

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 08.03.2011

Version-No: 1

Revision: 08.03.2011

### 1 Identification of the substance/mixture and of the company/undertaking

- **Product identifier**
- **Trade name:** Carbon Nanohorn (CNH)
- **CAS Number:**  
7440-44-0
- **EINECS Number:**  
231-153-3
- **Relevant identified uses of the substance or mixture and uses advised against**
- **Application of the substance / the preparation:**  
SU24 Scientific research and development  
SU16 Manufacture of computer, electronic and optical products, electrical equipment
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
TIE GmbH  
Feldstraße 5  
D - 64347 Griesheim
- **Further information obtainable from:**  
Tel: +49/6155/8234-20  
Fax: +49/6155/8234-79  
Mail: info@t-i-e.eu
- **Emergency telephone number:**  
Poison Control Center, Berlin  
Tel.: 0 30-1 92 40  
Fax: 0 30-30 68 67 21  
E-Mail@giftnotruf.de  
www.giftnotruf.de

### 2 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**  
The substance is not classified according to the CLP regulation.
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC** Not applicable.
- **Information concerning particular hazards for human and environment:** Not applicable.
- **Label elements**
- **Labelling according to Regulation (EC) No 1272/2008** Void
- **Hazard pictograms** Void
- **Signal word** Void
- **Hazard statements** Void
- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** No
- **vPvB:** No

### 3 Composition/information on ingredients

- **Chemical characterization:** Substances
- **CAS No. Description**  
7440-44-0 carbon (>90%)
- **Identification number(s)**
- **EINECS Number:** 231-153-3

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- **Additional information:** The product is not fully tested.

#### 4 First aid measures

- **Description of first aid measures**
- **General information:** Take affected persons out of danger area and lay down.
- **After inhalation:**  
Supply fresh air and to be sure call for a doctor.  
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:**  
Immediately wash with water and soap and rinse thoroughly.  
Seek immediate medical advice.
- **After eye contact:**  
Rinse opened eye for several minutes under running water. Then consult a doctor.  
Remove contact lenses, if present and easy to do. Continue rinsing.
- **After swallowing:**  
Rinse mouth.  
Seek immediate medical advice.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

#### 5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.  
Use fire extinguishing methods suitable to surrounding conditions.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture**  
Formation of toxic gases is possible during heating or in case of fire.  
In case of fire, the following can be released:  
Carbon monoxide  
Carbon dioxide
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.
- **Additional information**  
Cool endangered receptacles with water spray.  
Collect contaminated fire fighting water separately. It must not enter the sewage system.

#### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation  
Avoid formation of dust.  
Keep away from ignition sources.
- **Environmental precautions:** Do not allow product to reach sewage system or any water course.
- **Methods and material for containment and cleaning up:**  
Ensure adequate ventilation.  
Pick up mechanically.  
Dispose of the material collected according to regulations.

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- **Reference to other sections**  
No dangerous substances are released.  
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

- **Handling:**
- **Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Keep receptacles tightly sealed.  
Prevent formation of dust.  
Use appropriate industrial vacuum cleaners or central vacuum systems for dust removal.
- **Information about fire and explosion protection:**  
Dust can combine with air to form an explosive mixture.  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store only in the original receptacle.
- **Information about storage in one common storage facility:**  
Store away from oxidizing agents.  
Do not store together with acids.
- **Further information about storage conditions:**  
Keep container tightly sealed.  
Store in cool, dry conditions in well sealed receptacles.  
Protect from heat and direct sunlight.
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

- **Control parameters**

- **Ingredients with limit values that require monitoring at the workplace:**

7440-44-0 carbon

WEL	Long-term value: 10* 4** mg/m <sup>3</sup> *inhalable dust **respirable
-----	----------------------------------------------------------------------------

- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing  
Wash hands before breaks and at the end of work.  
Avoid contact with the eyes and skin.  
Do not inhale dust / smoke / mist.  
The usual precautionary measures are to be adhered to when handling chemicals.
- **Respiratory protection:**  
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.  
Filter P3

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· **Protection of hands:**

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.

