

BORON NITRIDE COATINGS

According to Regulation (EC) No 1907/2006/EC REACH

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifier

Combat Boron Nitride Coatings - Barium Free

Product name:

Combat Boron Nitride Coatings - Barium Free

Product Code

V, E, Sf, Sfg, 5Sf, 10Sf, 10Sfg

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

Identified uses of the substance/mixture: Industrial applications.

Not recommended uses of the substance/mixture:

Not intended for food and drug use.

1.3 Identification of the company

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2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

This mixture is classified as not hazardous according to Regulation (EC) 1272/2008.

Classification according to Directive 67/548/EEC and 1999/45/EC

This preparation is not dangerous in the sense of Directive 67/548/EEC and 1999/45/EC.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

There is no obligatory labelling requirement according to Regulation (EC) No 1272/2008.

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2.3 Other hazards

Results of PBT and vPvB assessment:

The components in this formulation do not meet the criteria for classification as PBT or vPvB

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Mixtures

Description:

Mixture of substances listed below with nonhazardous additions.

The product contains non hazardous pigments at concentrations below 3%.

Nonhazardous components:		
CAS: 12199-37-0 EINECS: 235-374-6	smectite	< 30%
CAS: 1344-28-1 EINECS: 215-691-6	aluminium oxide	0-15%
CAS: 1318-93-0 EINECS: 215-288-5	mortmorillonite	0-10%
CAS: 20243-18-9 EC number: 606-473-5	lussatite (non-crystalline hydrated silica)	0-5%
CAS: 10043-11-5 EINECS: 233-136-6 Reg.no.:01-2119947399-20-0003	boron nitride	4-35%
CAS: 7732-18-5 EINECS: 231-791-2	water	60-95%

Additional information: For the wording of the listed hazard phrases refer to section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General information:

In all cases of doubt, or when symptoms persist, seek medical advice. After inhalation: Supply fresh air; consult doctor in case of complaints.

After skin contact:

Immediately wash with water and soap and rinse thoroughly..

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Eye contact:

Immediately flush eyes with plenty of water for 15 to 20 minutes. Get medical attention, if irritation or symptoms of overexposure persists.

Ingestion:

If swallowed, do NOT induce vomiting. Call a physician or poison control centre immediately. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms:

Exposure to dust may be irritating to eyes, skin, nose, throat and respiratory tract. Ingestion can cause nausea, vomiting, diarrhea and gastrointestinal irritation.

Inhalation may cause temporary mechanical irritation of the nose, throat and respiratory tract.

Nature of Hazard:

Routes of entry: inhalation, skin, eyes, ingestion; Target organs: not specified

4.3 Indication of any immediate medical attention and special treatment needed

Emergency aid: First Aid, decontamination, treatment of symptoms.

Treatment: Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable:

Chose appropriate extinguishing media according to the surrounding area.

Unsuitable:

High power water jet.

5.2 Special hazards arising from the substance or mixture

Decomposition of this product may yield oxides of boron and nitrogen (nitrogen oxides, e.g. NO₂, NO₃), irritating smoke and fumes, carbon monoxide (CO), carbon dioxide (CO₂), hydrogen chloride, ammonia, and oxides of magnesium, alumina and barium.

5.3 Advice for fire fighters

Wear special protective equipment for fire-fighters as self-contained breathing apparatus and full protective suit.

Additional information

Material is non-combustible and is not expected to pose a fire or explosion hazard. Chose appropriate extinguishing media according to the surrounding area. Dispose of fire debris and contaminated fire fighting water in accordance with official regulations. Keep upwind.

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6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Avoid generation and inhalation of dust/spray mist. Avoid contact with skin, eyes and clothes. Wear personal protective equipment. Refer to section 7 and 8.

6.2 Environmental precautions

Do not allow entering drains or surface water. Dumping into the environment must be prevented.

6.3 Methods and material for containment and cleaning up

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Avoid generation of dust. Do not inhale dust/spray mist. Provide ventilation. Shovel or sweep up for re-use or disposal. Clean up spills immediately observing precautions in section 8. Waste disposal according to official state regulations. Refer to section 13.

6.4 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.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Information for safe handling

For industrial use only. Handle with care. Wear personal protective equipment. Avoid generation and inhalation of dust or spray mist. Avoid contact with skin, eyes and clothes. Do not use in areas without adequate ventilation. Wash hands and face after handling.

Technical measures

Provide for sufficient ventilation and punctiform suction at critical points to control airborne levels below recommended exposure limits. Provide sufficient washing facilities.

Precautions against fire and explosion

Product is not combustible. However, keep away from sources of ignition - No smoking. Refer to section 5. No further action is necessary.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions

Store in a cool, dry, well ventilated area away from sources of heat and incompatible materials. Keep container tightly closed when not in use.

