

Date: 03.11.2015
Product: BORPower® GBX-GEAR
Article no.: 8697745430036

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

1.1. Product identifier

Nano Boron internal coating

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

Use of the substance/mixture

Nano Boron internal coating for gearbox and differential

1.3. Details of the supplier of the safety data sheet

| | | |
|--------------|------------------------------------------------------------------------------------|-----------------------|
| Supplier | NNT BORPower GmbH Pechhüttenstraße 6, A-2320 Schwechat/Austria | |
| Manufacturer | NNT Nanotechnologie Bor AR-GE Organize Sanayi Bölgesi-Kirkclareli/Turkey | |
| Internet | www.borpower.net | |
| E-Mail | info@borpower.net | |
| Hotline | Mo-Fr from 09.00 to 17.00 | |
| | Tel.: +43 1 342 852 | Fax: +43 1 342 852-52 |

1.4. Emergency telephone number

Austria +43 1 406 43 43 (Gesundheit Österreich GmbH, 24h)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Indications of danger: Xn-Harmful, N-Dangerous for environment

R phrases: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. May cause harm to breastfed babies.

Repeated exposure may cause skin dryness or cracking.

GHS classification

Hazard categories:

Hazardous to the aquatic environment: Aquatic Acute 1

Reproductive toxicity: Lact.

Hazardous to the aquatic environment: Aquatic chron. 1

Hazard Statements

May cause harm to breast-fed children.

Very toxic to aquatic life with long lasting effects.

May be fatal if swallowed and enters airways.

2.2. Label elements

Hazardous components which must be listed on the label

Mixture of mineral oil and nanostructured hydroboron

Signal word: **Danger**

Pictograms: **GHS07-GHS08-GHS09**



Irritant



Hazardous



Dangerous for the environment

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Hazard Statements

- H304 May be fatal if swallowed and enters airways.
H410 Very toxic to aquatic life with long-lasting effects.

Precautionary statements

- P101 If medical advice is needed, have product container or label at hand.
P102 Keep out of reach of children.
P263 Avoid contact during pregnancy/while nursing.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P313+P337 If eye irritation persists: Get medical advice/attention.
P501 Do not discharge into drains or the environment, dispose to an authorised waste collection point.

Special labelling of certain mixtures

- EUH066 Repeated exposure may cause skin dryness or cracking

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical characterization

Mixture of mineral oil and nanostructured hydroboron

3.2. Mixtures

Hazardous components

| EC-No. | Chemical name | Quantity |
|------------------|-----------------------------------------------|--------------|
| CAS-No. | Classification | |
| Index-No. | GHS-Classification | |
| REACH-No. | | |
| 233-136-6 | Nanostructured hydroboron | 1-5% |
| 10043-11-5 | Xi-Irritant, R36, R37 | |
| | Eye Irrit. 2, H304, H315, H319, H332, EUH 066 | |
| 295-426-9 | Mineral oil | 1-30% |
| 92045-45-9 | Xn-Harmful, R51, R53 | |
| | Aquatic chronic 1, H362, H400, H410 | |

Full text of R-, H- and EUH-phrases see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

After inhalation

Supply person with fresh air immediately.
Consult physician if respiratory problems persist.
If victim is at risk of losing consciousness, position and transport on their side.

After contact with skin

Take off immediately all contaminated clothing, including underwear and shoes. After contact with skin, wash immediately with plenty of water and soap.

After contact with eyes

Remove contact lenses.
Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart.
Contact a doctor.

After ingestion

Rinse mouth thoroughly with water. Do not induce vomiting. Consult a doctor.

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4.2. Most important symptoms and effects, both acute and delayed

Irritation of eyes: Irritant effect possible.
After ingestion: Harmful: May cause lung damage if swallowed.
Harmful: Danger of serious damage to health by prolonged exposure through inhalation.

4.3. Indication of any immediate medical attention and special treatment needed

Warning about danger of aspiration. Contact the poison center.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Extinguishing powder, sand, carbon dioxide (CO₂)

Extinguishing media which must not be used for safety reasons

High power water jet.

5.2. Special hazards arising from the substance or mixture

Formation of decomposition products possible.
In case of fire and/or explosion do not breathe fumes.

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.

Additional information

Cool endangered container in case of fire.
Beat down gas/vapours/mist with water spray.
Contaminated fire-fighting water must be collected separately.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

In case of fire: Wear a self-contained breathing apparatus and chemical resistant suit.
Keep away from sources of ignition and do not smoke.
High skid risk because of leaking or spilled product.

6.2. Environmental precautions

Do not empty into drains or the aquatic environment.
In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

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).
Prevent spread over a wide area (e.g. by containment or oil barriers).

6.4. Reference to other sections

See section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

If handled uncovered, arrangements with local exhaust ventilation have to be used.
Avoid contact with skin and eyes.
Maintain adequate ventilation.
Avoid eating, drinking, smoking as well as the storage of food in the workspace.
Follow the advices on the product label and the user manual.
Keep the product container closed if they are not in use or empty.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Store product in the original packaging.
Keep container tightly closed.
Storage class: TRGS 510: 3

7.3. Specific use(s)

No information available.

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| Country | Chemical name | AGW-value | BGW-value |
|-------------|-----------------|-----------------------------------|-----------|
| Austria | Mineral oil fog | 5 mg/m ³ (TLV-ACGIH) | |
| Germany | Mineral oil fog | 5 mg/m ³ (TLV-ACGIH) | |
| Country | Chemical name | MAK-value | BAT-value |
| Switzerland | Mineral oil fog | 0,2 mg/m ³ (TLV-ACGIH) | |

8.2. Exposure controls

Protective and hygiene measures

- Take off immediately all contaminated clothing
- Avoid contact with skin and eyes.
- Keep away from food, drink and animal feeding stuffs.
- When using do not eat, drink or smoke.
- Wash hands before breaks and after work.

Respiratory protection

- In case of accumulation of fumes/aerosols.
- In case of insufficient ventilation, wear suitable respiratory equipment.

Eye/face protection

- Wear tightly sealed safety glasses against possible splashes into the eyes. (EN 166)

Skin protection

- Wear suitable protective clothing according to EN 465.

Hand protection

- Tested protective gloves are to be worn: NBR (Nitrile rubber). FKM (Fluoroelastomer (Viton)). (EN374)

Other information

- See section 6 and 7.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| Parameter | Typical Value | Test method |
|----------------------------|------------------------|---------------|
| Physical state | liquid | ASTM D97 |
| Color | Cream -colored | ASTM D1500 |
| Odour | characteristic | |
| Vapour pressure (at 20° C) | Not determined | |
| pH as is | n.a. | |
| Flash point | 320° C (C.O.C) | ASTM D92 |
| Melting point | Not determined | |
| Boiling point | 420° C | |
| Lower explosion limits | 1 Vol.% (spray) | |
| Upper explosion limits | 10 Vol.% (spray) | |
| Vapour density | Not determined | |
| Ignition temperature | n.a. | DIN 51794 |
| Density (at 20°C) | 02,2 g/cm ³ | ASTM D6683-01 |
| Water solubility | insoluble | ASTM D1401 |
| Thermal resistance | Max. 1340° C | ASTM C1045-01 |
| Hardness | 9-10 Mohs | Mohs hardness |
| Chemical reactivity | Inert | ASTM D4636 |
| Vapour of the mineral oil | 0,88 g/cm ³ | ASTM D6683-01 |
| Vapour of the product | 1,1 g/cm ³ | ASTM D6683-01 |

9.2. Other information

No data

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SECTION 10: Stability and reactivity

10.1. Reactivity

No information available.

10.2. Chemical stability

No decomposition when used as intended.

10.3. Possibility of hazardous reactions

No dangerous reactions are known.

10.4. Conditions to avoid

Only use the material in places where open light, fire and flammable sources can be kept away. No decomposition when used as intended.

10.5. Incompatible materials

Strong oxidants and other chemicals. See also item 7.

10.6. Hazardous decomposition products

No hazardous decomposition products are known.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

| Exposure routes | Method | Dose | Species | Source |
|-----------------|--------|-----------------|---------|--------|
| Oral | LD50 | >50000 mg/kg | Rat | |
| dermal | LD50 | n.d.a (mg/kg) | Rat | |
| Inhalative | LC50 | n.d.a (mg/l/4h) | Rat | |
| Eye contact | | n.d.a | | |

11.2. Delayed impacts and chronic effects

| | |
|----------------------|-----------------------------------------------------------------------------------------|
| Sensitizing effects | n.d.a |
| Carcinogenic effects | No ingredients of the product are listed by OSHA, NTP or IARC as suspected carcinogens. |
| Mutagenic effects | n.d.a |
| Teratogenic effects | n.d.a. |
| Narcotic effects | n.d.a |

11.3. Irritation and corrosivity

After skin contact: Frequently or prolonged contact with skin may cause dermal irritation.

