causes severe skin burns and eye damage.
Precautionary statements
P231+P232 Handle under inert gas. Protect from moisture.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor/...
P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P320 Specific treatment is urgent (see on this label).
P361 Take off immediately all contaminated clothing.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/ national/international regulations.
WHMIS classification
B6 - Reactive flammable material
D1A - Very toxic material causing immediate and serious toxic effects
D2B - Toxic material causing other toxic effects
E - Corrosive material
Classification system
HMIS ratings (scale 0-4)
(Hazardous Materials Identification System)
HEALTH
FIRE
REACTIVITY
3
3
2
Health (acute effects) = 3
Flammability = 3
Physical Hazard = 2
Other hazards
Results of PBT and vPvB assessment
PBT:
N/A
vPvB:

N/A

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances
CAS No. / Substance Name:
16940-66-2 Sodium borohydride
Identification number(s):
EC number:
241-004-4

SECTION 4. FIRST AID MEASURES

Description of first aid measures
General information
Immediately remove any clothing soiled by the product.
Remove breathing apparatus only after contaminated clothing has been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.
If inhaled:
Supply patient with fresh air. If not breathing, provide artificial respiration. Keep patient warm.
Seek immediate medical advice.
In case of skin contact:
Immediately wash with soap and water; rinse thoroughly.
Seek immediate medical advice.
In case of eye contact:
Rinse opened eye for several minutes under running water. Consult a physician.
If swallowed:
Do not induce vomiting; immediately call for medical help.
Information for doctor
Most important symptoms and effects, both acute and delayed
Causes severe skin burns.
Causes serious eye damage.
Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5. FIREFIGHTING MEASURES

Extinguishing media
Suitable extinguishing agents
In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water.
For safety reasons unsuitable extinguishing agents
Water
Special hazards arising from the substance or mixture
If this product is involved in a fire, the following can be released:
Sodium oxide
Boron oxide
Advice for firefighters
Protective equipment:
Wear self-contained respirator.

Wear fully protective impervious suit.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Keep away from ignition sources
Environmental precautions:
Do not allow material to be released to the environment without official permits.
Do not allow product to enter drains, sewage systems, or other water courses.
Do not allow material to penetrate the ground or soil.
Methods and materials for containment and cleanup:
Use neutralizing agent.
Dispose of contaminated material as waste according to section 13.
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
Prevention of secondary hazards:
Keep away from ignition sources.
Reference to other sections
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7. HANDLING AND STORAGE

Handling
Precautions for safe handling
Handle under dry protective gas.
Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation at the workplace.
Open and handle container with care.
Information about protection against explosions and fires:
Protect against electrostatic charges.
Conditions for safe storage, including any incompatibilities
Requirements to be met by storerooms and receptacles:
No special requirements
Information about storage in one common storage facility:
Store away from water/moisture.
Store away from strong bases.
Further information about storage conditions:
Store under dry inert gas.
This product is moisture sensitive.
Keep container tightly sealed.
Store in cool, dry conditions in well-sealed containers.
Protect from humidity and water.
Specific end use(s)
No data available

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.
Control parameters
Components with limit values that require monitoring at the workplace:
None.
Additional information:
No data
Exposure controls
Personal protective equipment
Follow typical protective and hygienic practices for handling chemicals.
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.
Maintain an ergonomically appropriate working environment.
Breathing equipment:
Use self-contained respiratory protective device in emergency situations.
Recommended filter device for short term use:
Use a respirator with type P100 (USA) or P3 (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards.
Protection of hands:
Impervious gloves
Inspect gloves prior to use.
Suitability of gloves should be determined both by material and quality, the latter of which may vary by manufacturer.
Material of gloves
Nitrile rubber, NBR
Penetration time of glove material (in minutes)
>480
Glove thickness
0.11 mm
Eye protection:
Tightly sealed goggles
Full face protection
Body protection:
Protective work clothing

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties
Appearance:
Form: Various forms (powder/flake/crystalline/beads, etc.)
Color: White
Odor: Weak
Odor threshold: Not determined.
pH: N/A

