Safety Data Sheet
Boron Nitride (BN) Hardcoat

Revision Date: *2023-05-18*
Revision *4*

Classification Symbol(s)	Personal Protective Equipment (PPE)	Transport Symbols
		

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Commodity code 07002-BNHARD

Product Name Boron Nitride (BN) Hardcoat

Synonyms NSC-4 Non-Stick Coating Cement

Product use Coating for metallic and refractory parts.

Details of the supplier
ZYP Coatings
120 Valley Court
Oak Ridge TN 37830

Distributed by Pyrotek Pty. Ltd.
147-149 Magowar Road
Girraween
NSW 2145
Australia

Pyrotek (61) (0)2 8868 2000
Email: SDS@pyrotek-inc.comREACH email: REACH@pyrotek-inc.com

Emergency Telephone Number CHEMTREC 1800 752 022 (24 hrs), Pyrotek Australia 1800 679 422

2. Hazards Identification

Acute inhalation toxicity - gas	Category 4 H332 - Harmful if inhaled
Serious eye damage/eye irritation	Category 2A H319 - Causes serious eye irritation
Specific target organ toxicity (single exposure)	Category 3 H335 - May cause respiratory irritation

Signal word: **WARNING**

Hazard statements
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H335 - May cause respiratory irritation

Precautionary statements
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P264 - Wash hands thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves and eye/face protection
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

Precautionary Statements - Prevention
Avoid breathing dust/fume/gas/mist/vapors/spray
Wash hands and face thoroughly after handling
Use only outdoors or in a well-ventilated area
Wear eye/face protection

Precautionary Statements - Response
Call a POISON CENTER or doctor/physician if you feel unwell
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

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

Poison Schedule Number Not applicable

3. Composition/information on Ingredients

Chemical name	CAS No.	EC No	Weight-%	Classification based on individual ingredients of the mixture	Australia - NOHSC Labelling
Water	7732-18-5	231-791-2	> 60%		
Graphite	7782-42-5	231-955-3	< 10%	Comb. dust	
Boron Nitride	10043-11-5	233-136-6	10 - 30%		
Potassium Silicate	1312-76-1	215-199-1	10 - 30%		
Acrylic	---		< 10%		

All other ingredients determined not to be hazardous according to GHS criteria

4. First Aid Measures

General advice Not applicable.

Inhalation Remove to fresh air. If symptoms persist, call a physician.

Skin Contact Wash off with soap and water.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. If symptoms persist, call a physician.

Ingestion Drink plenty of water. If possible drink milk afterwards. Consult a physician.

Aggravated Medical Conditions Not applicable.

Notes to Physician Not applicable.

For advice, contact Poisons Information Centre
In Australia, call Tel: 13 1126
In New Zealand, call Tel: 034747000

5. Fire-Fighting Measures

Flammable properties Not flammable.

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding fire

Unsuitable Extinguishing Media None known.

Special exposure hazards in a fire Not applicable.

Specific hazards arising from the chemical Thermal decomposition can lead to release of irritating gases and vapors.

Protective equipment and precautions for firefighters As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Australian Hazchem Code None known

6. Accidental Release Measures

Personal precautions Use personal protective equipment.

Environmental Precautions Do not allow material to contaminate ground water system. Do not flush into surface water or sanitary sewer system.

Methods for cleaning up Dam up. Contain the spill by using a mineral absorbent.

Other Information Slippery, can cause falls if walked on.

7. Handling and Storage

Handling Handle in accordance with good industrial hygiene and safety practice.

Storage Store at room temperature in the original container. Do not freeze.

Materials to avoid As a good practice, do not mix with any other materials.

8. Exposure Controls/Personal Protection

Exposure Guidelines

Chemical name	ES-TWA	ES-STEL	ES-Peak
Graphite	3 mg/m³		

Biological standards No biological limit allocated

Chemical name	Health Surveillance
Water	No biological limit allocated
Graphite	No biological limit allocated
Boron Nitride	No biological limit allocated
Potassium Silicate	No biological limit allocated
Acrylic	No biological limit allocated

Occupational exposure controls

Engineering Controls Ensure adequate ventilation, especially in confined areas when mist is present.

Environmental exposure controls Not applicable.

Personal Protective Equipment
Considerations to aid the user in PPE assessments in line with expected use follow below. However in certain circumstances the user must determine if additional protective equipment is required.

If exposure limits are exceeded or irritation is experienced, locally approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required if high airborne contaminant concentrations as a result of the use of the product. Proper skin and eye protection should also be determined by the user and provided in accordance with current local regulations.