11.4. Sensitising effects

No danger of sensitization.

SECTION 12: Ecological information

12.1. Toxicity

| | |
|--------------------------------------|---------------------------------|
| Water hazard class | WGK2 |
| Self-classification | Yes (according to VwVwS) |
| Persistency and biodegradability | Heavily biologically degradable |
| Measures in sewage processing plants | Mechanical is possibly |
| Aquatic toxicity | See item 3 |
| Ecological toxicity | n.d.a |

12.2. Persistence and degradability

No information available.

12.3. Bioaccumulative potential

No information available.

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assesment

No information available.

12.6. Other adverse effects

Do not allow to enter into surface water or drains.

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SECTION 13: Disposal considerations

13.1. Waste treatment methods

Advice on disposal

Arrange about the exact waste code with the local waste disposal expert.

Contaminated packaging

Container must be completely emptied.

Do not allow to enter into surface water or drains.

SECTION 14: Transport information

General information

This product does not contain toxic chemicals subject to the reporting requirements of section 313 of title III of the SARA of 1986 and the directive 40CFR372.

Land transport (ADR/RID)

14.1. UN number n.a.

14.2. UN proper shipping name n.a.

14.3. Transport hazard class(es) n.a.

14.4. Packing group n.a.

Hazard label n.a.

Classification code n.a.

Special Provisions n.a.

Limited quantity n.a.

Transport category n.a.

Hazard No. n.a.

Tunnel restriction code n.a.

No hazardous product according to these transportation regulations

Inland waterways transport (ADN)

No hazardous product according to these transportation regulations

Marine transport (IMDG)

No hazardous product according to these transportation regulations

Air transport (ICAO)

No hazardous product according to these transportation regulations

14.5. Environmental hazards

Dangerous for the environment: Yes



14.6. Special precautions for user

No information available.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

No information available.

SECTION 15: Regulatory information

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

EU regulatory information

Contains: 1-30% mineral oil and 1-5% of nano hydroboron

National regulatory information

Water contaminating class (D): 2-water contaminating

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

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SECTION 16: Other information

Full text of R phrases (Number and full text)

| | |
|-------------|-------------------------------------------------------|
| R20 | Harmful by inhalation. |
| R22 | Harmful if swallowed. |
| R36/R37/R38 | Irritating to eyes, respiratory system and skin. |
| R51 | Can yield long-term hazardous effects in water. |
| R53 | Poisonous for water organisms. |
| R65 | Harmful: May cause lung damage if swallowed. |
| R66 | Repeated exposure may cause skin dryness or cracking. |

Full text of H- and EUH-phrases (Number and full text)

| | |
|--------|-------------------------------------------------------|
| H304 | May be fatal if swallowed and enters airways. |
| H315 | Causes skin irritation. |
| H317 | May cause an allergic skin reaction. |
| H319 | Causes serious eye irritation. |
| H332 | Harmful if inhaled. |
| H362 | May cause harm to breast-fed children. |
| H400 | Very toxic to aquatic life. |
| H410 | Very toxic to aquatic life with long lasting effects. |
| H411 | Toxic to aquatic life with long lasting effects. |
| EUH066 | Repeated exposure may cause skin dryness or cracking. |

Further Information

The information is based on present level of our knowledge. It does not, however, give assurances of product properties and establishes no contract legal rights.

The receiver of our product is singularly responsible for adhering to existing laws and regulations.

