

**EC safety data sheet** according to Regulation (EG) Nr. 1907/2006  
(changed by EU (EU) Nr. 453/2010)

Current version: 1.0  
Issued: 14.04.2018  
Replaced version:  
Issued:  
Version:

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**1. Identification of the substance or mixture and of the company**

**1.1 Product identifier**

**Substance name/Trade name:** Graphene and Graphene-Nanoplatelets (Graphite)

**Identification numbers:**

EG-No.: 231-955-3  
CAS-No.: 7782-42-5  
REACH registration number not yet granted

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

**Relevant identified uses of the substance or mixture:**

Electrical and thermal conductive additive  
Friction modifier  
Carbon carrier  
Lubricant

**Uses advised against:**

None known

**1.3 Details of the supplier of the safety data sheet**

**Producer / Supplier:**

ProGraphite GmbH  
Dr.-Schindler-Str. 9  
94107 Untergriesbach  
Germany  
Telefon +49 (0)8593 9383 188  
Mobil +49 (0)160 7586 976  
info@pro-graphite.com

**1.4 Emergency telephone number**

+49 (0)8593 9383 188  
+49 (0)160 7586 976  
Monday to Friday: 8:00 – 18:00 h

**2. Hazards identification**

**2.1 Classification of the substance or mixture**

This product does not meet the classification and labelling criteria given in the Regulation (EC) No 1272/2008 (CLP). This product does not meet the classification and labelling criteria given in the Dangerous Preparations Directive 67/548/EC (DSD).

**2.2 Label elements**

Not relevant

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**2.3 Other Hazards**

Slightly irritating on inhalation, skin and eye contact. Further hazards unknown.

**Additional hazard notes for human and environment:**

**Possible harmful physico-chemical effect:**

Risk of creation of ignitable mixture unlikely but possible in case of dust generation or during handling of very fine-grained powder.

**Possible harmful effect on human and related symptoms:**

Possibility of minor irritation phenomena of skin and mucosa, due to mechanical effect.

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**3. Composition/information on ingredients**

**3.1 Substances**

**Chemical characterization:**

Substance name: Graphene and Graphene-Nanoplatelets (Graphite)  
Chemical characterisation: Graphitic carbon

**Identification numbers:**

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**3.2 Mixtures**

Not applicable. The product is not a mixture

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**4. First aid measures**

**4.1 Description of first aid measures**

**General information:**

In case of persisting symptoms and adverse effects, consult a physician. In case of unconsciousness, handling and transport in recovery position.

**After inhalation:**

Remove affected person from the immediate area. Ensure supply of fresh air and respiration.

**After skin contact:**

Clean affected skin with plenty of water and soap.

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**After eye contact:**

Wash the eyes with running water. Consult an ophthalmologist if adverse symptoms persist.

**After ingestion:**

Rinse out mouth with water. Never give anything by mouth to an unconscious person.

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

Most important symptoms are listed in section 11.

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

No data available

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**5. Firefighting measures**

**5.1 Extinguishing media**

Water spray jet, extinguishing powder, alcohol-resistant foam, sand, carbon dioxide.

**5.2 Special hazards arising from the substance or mixture**

In the event of fire, the following can be released: Carbon monoxide (CO); Carbon dioxide (CO<sub>2</sub>).

**5.3 Advice for firefighters**

Use self-contained breathing apparatus if necessary.

**5.4 Additional information**

No data available

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**6. Accidental release measures**

**6.1 Personal precautions, protective equipment and emergency procedures**

**For non-emergency personnel:**

Avoid dust formation. Avoid inhalation of vapour and dust. