

Safety Data Sheet

according to 1907/2006/EC, Article 31

Printing date 28.10.2014

Version number 2

Revision: 23.10.2014

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

1.1. Product identifier

Trade name:

Boron nitride spray

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

Application of the substance / the
mixture:

Lubricant

Uses advised against:

Other uses than the identified uses indicated above.

* **SECTION 2: Hazards identification**

2.1. Classification of the substance or mixture

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



GHS02 flame

Flam. Aerosol 1 H222-H229 Extremely flammable aerosol. Pressurised container: May burst if heated.
.....

GHS07

Eye Irrit. 2 H319 Causes serious eye irritation.

STOT SE 3 H336 May cause drowsiness or dizziness.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC:



Xi; Irritant

R36: Irritating to eyes.

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F+; Extremely flammable

R12: Extremely flammable.

R67-66: Vapours may cause drowsiness and dizziness. Repeated exposure may cause skin dryness or cracking.

2.2. Label elements

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

The product is classified and labelled according to the CLP regulation.

Hazard pictograms:



GHS02 GHS07

Signal word:

Danger

Hazard-determining components of
labelling:

acetone
propan-2-ol

Hazard statements:

H222-H229 Extremely flammable aerosol. Pressurised container:
May burst if heated.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

Precautionary statements:

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P251 Pressurized container: Do not pierce or burn, even after use.
P211 Do not spray on an open flame or other ignition source.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P264 Wash thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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P312	Call a POISON CENTER/doctor if you feel unwell.
P337+P313	If eye irritation persists: Get medical advice/attention.
P405	Store locked up.
P410+P412	Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

Additional information:

EUH066 Repeated exposure may cause skin dryness or cracking.
Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use.

Do not spray on a naked flame or any incandescent material. Keep away from sources of ignition - No smoking.

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.

* SECTION 3: Composition/information on ingredients

3.2. Mixtures

Description: Mixture consisting of the following components:

Components:			
CAS: 67-64-1 EINECS: 200-662-2 Reach-No.: 01-2119471330-49	acetone	Xi R36 F R11 R66-67 Flam. Liq. 2, H225, EUH066 Eye Irrit. 2, H319; STOT SE 3, H336	40-50%
CAS: 106-97-8 EINECS: 203-448-7	butane	F+ R12 Flam. Gas 1, H220 Press. Gas, H280	15-20%
CAS: 74-98-6 EINECS: 200-827-9	propane	F+ R12 Flam. Gas 1, H220 Press. Gas, H280	5-10%

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CAS: 64-17-5 EINECS: 200-578-6	ethanol	F R11 Flam. Liq. 2, H225	5-10%
CAS: 67-63-0 EINECS: 200-661-7 Reach-No.: 01-2119457558-25	propan-2-ol	Xi R36 F R11 R67 Flam. Liq. 2, H225 Eye Irrit. 2, H319; STOT SE 3, H336	< 5%
CAS: 75-28-5 EINECS: 200-857-2	isobutane	F+ R12 Flam. Gas 1, H220 Press. Gas, H280	5-10%
CAS: 1303-86-2 EINECS: 215-125-8	diboron trioxide	T Repr. Cat. 2 R60-61 Repr. 1B, H360FD	< 0.2%
CAS: 10043-11-5 EINECS: 233-136-6	boron nitride		5-10%
CAS: 71-23-8 EINECS: 200-746-9 Reach-No.: 01-211-9486761-29	propan-1-ol	Xi R41 F R11 R67 Flam. Liq. 2, H225 Eye Dam. 1, H318 STOT SE 3, H336	< 0.5%
SVHC			
1303-86-2	diboron trioxide		

Additional information:

For the wording of the listed risk phrases refer to section 16.

* SECTION 4: First aid measures

4.1. Description of first aid measures

General information:

Personal protection for the First Aider.

In case of accident or if you feel unwell, seek medical advice immediately (show safety data sheet if possible).

After inhalation:

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

In case of unconsciousness place patient stably in side position for transportation.

After skin contact:

Take off all contaminated clothing.

Immediately wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

After eye contact:

Protect unharmed eye.

Rinse opened eye for several minutes under running water.

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Remove contact lenses, if present and easy to do. Continue rinsing.
Seek medical treatment.

After swallowing:

Rinse mouth.
Do not induce vomiting.
Seek medical treatment.

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

Irritating to eyes.
Drowsiness
Dizziness
Anaesthetic state
Repeated exposure may cause skin dryness or cracking.
Headache
Unconsciousness
Tiredness
Nausea
Depression of the central nervous system

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

First Aid, decontamination, treatment of symptoms.

* SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing agents:

Water spray
Foam
ABC powder
BC powder
Carbon dioxide

For safety reasons unsuitable extinguishing agents:

Water with full jet

5.2. Special hazards arising from the substance or mixture

The product is highly flammable.
In case of fire, the following can be released:
Carbon monoxide (CO)
Carbon dioxide (CO₂)

5.3. Advice for firefighters

Protective equipment:

Do not inhale explosion gases or combustion gases.
Wear self-contained respiratory protective device.
Wear fully protective suit.

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Trade name: **Boron nitride spray****Additional information:**

Cool endangered receptacles with water spray.
 Move undamaged containers from immediate hazard area if it can be done safely.
 Collect contaminated fire fighting water separately. It must not enter the sewage system.
 Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

* SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Remove persons from danger area.
 Keep people at a distance and stay on the windward side.
 Keep away from ignition sources.
 Ensure adequate ventilation.
 Do not inhale gases / fumes / aerosols.
 Avoid contact with the eyes and skin.
 Wear protective clothing.

6.2. Environmental precautions:

Prevent from spreading (e.g. by damming-in or oil barriers).
 Do not allow product to reach sewage system or any water course.
 Dumping into the environment must be prevented.

6.3. Methods and material for containment and cleaning up

Stop leak if safe to do so.
 Prevent spreading over great surfaces (e.g. by damming or installing oil booms).
 Ensure adequate ventilation.
 Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
 Dispose of the material collected according to regulations.

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.

* SECTION 7: Handling and storage

7.1. Precautions for safe handling

Wear personal protective equipment. See section 8.
 Ensure good ventilation/exhaustion at the workplace.
 Prevent formation of aerosols.
 Keep away from heat and direct sunlight.
 Avoid contact with skin and eyes.

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Do not breathe dust/fume/gas/mist/vapours/spray.
Ensure that washing facilities are available at the work place.
Wash hands before breaks and at the end of work.
Take off all contaminated clothing.
Do not eat, drink, smoke or sneeze at the workplace.

Information about fire - and explosion protection:

Pressurised container: protect from sunlight and do not expose to temperatures exceeding 50 °C, i.e. electric lights. Do not pierce or burn, even after use.
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Do not spray onto a naked flame or any incandescent material.
Vapours are heavier than air and will spread at floor level.
Reignition possible at long range.
Fumes can combine with air to form an explosive mixture.

7.2. Conditions for safe storage, including any incompatibilities

Storage:

Requirements to be met by storerooms and receptacles:

Access is only to be granted to authorised personal.
Keep container tightly closed in a cool, well-ventilated place.
Provide solvent resistant, sealed floor.
Prevent any seepage into the ground.
Vapours / aerosols must be extracted by suction immediately at point of origin.
Store only in the original container.
Observe official regulations on storing packagings with pressurised containers.

Information about storage in one common storage facility:

Keep away from food, drink and animal feeding stuffs.
Store away from flammable substances.
Store away from oxidising agents.

Further information about storage conditions:

Protect from heat and direct sunlight.
Store in a cool place. Heat will increase pressure and may lead to the receptacle bursting.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Storage class:

2B Aerosols

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7.3. Specific end use(s): See section 1.

* SECTION 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

Ingredients with limit values that require monitoring at the workplace:	
67-64-1 acetone	
WEL (Great Britain)	Short-term value: 3620 mg/m ³ , 1500 ppm Long-term value: 1210 mg/m ³ , 500 ppm
OEL (Ireland)	Long-term value: 1210 mg/m ³ , 500 ppm IOELV
IOELV (EU)	Long-term value: 1210 mg/m ³ , 500 ppm
106-97-8 butane	
WEL (Great Britain)	Short-term value: 1810 mg/m ³ , 750 ppm Long-term value: 1450 mg/m ³ , 600 ppm Carc (if more than 0.1% of buta-1.3-diene)
OEL (Ireland)	Long-term value: 1000 ppm
74-98-6 propane	
OEL (Ireland)	Long-term value: 1000 ppm Asphx
64-17-5 ethanol	
WEL (Great Britain)	Long-term value: 1920 mg/m ³ , 1000 ppm
OEL (Ireland)	Short-term value: 1000 ppm
67-63-0 propan-2-ol	
WEL (Great Britain)	Short-term value: 1250 mg/m ³ , 500 ppm Long-term value: 999 mg/m ³ , 400 ppm
OEL (Ireland)	Short-term value: 400 ppm Long-term value: 200 ppm Sk
1303-86-2 diboron trioxide	
WEL (Great Britain)	Short-term value: 20 mg/m ³ Long-term value: 10 mg/m ³
OEL (Ireland)	Short-term value: 20 mg/m ³ Long-term value: 10 mg/m ³

