Material Safety Data Sheet

SODIUM BOROHYDRIDE (RXSOL-60-6605-480)

1. Product and Company Identifaction

Porduct Name	SODIUM BOROHYDRIDE
Part Number	RXSOL-60-6605-480

Company Details:

RX MARINE INTERNATIONAL
105, A wing , BSEL , TECH PARK.
VASHI ,NEW BOMBAY 400703 INDIA

Branch : Kandla, Mumbai , Chennai, Vizag, Kolkata, UAE , OMAN , CANADA and KENYA

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2. Composition / informationon ingredients

Substances SODIUM BOROHYDRIDE

Mixtures

Component	CAS-No	EC-No.	Weight %
Sodium borohydride	16940-66-2	241-004-4	>95 %

3. Hazards Identification

Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Substances and mixtures which in contact with water emit flammable gases (Category 1), H260

Acute toxicity, Oral (Category 3), H301
Skin corrosion (Sub-category 1B), H314
Serious eye damage (Category 1), H318
Reproductive toxicity (Category 1B), H360FD
For the full text of the H-Statements mentioned in this Section, see Section 16.

Label Elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard statements	
H260	In contact with water releases flammable gases which may ignite spontaneously
H301	Toxic if swallowed.
H314.	Causes severe skin burns and eye damage.
H360 F	FD May damage fertility. May damage the unborn child.
Precautionary statements	
P201	Obtain special instructions before use.
P231 + P232	Handle and store contents under inert gas. Protect from moisture.

P260	Do not breathe dusts or mists.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection/ Hearing protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P402 + P404	Store in a dry place in a closed container

Supplemental Hazard Information (EU)

EUH014 Reacts violently with water.

Reduced Labelling (= 125 ml)

Hazard pictograms

Signal word	Danger
Hazard statemen	
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P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Supplemental Hazard Information (EU	Reacts violently with water.
Other Hazards	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher

4. First Aid Measures

General advice	First aiders need to protect themselves. Show this safety data sheet to the doctor in attendance.
If inhaled	Remove to fresh air. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.If not breathing, give artificial respiration
Ingestion	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required
In case of eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.
If swallowed	Do NOT induce vomiting. Call a physician or poison control centre immediately.
Most important symptoms and effects, both acute and delayed:	Vomiting, Headache, CNS disorders Risk of corneal clouding. The following applies to boron compounds in general: resorption is followed by nausea and vomiting, agitation, spasms, CNS disorders, cardiovascular disorders. Irritation and corrosion, Cough, Shortness of breath Risk of blindness!
Indication of any immediate medical attention and special treatment needed:	No data available

5. Fire-fighting Measures

Suitable Extinguishing Media	Sand, Dry Powder Cement
Unsuitable Extinguishing Media	Water, Foam, Carbon dioxide (CO2)
Special hazards arising from the substance or mixture:	Borane/boron oxides Sodium oxides Combustible. Caution! in contact with water product releases: Hydrogen Vapors are heavier than air and may spread along floors. May not get in touch with: Water Forms explosive mixtures with air on intense heating. Development of hazardous combustion gases or vapours possible in the event of fire.
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.
Further Information	Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures	Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.For personal protection see section 8.
Environmental precautions	Do not let product enter drains. Risk of explosion.
Methods and material for containment and cleaning up	Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts
Reference to other sections	For disposal see Sections 13.

7. Handling and Storage

Advice on safe handling	Work under hood. Do not inhale substance/mixture. Keep workplace dry. Do not allow product to come into contact with water.Store locked up. Store in original container. Protect from physical damage. Clean up all spills immediately to prevent secondary accidents.
Advice on protection against fire and explosion	Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.
Hygiene measures	Immediately change contaminated clothing. Apply preventive skin protection.Wash hands and face after working with substance. For precautions see section 2.2.

Conditions for safe storage, including any incompatibilities:

Storage conditions	Tightly closed. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.Never allow product to get in contact with water during storage.Recommended storage temperature see product label.
Specific end use(s)	Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

8. Exposure controls and personal protection

Control parameters	Contains no substances with occupational exposure limit values
Exposure Control	
Appropriate Engineering Controls	Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. See section 7.1.
Personal Protective Equipment	Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.Not available
Eye & Face Protection-	Tightly fitting safety goggles
Hand Protection	

Full contact	Material: Nitrile rubber Minimum layer thickness: 0.11 mm Break through time: >480 min
Splash contact	Material: Nitrile rubber Minimum layer thickness: 0.11 mm Break through time: >480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® (splash contact).The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Body Protection	Flame retardant antistatic protective clothing.
Respiratory Protection	Required when dusts are generated. Recommended Filter type: Filter P 3 (acc. to DIN 3181) for solid and liquid particles of toxic and very toxic substances.The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
Environmental Exposure Controls	Do not let product enter drains. Risk of explosion