Rubber gloves

Plastic gloves

· **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:**

Tightly sealed goggles

· **Body protection:** Protective work clothing

## 9 Physical and chemical properties

· **Information on basic physical and chemical properties**· **General Information**· **Appearance:**

**Form:** Powder

**Colour:** Black

· **Odour:** Odourless

· **Odour threshold:** Not determined.

· **pH-value:** Not applicable.

· **Change in condition**

**Melting point/Melting range:** Undetermined.

**Boiling point/Boiling range:** Not applicable.

**Sublimation temperature / start:** 3642°C

· **Flash point:** 300°C (Japan Fire Service Act)

· **Flammability (solid, gaseous):** Product is not flammable.

· **Ignition temperature:**

**Decomposition temperature:** 430-600°C (in the air)

· **Self-igniting:** Product is not selfigniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Explosion limits:**

**Lower:** Not determined.

**Upper:** Not determined.

· **Vapour pressure:** Not applicable.

· **Density:** Not determined.

· **Relative density** Not determined.

· **Vapour density** Not applicable.

· **Evaporation rate** Not applicable.

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- |                                                     |                                            |
|-----------------------------------------------------|--------------------------------------------|
| · <b>Solubility in / Miscibility with water:</b>    | Insoluble.                                 |
| · <b>Segregation coefficient (n-octanol/water):</b> | Not determined.                            |
| · <b>Viscosity:</b>                                 |                                            |
| <b>Dynamic:</b>                                     | Not applicable.                            |
| <b>Kinematic:</b>                                   | Not applicable.                            |
| · <b>Other information</b>                          | No further relevant information available. |

### 10 Stability and reactivity

- **Reactivity**
- **Chemical stability** No decomposition if used and stored according to specifications.
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** Reacts with alkaline metals.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**  
Reacts with strong acids and oxidizing agents.  
Reacts with halogenated compounds.
- **Hazardous decomposition products:** No dangerous decomposition products known.

### 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values relevant for classification:**

Oral	LD50	>10000 mg/kg (Rat) (7440-44-0/3, 1979)
Inhalative	LC50	>64.4 mg/l (Rat) (American Agency FHSA, 1979)

- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Subacute to chronic toxicity:**  
The inhalation of graphite, both natural and synthetic, has caused pneumoconiosis in exposed workers. The pneumoconiosis found is similar to coal worker's pneumoconiosis.
- **Additional toxicological information:**  
When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.  
The substance is not subject to classification according to the latest version of the EU lists.  
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.  
No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

### 12 Ecological information

- **Toxicity**
- **Acquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.

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- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
Generally not hazardous for water  
Do not allow product to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** No
- **vPvB:** No
- **Other adverse effects** No further relevant information available.

### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation** Must be specially treated adhering to official regulations.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

### 14 Transport information

- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** Not classified

- **Maritime transport IMDG:**
- **IMDG Class:** Not classified
- **Marine pollutant:** No

- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** Not classified

- **UN "Model Regulation":** -
- **Special precautions for user** Not applicable.
- **Transport/Additional information:** Not dangerous according to the above specifications.
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:** Not applicable.

### 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Chemical Inventories**  
USA - TSCA  
Canada - DSL  
EU - EINECS  
Korea - ECL  
Australia - AICS  
Philippines - PICCS  
Switzerland
- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

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**· Department issuing SDS:**

Chemservice GmbH

Von-Steuben-Str. 13

D-67549 Worms

Tel.: +49 (0)6241-95480-0; Fax: +49 (0)6241-95480-25; Email: [info@chemservice-group.com](mailto:info@chemservice-group.com)**· Contact: [info@chemservice-group.com](mailto:info@chemservice-group.com)****· 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)**RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)**IMDG: International Maritime Code for Dangerous Goods**IATA: International Air Transport Association**IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)**ICAO: International Civil Aviation Organization**ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)**GHS: Globally Harmonized System of Classification and Labelling of Chemicals**EINECS: European Inventory of Existing Commercial Chemical Substances**CAS: Chemical Abstracts Service (division of the American Chemical Society)**LC50: Lethal concentration, 50 percent**LD50: Lethal dose, 50 percent*

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