Eye Protection	Safety glasses
Respiratory protection	During spraying, wear suitable respiratory equipment. In case of insufficient ventilation, wear suitable respiratory equipment.
Skin Protection	Long sleeved clothing.
Hand Protection	Impervious gloves
General industrial hygiene practice	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

Physical state	Liquid	**Appearance**	Coating, Paint
Color	Grey	**Odor**	Nearly odorless
pH - VALUE 1	10	**Water solubility**	Miscible in water
Specific gravity - VALUE 1	1.2	**Vapor pressure @20 °C (kPa)**	~ 10-20 mmHg
Vapor density	> 1 (Air = 1)		
		Boiling point / boiling range	100 °C
Melting point/range		**Flash point**	No data available
Autoignition temperature	No data available	**Upper explosion limit**	No data available
Lower explosion limit	No data available		
		Evaporation rate	Same as water
Percent Volatiles	67 - 70 %		

10. Stability and Reactivity

Stability	Stable.
Conditions to Avoid	This paint contains acrylic polymers. Do not use elevated temperatures for the drying process. Dry at room temperature before placing into a furnace environment where any emitted vapors or volatiles will be combusted.
Materials to avoid	As a good practice, do not mix with any other materials.
Hazardous Decomposition Products	Thermal decomposition can lead to release of irritating gases and vapors. This coating contains acrylics. Thermal decomposition of acrylics above 176°F (80°C) may result in a short-term release of decomposition products in the form of carbon oxides and low-level formaldehyde, a potential human carcinogen under conditions of unusually high or prolonged exposure.
Possibility of Hazardous Reactions	Hazardous polymerization does not occur

11. Toxicological Information

Local effects	Not applicable.
Target organ effects	Not applicable.

Acute Toxicity

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Water - 7732-18-5	>90 > 90 mL/kg (Rat)		
Graphite - 7782-42-5	> 10000 mg/kg (Rat)		> 2000 mg/m³ (Rat) 4 h Inhalation LC50 Rat >2000 mg/m³ 4 h (no deaths occurred,

			aerosol, Source: ECHA)
Boron Nitride - 10043-11-5		> 2000 mg/kg (Rat) Dermal LD50	
Potassium Silicate - 1312-76-1	= 1300 mg/kg (Rat)	> 5000 mg/kg (Rat) Dermal LD50	> 2.06 mg/L (Rat) 4 h Inhalation LC50 Rat >2.06 mg/L 4 h (no deaths occurred, vapor, Source: ECHA_API)

Potential Health Effects

Inhalation May cause irritation of respiratory tract.

Eye Contact Severe eye irritation.

Skin Contact Mild skin irritation.

Ingestion Ingestion may cause irritation to mucous membranes.

Chronic Toxicity Excessive inhalation of dust above TLV of dried materials over long periods of time may cause industrial bronchitis, reduced breathing capacity and lead to increased susceptibility to lung disease.

Specific effects

Carcinogenic effects Not applicable.

Mutagenic effects Not applicable.

Reproductive Toxicity Not applicable.

12. Ecological Information

Ecotoxicity effects Information follows.

Graphite
Fish *100 mg/L: 96 h Danio rerio mg/L LC50 semi-static*
Boron Nitride
Fish *100 mg/L: 96 h Oncorhynchus mykiss mg/L LC50 static*
Potassium Silicate
Fish *301 - 478 mg/L: 96 h Lepomis macrochirus mg/L LC50*
3185 mg/L: 96 h Brachydanio rerio mg/L LC50 semi-static

Persistence and degradability None known

Mobility in Environmental Media None known

Bioaccumulation None known

13. Disposal Considerations

Waste disposal methods Dispose of in accordance with federal, state and local regulations. The high pH and liquid nature of this product may restrict disposal options. Non-contaminated product may be returned to the manufacturer for proper disposal. Dried material generally does not exhibit any characteristics of a hazardous waste.

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

Other information According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Dispose of packings and packing waste in accordance with guideline 94/62/EC of the council and the European Parliament of December 20, 1994 as well as the packaging regulation 2004/12/EG of February 11, 2004 and Directive 2005/20/EC from March 9, 2005.

14. Transport Information

Not regulated for transport.

15. Regulatory Information

International Inventories

Chemical name	EINECS	ELINCS	PICCS	ENCS	DSL	NDSL	TSCA	China	AICS	KECL
Water	X		X	X	X		X	X	X	X
Graphite	X		X		X		X	X	X	X
Boron Nitride	X		X	X	X		X	X	X	X
Potassium Silicate	X		X	X	X		X	X	X	X

Carcinogenic substances Not Listed

16. Other Information

Revision Date: 2023-05-18

Reason for Revision Routine review with applicable updates to better reflect product.

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Literary reference Information taken from reference works and the literature.

Key Legend Information
SWA - Safe Work Australia (formerly ASCC - Australian Safety and Compensation Council and NOHSC - National Occupational Health & Safety Commission)
SUSDP - Standard for the Uniform Scheduling of Drugs and Poisons [Aust]
TWA - Time Weighted Average [Int]
STEL - Short Term Exposure Limit [Int]
AICS - Australian Inventory of Chemical Substances [Aust]
Dangerous Goods - Initial Emergency Response Guide (SAA/SNZ HB76:2004)[Aust]
AS/NZS 1715 - Selection, use and maintenance of respiratory protective devices. [Aust/NZ]
Hazchem Code - Fire fighters designation [Aust]
IATA - International Aviation Transport Authority [Int]
IMDG - International Maritime Dangerous Goods [Int]
ADR/RID - European Road & Rail Transportation Union - [Int]
GHS - United Nations Globally Harmonized System for the classification and labelling of Chemicals [Int]
EINECS - European Inventory of Existing Commercial Chemical Substances [Int]
ELINCS - European List of Notified Chemical Substances [Int]
EU - European Union [Int]

[Aust/NZ] = Australian New Zealand
[Int] = International

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End of SDS