Legends

| | |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ACGIH | American Conference of Gouvernement and Industrial Hygienists |
| ADR | Accord europeen relatif au Transport international des marchandises Dangereuses par Route (Europäisches Übereinkommen über die internationale Beförderung gefährlicher Güter auf der Straße) |
| AGW | Arbeitsplatzgrenzwert |
| ARW | Arbeitsplatzrichtwert |
| Alkoholbest | Alkoholbeständig |
| Anm. | Anmerkung |
| allg. | allgemein |
| AOEL | Acceptable Operator Expo Sure Level |
| ATE | Acute Toxicity Estimate (Schätzwert Akuter Toxizität gemäß der Verordnung (EG) Nr. 1272/2008 (CLP)) |
| BG | Berufsgenossenschaft |
| BGV | Berufsgenossenschaftliche Vorschrift |
| BGW | Biologischer Grenzwert (TRGS 903, BRD) |
| BGW/VLB | Biologisch grenswaarde/Valerur limite bioloique (Belgien) |
| BGW/VGÜ | Biologischer Grenzwert, Verordnung des Bundesministers für Arbeit und Soziales über die Gesundheitsüberwachung am Arbeitsplatz (Österreich) |
| BOD | Biochemical oxygen demend (biochemischer Sauerstoffbedarf –BSB) |
| BSEF | Bromine Science and Environmental Forum |
| Bw | Body weight (Körpergewicht) |
| bzw. | beziehungsweise |
| ca. | circa/zirka |
| CAS | Chemical Abstract Services |
| CLP | Classification, Labelling and Packaging (Verordnung (EG) Nr. 1272/2008 über die Einstufung, Kennzeichnung und Verpackung von Stoffen und Gemischen) |
| GefStoffV | Gefahrstoffverordnung |
| HMIS | Hazardous Material Identification System |
| IARC | International Agency for Research on Cancer |
| JArbSchG | Jugendarbeitsschutzgesetz |
| LC | Lethal concentration |
| LD | Lethal dosage |
| MAK | Maximal workspace concentration |

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| | |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MuSchG | Mutterschutzgesetz |
| n.a. | Not applicable (nicht anwendbar) |
| n.g. | nicht geprüft |
| n.v. | nicht verfügbar |
| n.d.a. | No data available |
| n.t. | Not tested |
| NOAEL | No Observed Adverse Effect Level (Dosis ohne beobachtete schädigende Wirkung) |
| NOEC | No Observed Effect Level (Tierexperimentell festgelegte höchste Konzentration, bei der keine Wirkung (schädigender Effekt) mehr nachweisbar ist) |
| OECD | Organisation for Economic Cooperation and Development (Organisation für wirtschaftliche Zusammenarbeit und Entwicklung) |
| Org. | organisch |
| PVC | Polyvinylchlorid |
| REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals (Verordnung (EG) Nr. 1907/2006 zur Registrierung, Bewertung, Zulassung und Beschränkung chemischer Stoffe) |
| TRbF | Technical rules for handling flammable liquids |
| TVA | Technische Verordnung über Abfälle (Schweiz) |
| TWA | Time Weighted Average |
| UEV | Eidgenössisches Department für Umwelt, Verkehr, Energie und Kommunikation (Schweiz) |
| UN RTDG | United Nations Recommendations on the Transport of Dangerous Goods (die Empfehlungen der Vereinten Nationen für die Beförderung gefährlicher Güter) |
| UV | Ultraviolett |
| VbF | Directives for flammable liquids Verordnung über brennbare Flüssigkeiten (Österreichische Verordnung) |
| VeVA | Verordnung über den Verkehr mit Abfällen (Schweiz) |
| VOC | Volatile organic compounds (flüchtige organische Verbindung) |
| vPvB | very persistent and very bioaccumulative (sehr persistent und sehr bioakkumulierbar) |
| WGK | Water hazard class according to VwVwS (Wassergefährdungsklasse gemäß Verwaltungsvorschrift wassergefährdender Stoffe –VwVwS) |
| WGK3 | severely hazardous to waters (stark wassergefährdend) |
| WGK2 | hazardous to waters (wassergefährdend) |
| WGK1 | low hazardous to waters (schwach wassergefährdend) |
| VCI | Chemical industry alliance (Verband der Chemischen Industrie e.V) |
| Wwt | wet weight (Feuchtmasse) |
| VwVwS | Verwaltungsvorschrift für wassergefährdende Stoffe |
| z. Zt. | Zu Zeit |
| z.B. | zum Beispiel |

This data sheet was written according to 2001/58/EG and TRGS 220. The information in this data sheet shall describe the product with respect to the required safety aspects. The information is not intended to assure certain product properties. The information was collected to the best of the manufacturer's knowledge. They shall not be modified nor applied to other products. No liability.

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