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71-23-8 propan-1-ol		
WEL (Great Britain)	Short-term value: 625 mg/m³, 250 ppm Long-term value: 500 mg/m³, 200 ppm Sk	
OEL (Ireland)	Long-term value: 100 ppm Sk	
DNELs		
67-64-1 acetone		
Oral	DNEL	62 mg/kg bw/d (consumer) (Long term - systemic)
Dermal	DNEL	186 mg/kg bw/d (worker) (Long term - systemic)
		62 mg/kg bw/d (consumer) (Long term - systemic)
Inhalative	DNEL	1210 mg/m³ (worker) (Long term - systemic)
		200 mg/m³ (consumer) (Long term - systemic)
		2420 mg/m³ (worker) (Short term - local)
PNECs		
67-64-1 acetone		
PNEC	1.06 mg/L (marine water)	
	10.6 mg/L (fresh water)	
	100 mg/L (sewage treatment plant)	
	21 mg/L (intermittent release)	
	3.04 mg/kg sediment dw (sediment marine water)	
	30.4 mg/kg sediment dw (sediment fresh water)	

8.2. Exposure controls

Personal protective equipment:
General protective and hygienic measures:

The usual precautionary measures are to be adhered to when handling chemicals.
Avoid contact with the eyes and skin.
Do not inhale gases / fumes / aerosols.
Do not eat, drink, smoke or sniff while working.
Store protective clothing separately.
Immediately remove all soiled and contaminated clothing
Wash contaminated clothing prior to re-use.
Ensure that washing facilities are available at the work place.
Wash hands before breaks and at the end of work.

Respiratory protection:

Use suitable respiratory protective device in case of insufficient ventilation.
The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when

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handling the product. If the concentration is exceeded, closed-circuit breathing apparatus must be used!
 In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
 Suitable respiratory protective equipment:
 FFP3 (EN 149)

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.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

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.

Recommendation:

PVA gloves

Butyl rubber, BR

(EN 374)

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:

Recommendation:

Face protection

Tightly sealed goggles

(EN166)

Body protection:

Use protective suit.

Recommendation:

Protective work clothing

Boots

Only wear fitting, comfortable and clean protective clothing.

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* **SECTION 9: Physical and chemical properties**

9.1. Information on basic physical and chemical properties

General Information

Appearance:

Form:	Aerosol
Colour:	Not determined.
Odour:	Acetone-like
Odour threshold:	Not determined.

pH-value: No data available.

Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.

Flash point: Not applicable, as aerosol.

Self-igniting: Product is not selfigniting.

Danger of explosion: Heating may cause an explosion.
In use, may form flammable/explosive vapour-air mixture.

Vapour pressure: <110 kPa

Density: <1

Vapour density: Not determined.

Evaporation rate: Not determined.

Solubility in / Miscibility with water: Insoluble.

Partition coefficient (n-octanol/water): Not determined.

9.2. Other information No further relevant information available.

* **SECTION 10: Stability and reactivity**

10.1. Reactivity The product is stable under standard conditions (temperature, pressure) of storage and handling.

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Trade name: **Boron nitride spray****10.2. Chemical stability**

The product is stable under standard conditions (temperature, pressure) of storage and handling.

Thermal decomposition / conditions to be avoided:

No decomposition if used according to specifications.

10.3. Possibility of hazardous reactions

Danger of receptacles bursting because of high vapour pressure when heated.

Can form explosive mixtures in air if heated above flash point and/or when sprayed or atomised.

10.4. Conditions to avoid

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

10.5. Incompatible materials

Oxidizing agents

10.6. Hazardous decomposition products

In case of fire/heat, the following products can be released:
Carbon monoxide (CO) and carbon dioxide (CO₂)
Nitrogen oxides (NO_x)

* SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity:

LD/LC50 values relevant for classification:

67-64-1 acetone

Oral	LD50	5800 mg/kg (rat)
Dermal	LD50	20000 mg/kg (rabbit)
Inhalative	LC50	50.1 mg/L air (rat) (8h)

106-97-8 butane

Inhalative	LC50	658 mg/m ³ (rat) (4h)
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Primary irritant effect:

on the skin:

Repeated exposure may cause skin dryness or cracking.

on the eye:

Irritating effect.