Melting point/Melting range: 400 °C (752 °F) (dec)
Boiling point/Boiling range: Not determined
Sublimation temperature / start: Not determined
Flammability (solid, gas)
Contact with water liberates extremely flammable gases.
Ignition temperature: Not determined
Decomposition temperature: Not determined
Autoignition: Not determined.
Danger of explosion: Not determined.
Explosion limits:
Lower: Not determined
Upper: Not determined
Vapor pressure: N/A
Density at 20 °C (68 °F): 1.074 g/cm³ (8.963 lbs/gal)
Relative density
Not determined.
Vapor density
N/A
Evaporation rate
N/A
Solubility in Water (H_2O):
Contact with water releases flammable gases
Partition coefficient (n-octanol/water): Not determined.
Viscosity:
Dynamic: N/A
Kinematic: N/A
Other information
No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity
In contact with water re
leases flammable gases which may ignite spontaneously.
Chemical stability
Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided:
Decomposition will not occur if used and stored according to specifications.
Possibility of hazardous reactions
Contact with water releases flammable gases
Conditions to avoid
No data available
Incompatible materials:
Bases
Water/moisture
Hazardous decomposition products:
Sodium oxide
Boron oxide

SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects
Acute toxicity:
Fatal if inhaled.
Toxic in contact with skin.
Toxic if swallowed.
Danger through skin absorption.
Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.
LD/LC50 values that are relevant for classification:
Oral LD50 162 mg/kg (rat)
Dermal LD50 230 mg/kg (rabbit)
Skin irritation or corrosion:
Causes severe skin burns.
Eye irritation or corrosion:
Causes serious eye damage.
Sensitization:
No sensitizing effects known.
Germ cell mutagenicity:
No effects known.
Carcinogenicity:
EPA-I: Data are inadequate for an assessment of human carcinogenic potential.
Reproductive toxicity:
No effects known.
Specific target organ system toxicity - repeated exposure:
No effects known.
Specific target organ system toxicity - single exposure:
No effects known.
Aspiration hazard:
No effects known.
Subacute to chronic toxicity:
The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.
Additional toxicological information:
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity
Aquatic toxicity:
No data available
Persistence and degradability
No data available
Bioaccumulative potential
No data available
Mobility in soil
No data available
Additional ecological information:
Do not allow material to be released to the environment without official permits.
Do not allow undiluted product or large quantities to reach groundwater, water courses, or sewage

systems.
Avoid transfer into the environment.
Results of PBT and vPvB assessment
PBT:
N/A
vPvB:
N/A
Other adverse effects
No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Recommendation
Consult official regulations to ensure proper disposal.
Uncleaned packagings:
Recommendation:
Disposal must be made according to official regulations.

SECTION 14. TRANSPORT INFORMATION

UN-Number
DOT, IMDG, IATA
UN1426
UN proper shipping name
DOT
Sodium borohydride
IMDG, IATA
SODIUM BOROHYDRIDE
Transport hazard class(es)
DOT
Class
4.3 Substances which, in contact with water, emit flammable gases.
Label
4.3
Class
4.3 (W2) Substances which, in contact with water, emit flammable gases
Label
4.3
IMDG, IATA
Class
4.3 Substances which, in contact with water, emit flammable gases.
Label
4.3
Packing group
DOT, IMDG, IATA
I
Environmental hazards:
N/A
Special precautions for user
Warning: Substances which, in contact with water, emit flammable gases

EMS Number: F-G,S-O
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
N/A
Transport/Additional information:
DOT
Marine Pollutant (DOT):
No
UN "Model Regulation":
UN1426, Sodium borohydride, 4.3, I

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture
National regulations
All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.
All components of this product are listed on the Canadian Domestic Substances List (DSL).
SARA Section 313 (specific toxic chemical listings)
Substance is not listed.
California Proposition 65
Prop 65 - Chemicals known to cause cancer
Substance is not listed.
Prop 65 - Developmental toxicity
Substance is not listed.
Prop 65 - Developmental toxicity, female
Substance is not listed.
Prop 65 - Developmental toxicity, male
Substance is not listed.
Information about limitation of use:
For use only by technically qualified individuals.
Other regulations, limitations and prohibitive regulations
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.
Substance is not listed.
The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.
Substance is not listed.
Annex XIV of the REACH Regulations (requiring Authorisation for use)
Substance is not listed.
REACH - Pre-registered substances
Substance is listed.
Chemical safety assessment:
A Chemical Safety Assessment has not been carried out.

SECTION 16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). 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. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for

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