9. Physical and chemical properties

Appearance	White
Physical State	Solid
Odor	Amine-like
Odor Threshold	No data available
pH: approx	11 10 g/l aq. solution
Melting Point	>360 °C
Vapor Pressure	1 hPa at 25 °C - OECD Test Guideline 104
Vapor Density	1.3
Viscosity Dynami	No data available
Specific Gravity	1.50
Viscosity Kinematic	No data available
Lower Explosive Limit	3.02 vol %
Upper Explosive Limit	No data available
Decomposition Temperature	400 °C
Volatility	No data available
Density	1.074
Bulk Density	powder: 400 kg/m3 / granules: 510 kg/m3
Water/Oil Dist. Co ef	No data available
Ionicity (in Water)	No data available
Boiling Point/Range	> 400 °Cat ca.1.013 hPa - OECD Test Guideline 103
Flash Point	69 °C
Specific Gravity	No data available
Auto-Ignition Temperature	220 °C
Water Solubility:	Reacts violently with water
Molecular Weight	37.83 g/mol
Molecular Formula	NaBH4

10. Stability and reactivity

Reactivity	Forms explosive mixtures with air on intense heating. A range from approx. 15 Kelvin below the flash point is to be rated as critical.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. Reacts violently with water

Chemical stability	Sensitive to moisture. Water reactive. Hygroscopic.
Possibility of hazardous reactions	Risk of explosion with: Water, Alcohols (generation of hydrogen) Copper, Nickel, in finely distributed formaluminium chloride, metallic salts, phenol, Strong oxidizing agents, polymerisable substances, hydrogen peroxide, Powdered metals, acids Risk of ignition or formation of inflammable gases or vapours with: carbon/soot Exothermic reaction with: phosphoric acid, conc. sulfuric acid, Dimethylformamide.
Conditions to avoid	Incompatible products. Excess heat. Exposure to moist air or water. Exposure to moisture. Temperatures above 60°C
Incompatible materials	Strong oxidizing agents, Aldehydes, Ketones, Acids, Aluminium
Hazardous decomposition products	Oxides of boron, Hydrogen, Thermal decomposition can lead to release of irritating gases and vapors, Sodium oxides

11. Toxicological information

Acute toxicity	LD50 Oral - Rat - female – 56.57 mg/kg (OECD Test Guideline 425) Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach. LC50 Inhalation - Rat - male - 4 h - > 1.3 mg/l Remarks: (highest concentration to be prepared) (ECHA) Symptoms: mucosal irritations,Cough, Shortness of breath, Possible damages: damage of respiratory tract LD50 Dermal - Rabbit - male - 4.000 - 8.000 mg/kg Remarks: (External MSDS)
Skin corrosion/irritation	Skin - Rabbit (OECD Test Guideline 404) Remarks: (Test in mixture)
Serious Eye damage/eye irritation	Causes serious eye damage. Risk of corneal clouding
Respiratory or Skin sensitization	Sensitisation test: - Guinea pig Result: negative Remarks: (External MSDS)
Germ cell mutagenicity	No data available
Carcinogenicity	No data available
Reproductive toxicity	May damage the unborn child. May damage fertility
Specific target organ toxicity - single exposure	No data available
Specific target organ toxicity - repeated exposure	No data available
Aspiration hazard	No data available

Additional Information

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Decomposition of the substance with tissue moisture. After absorption: CNS disorders Headache Other information The following applies to boron compounds in general: resorption is followed by nausea and vomiting, agitation, spasms, CNS disorders, cardiovascular disorders.Other dangerous properties cannot be excluded.Handle in accordance with good industrial hygiene and safety practice

12. Ecological information

Toxicity	.
Toxicity to fish	LC50 Danio rerio (zebra fish): > 100 mg/l; 96 h (External MSDS)
Toxicity daphnia and other aquatic invertebrates	No data available
Toxicity to algae	No data available
Toxicity to bacteria	EC50 activated sludge: > 100 mg/l OECD Test Guideline 209

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity	No data available
Persistence and degradability	The methods for determining biodegradability are not applicable to inorganic substances.
Bioaccumulate potentia	No data available
Mobility in soil	No data available
Results of PBT and vPvB assessment	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
Other adverse effects:	Forms toxic mixtures in water, dilution measures notwithstanding. Discharge into the environment must be avoided

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not Relevant.

13. Disposal considerations

Waste treatment method	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.

14. Transport information

UN No	Land transport (ADR/RID)		Air transport (IATA)	Sea transport (IMDG)
UN number		UN1426		
Proper shipping name		4.3		
Class		I		
Environmentally hazardous	-		-	-
Special precautions for user	Yes Tunnel Restriction Code E		Yes	Yes EmS F-G S-O

15. Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture	National legislation Storage Class 4.3
Chemical safety assessment:	For this product a chemical safety assessment was not carried out

16. Other information

Other Information	The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and weassume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Rx Marine International has been advised of the possibility of such damages.