Sensitisation:

No sensitising effects known.

Additional toxicological information:

Vapours may cause drowsiness and dizziness.

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CMR effects (carcinogenity,
mutagenicity and toxicity for
reproduction):

Carcinogenicity: No indications of human carcinogenicity exist.
Mutagenicity: No indications of human germ cell mutagenicity exist.
Reproductive toxicity: No indications of human reproductive toxicity exist for the mixture. However the mixture contains B₂O₃ which is classified as Repr. 1B, H360FD.

* SECTION 12: Ecological information

12.1. Toxicity

Aquatic toxicity:	
67-64-1 acetone	
EC50	61.15 g/L (activated sludge) (30 min)
LC50	1355 mg/L air (Oncorhynchus mykiss) (96h)
	8800 mg/L (Daphnia pulex) (48h)
NOEC	530 mg/L (Microcystis aeruginosa) (8d)
	≥ 79 mg/L (Daphnia magna) (21d)
106-97-8 butane	
EC50	7.71 mg/L (Green alga) (96h)
LC50	14.22 mg/L (daphnia) (48h)
	24.11 mg/L (fish) (96h)

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.

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* **SECTION 13: Disposal considerations**

13.1. Waste treatment methods

Recommendation

Must not be disposed together with household garbage. Do not allow product to reach sewage system.
Must be specially treated adhering to official regulations.

Waste disposal key:

According to the EWC, allocation of waste identity numbers/waste descriptions must be carried out in a specific way for every industry and process.

Uncleaned packaging:

Recommendation:

Empty contaminated packagings thoroughly. They may be recycled after thorough and proper cleaning.
Do not cut, drill, grind, weld or perform similar operations on or near containers.
Packagings that may not be cleansed are to be disposed of in the same manner as the product.
Disposal must be made according to official regulations.

* **SECTION 14: Transport information**

14.1. UN-Number

ADR, IMDG, IATA:

UN1950

14.2. UN proper shipping name

ADR:

1950 AEROSOLS

IMDG, IATA:

AEROSOLS

14.3. Transport hazard class(es)

ADR, IMDG, IATA:

Class:

2 Gases.

Label:

2.1

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Marine pollutant:

No

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14.6. Special precautions for user Warning: Gases.

14.7. Transport in bulk according to Annex II of
MARPOL73/78 and the IBC Code Not applicable.

Transport/Additional information:

ADR

Limited quantities (LQ)

1L

Tunnel restriction code

D

* SECTION 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)

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

Directive 89/656/EEC (personal protective equipment)

Directive 75/324/EEC (aerosol)

Regulation 98/24/EC (employee health protection)

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

GHS label elements

National regulations:

National legislation has to be observed!

Information about limitation of use:

Employment restrictions concerning juveniles must be observed.
Employment restrictions concerning pregnant and lactating women
must be observed.
Employment restrictions concerning women of child-bearing age
must be observed.

Other regulations, limitations and prohibitive regulations:

Substances of very high concern (SVHC) according to REACH, Article 57	
1303-86-2	diboron trioxide

15.2. Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

* SECTION 16: Other information

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

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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 data sheet is not necessarily valid for the new made-up material.

Relevant phrases:

H220 Extremely flammable gas.
 H225 Highly flammable liquid and vapour.
 H280 Contains gas under pressure; may explode if heated.
 H318 Causes serious eye damage.
 H319 Causes serious eye irritation.
 H336 May cause drowsiness or dizziness.
 H360FD May damage fertility. May damage the unborn child.

R11 Highly flammable.
 R12 Extremely flammable.
 R36 Irritating to eyes.
 R41 Risk of serious damage to eyes.
 R60 May impair fertility.
 R61 May cause harm to the unborn child.
 R66 Repeated exposure may cause skin dryness or cracking.
 R67 Vapours may cause drowsiness and dizziness.

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)
 DNEL: Derived No-Effect Level (REACH)
 PNEC: Predicted No-Effect Concentration (REACH)
 LC50: Lethal concentration, 50 percent
 LD50: Lethal dose, 50 percent
 Flam. Gas 1: Flammable gases, Hazard Category 1
 Flam. Aerosol 1: Flammable aerosols, Hazard Category 1
 Press. Gas: Gases under pressure: Compressed gas
 Flam. Liq. 2: Flammable liquids, Hazard Category 2
 Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1
 Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2
 Repr. 1B: Reproductive toxicity, Hazard Category 1B
 STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

* Data compared to the previous version altered.