Packaging materials

Keep/store only in original container.

Requirements for storerooms and containers

Store locked up. Keep container tightly closed in a cool, well-ventilated place.

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Information about storing together in storage facility

Do not store together with incompatible materials. Keep away from food, drink and animal feeding stuffs.

Further information concerning storage conditions

None

Storage class: 12 Non combustible liquid materials

7.3 Specific end use(s)

Refer to section 1.2

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Additional information about design of technical facilities:

Technical measures and the application of adequate working methods take priority over the use of personal protection equipment

8.1 Control parameters

Limits for occupational exposure

Occupational exposure limit values

Ingredients with limit values that require monitoring at the workplace:		
1344-28-1 aluminium oxide		
WEL (Great Britain)	Long-term value: 10* 4** mg/m ³ *inhalable dust **respirable dust	
DNELs		
1344-28-1 aluminium oxide		
Oral	DNEL - long term - systemic	6.58 mg/kg (consumer)
Inhalative	DNEL - long term - local	15.63 mg/m ³ (worker)
	DNEL - long term - systemic	15.63 mg/m ³ (worker)
PNECs		
1344-28-1 aluminium oxide		
PNEC	74.9 µg/l (fresh water) 20 mg/l (sewage treatment plant)	

Additional information: The lists valid during the making were used as basis

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8.2 Exposure controls

Occupational exposure controls

General protection and hygiene measures: Wash hands and face before breaks and at the end of work. Do not eat, drink, smoke or sneeze at the workplace. Provide adequate ventilation at workplace. Use appropriate engineering control such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Wash hands before breaks and at the end of work. After cleaning apply high-fat content skin care cream.

Ensure that washing facilities are available at the work place. Wash contaminated clothing prior to re-use.

Contaminated work clothing should not be allowed outside the workplace. Store protective clothing separately.

Respiratory protection:

With correct and proper use, and under normal conditions, breathing protection is not required. If technical suction or ventilation measures are not possible or are insufficient, protective breathing apparatus must be worn.

The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, a self-contained breathing apparatus must be used!

Suitable respiratory protective equipment: Particulate filter device
Filter P1 or P2

Protection of hands:

Tested protective gloves are to be worn. When handling chemical substances, chemical protective gloves must be worn with CE label including a four digit code. Type of chemical protective gloves to choose depends on the concentration and quantity of dangerous substances as well as on work place specifications. In the cases of special applications, it is recommended to check the chemical resistance with the manufacturer of the gloves.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Material of gloves:

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material:

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:

Safety glasses with side shields

Body protection:

Protective work clothing

Limitation and supervision of exposure into the environment:

Dumping into the environment must be prevented.

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9. PHYSICAL & CHEMICAL PROPERTIES

9.1. Information on the basic physical and chemical properties

State of matter	Liquid
Colour	White
Odour	Odourless
Odour threshold	No data available
Density	1.0 – 2.1 g/cm ³
Package density	Not applicable
pH	4.5 - 9
Melting point / range	Not determined
Boiling temperature / range	107 °C (225 °F)
Flash point	No data available
Flammability	Not flammable
Lower flammability limit	Not applicable
Upper flammability limit	Not applicable
Explosion hazard	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Ignition temperature	Not relevant
Decomposition temperature	2204 °C (decomposition temperature of boron nitride)
Oxidizing characteristics	No data available
Vapour pressure	Not applicable
Relative vapour density	Not applicable
Speed of vaporization / evaporation rate	Not applicable
Volatility	50 – 60 %
Solubility in water	Not applicable
Solubility in other solvents	No data available
log P O/W (n-octanol / water)	No data available
Viscosity (dynamic / kinematic)	No data available

9.2. Other information

Explosive dust-air mixtures may form if high concentrations of product dust are suspended in air.

10. CHEMICAL STABILITY & REACTIVITY INFORMATION

10.1 Reactivity

No ignition, explosion, self-heating or visible decomposition under standard conditions.

10.2 Chemical stability

Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

Reactions possible with strong acids and/or oxidizing agents. Explosive dust-air mixtures may form if high concentrations of product dust is suspended in air.

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10.4 Conditions to avoid

Extreme heat, sparks and open flames. Incompatible materials and oxidizing conditions.

10.5 Incompatible materials

Strong acids, strong oxidizing agents

10.6 Hazardous decomposition products

Decomposition of this product (in case of fire) may yield oxides of boron and nitrogen (nitrogen oxides, e.g. NO₂, NO₃), irritating smoke and fumes, carbon monoxide (CO), carbon dioxide (CO₂), hydrogen chloride, ammonia, and oxides of magnesium, alumina and barium. Decomposition of boron nitride occurs at 2204 °C.

