

NANOGRAFI NANOTECHNOLOGY

SECTION 1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

1.1 Product identifiers

Product Form	Substance
Trade Name	Boron Carbide (B4C) Micron Powder, Purity: 99.95%, Size: 1-3 µm
Product Number	NG04CO0401
CAS Number	12069-32-8

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

Use of the substance/mixture	Research
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1.3 Details of the supplier of safety data sheet

Company	Nanografi Nanotechnology
Address	ODTÜ Teknokent İkizler Binası B-1/H ODTÜ Teknokent 06531- ANKARA
Phone	+90 312 285 85 09
Fax	+90 312 210 13 09

1.4 Emergency Telephone Number

Emergency Telephone Number	+90 312 285 85 09
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SECTION 2 HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

H315	Skin Irrit. 2
H319	Skin Irrit. 2
H332	Acute Tox. 4
H335	STOT SE 3

NANOGRAFI NANOTECHNOLOGY

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label Elements

Hazard Pictograms



Signal Word

Warning

Hazard Statements

H315 Causes skin irritation.

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.

P280 Wear protective gloves/ eye protection/ face protection.

P304 + P340 IF INHALED: Remove person to fresh air and keep 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.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other Hazards

Not available.

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms

Boron Carbide

Formula

B₄C, CB₄

CAS Number

12069-32-8

NANOGRAFI NANOTECHNOLOGY

3.2 Mixtures

Not applicable.

SECTION 4 FIRST AID MEASURES

4.1 Description of first aid measures

General Advice	Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
First-aid measures after inhalation	Provide fresh air. If not breathing, give artificial respiration. Keep patient warm. Seek immediate medical advice.
First-aid measures after skin contact	Wash off with plenty of water and soap. Seek immediate medical advice.
First-aid measures after eye contact	Rinse immediately with plenty of water for several minutes. Consult a physician.
First-aid measures after ingestion	Seek medical treatment.

4.2 Most important symptoms and effects, including acute and delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed

No data available.

4.4 Other Information

No data available.

NANOGRAFI NANOTECHNOLOGY

SECTION 5 FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable Extinguishing Media	Powder
Unsuitable Extinguishing Media	Water

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting	No data available.
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5.3 Advice for firefighters

Special protective equipment for firefighters	Wear self-contained breathing apparatus.
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5.4 Further Information

No data available.

SECTION 6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions	Ensure adequate ventilation. Wear personal protective equipment. Keep unprotected persons away.
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6.2 Environmental precautions

Do not allow to enter into surface water or drains. Avoid release to the environment without official permits. Do not allow material to penetrate soil.

6.3 Methods and material for containment and cleaning up

Dispose of contaminated material as waste. Refer to section 13 for further information.

6.4 Reference to other sections

For further information refer to section 13.

NANOGRAFI NANOTECHNOLOGY

SECTION 7 HANDLING AND STORAGE

7.1 Precautions for safe handling

Precautions for Safe Handling	Ensure adequate ventilation in the workplace. Wear personal protective equipment. Avoid contact with skin and eyes. Avoid dust formation. Handle in accordance with good industrial hygiene and safety practice.
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Advice on Protection Against Fire and Explosion	No data available.
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7.2 Conditions for safe storage, including any incompatibilities

Storage Conditions	Keep containers tightly closed in a dry, cool and well-ventilated place.
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Incompatible materials	Store away from oxidizing agents.
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7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

No data available.

8.2 Exposure controls

Appropriate Engineering Controls	Handle in accordance with good industrial hygiene and safety practice. Keep away from food and drinks. Wash hands before breaks and at the end of workday. Properly operating chemical fume hood designed for hazardous chemicals.
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NANOGRAFI NANOTECHNOLOGY

Hand Protection	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
Eye Protection	Eye protection (EN 166).
Skin and Body Protection	Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory Protection	Use suitable respirator when high concentrations are present.
Environmental Exposure Controls	Avoid release to the environment.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical State	Solid
Appearance	Powder
Color	Black
Odor	Odorless
Odor Threshold	No data available
pH	No data available
Relative Evaporation Rate	No data available
Melting Point	2350 °C
Freezing Point	2350 °C
Boiling Point	>2500 °C
Flash Point	No data available
Auto-ignition Temperature	No data available
Decomposition Temperature	No data available
Flammability (solid, gas)	No data available
Vapor Pressure	No data available

NANOGRAFI NANOTECHNOLOGY

Density at 20°C	2.51 g/cm ³
Relative Density	No data available
Solubility in H ₂ O	Insoluble
Log Pow	No data available
Viscosity, Kinematic	No data available
Viscosity, Dynamic	No data available
Explosive Properties	The product does not present an explosion hazard.
Oxidizing Properties	No data available

9.2 Other information

No other information available.

SECTION 10 STABILITY AND REACTIVITY

10.1 Reactivity

No data available.

10.2 Chemical stability

Stable under recommended conditions.

10.3 Possibility of hazardous reactions

No data available.

10.4 Conditions to avoid

No data available.

10.5 Incompatible materials

Strong oxidizing agents.

10.6 Hazardous decomposition products

Carbon monoxide. Carbon dioxide.

NANOGRAFI NANOTECHNOLOGY

SECTION 11 TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute Toxicity

Oral: LD: No data available.

Dermal: LD: No data available.

Respiratory: Harmful if inhaled. LD/LC50 values not available.

Skin corrosion/irritation

Irritant to skin.

Serious eye damage/irritation

Serious eye damage.

Respiratory or Skin Sensitization

No effects known.

Germ Cell Mutagenicity

No effects known.

Carcinogenicity

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive Toxicity

No data available.

STOT-Single Exposure

May cause respiratory irritation.

STOT-Repeated Exposure

No effects known.

Aspiration Hazard

No effects known.

Other Information

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12 ECOLOGICAL INFORMATION

12.1 Toxicity

Ecology-general

No data available.



NANOGRAFI NANOTECHNOLOGY

Acute aquatic toxicity No data available.

Chronic aquatic toxicity No data available.

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative potential

No data available.

12.4 Mobility in soil

No data available.

12.5 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.

12.6 Other adverse effects

No data available.

SECTION 13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product Dispose of in accordance with local regulations.

Contaminated Packaging Dispose of in accordance with local regulations.

SECTION 14 TRANSPORT INFORMATION

Safe to carry by any means of transportation. Not restricted any mode of transportation.

NANOGRAFI NANOTECHNOLOGY

SECTION 15 REGULATORY INFORMATION

15.1 Safety, health and environmental regulations

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Massachusetts Right to Know Components

No components are subject to the Massachusetts Right to Know Act.

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16 OTHER INFORMATION

16.1 Abbreviation of acronyms

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
IATA	International Air Transport Association
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
PBT	Persistent Bioaccumulative Toxic
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
vPvB	Very Persistent and Very Bioaccumulative

NANOGRAFI NANOTECHNOLOGY

16.2 Full text of H-statements

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.

16.3 Hazard Classification

Health	1
Flammability	1
Reactivity	0
Special Hazards	

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.