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity: Based on available data, the classification criteria are not met.

Primary irritant effect:

Skin corrosion/irritation: Based on available data, the classification criteria are not met. Serious eye

damage/irritation: Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation: Based on available data, the classification criteria are not met. CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

Carcinogenicity: Based on available data, the classification criteria are not met. Reproductive toxicity:

Based on available data, the classification criteria are not met.

STOT-single exposure:

Based on available data, the classification criteria are not met. STOT-repeated exposure: Based on available data, the classification criteria are not met.

Aspiration hazard:

Based on available data, the classification criteria are not met.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Aquatic toxicity:	
1344-28-1 aluminium oxide	
NOEC	> 71 µg/l (Daphnia magna) (48h, OECD 202) ≥ 52 mg/l (Pseudokirchneriella subcapitata) (72h, OECD 201) > 72 µg/l (Salmo trutta) (96h, OECD 203)

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12.2. Persistence and degradability No further relevant information available.

12.3. Bioaccumulative potential No further relevant information available.

12.4. Mobility in soil No further relevant information available.

General notes:

Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

12.5. Results of PBT and vPvB assessment PBT: Not applicable.
vPvB: Not applicable.

12.6. Other adverse effects No further relevant information available.

13. TRANSPORTATION INFORMATION

13.1 Waste treatment methods

Appropriate disposal/product

The generation of waste should be avoided or minimized wherever possible. Waste disposal according to official state regulations.

Appropriate disposal/packaging

Handle contaminated packaging in the same way as the substance itself. Waste disposal according to official state regulations.

Control report for waste code/ waste marking according to EWC

Consult the appropriate authorities about waste disposal.

14. TRANSPORTATION INFORMATION

14.1. UN-Number
ADR, ADN, IMDG, IATA Void.

14.2. UN proper shipping name
ADR, ADN, IMDG, IATA Void.

14.3. Transport hazard class(es) ADR, ADN, IMDG, IATA
Class Void.

14.4. Packing group
ADR, IMDG, IATA Void.

14.5. Environmental hazards Not applicable.

14.6. Special precautions for user Not applicable.

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14.7. Transport in bulk according to Annex II of Marpol and the IBC Code Not applicable.

UN "Model Regulation": Void.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU-Regulations

Regulation (EC) No 1907/2006 (REACH)

Regulation (EC) No 1272/2008 (CLP)

Directive 67/548/EEC and 1999/45/EC

Information on working limitations

Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers. Observe employment restrictions under the law for the protection of young people at work (94/33/EC). Observe regulation 98/24/EC for employee health protection against the threat of chemical substances in the workplace.

National regulations

National legislation has to be observed!

Major Accidents Ordinance

No information available.

Storage class according to TRGS 510 (DE)

12 non combustible liquid materials

Water Hazard Class according to VwVwS (DE)

No information available.

Technical Instructions on Air Quality Control (TA-Luft) (DE)

No information available.

15.2 Chemical safety assessment

For this preparation a chemical safety assessment has not been carried out.

16. OTHER INFORMATION

For this product, no Safety Data Sheet is legally required under European Regulation 1907/2006 (REACH). Insulcon made a decision to deliver appropriate information to their customers in the safe handling and use of this product through this Safe Use Instruction Sheet.

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Training hints:

The product should only be handled by persons, who were informed sufficiently about the nature of the product and about the necessary safety precautions.

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals EINECS: European Inventory of Existing Commercial Chemical Substances ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society) VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative

Sources: Data arise from reference works and literature.

* Data compared to the previous version altered.

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16.3 Further remarks

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety datasheet is not necessarily valid for the new made-up material.

16.4 Documentation of changes

Section 1: Adjustment of information (product code)

Section 3: Adjustment of information on product composition (pigments)

Section 8: Adjustment of occupational exposure limit values (aluminium oxide); addition DNEL and PNEC values

Section 11: Minor adjustments (general remarks)

Section 12: Minor adjustments

Section 13: Adjustment of information on appropriate disposal/product

Section 14: Adjustment of transport information

Section 15: Adjustment of information on EU regulations, storage class and chemical safety assessment

Section 16: Adjustment of training instructions, documentation of changes and key and definitions

16.5 Data sources

Data arise from reference works and literature.

16.6 Key and definition

AGS: Committee on Hazardous Substances

DFG: German Research Foundation

DNEL: derived no effect level

LC50: median lethal concentration

LD50: median lethal dose

NOAEC: no observed adverse effect concentration

NOEC: no observed effect concentration

OECD: Organisation for Economic Co-operation and Development

OEL: occupational exposure limit value

OSHA: Occupational Safety and Health Administration

PNEC: predicted no effect concentration

TRGS: Technical Rules for Hazardous Substances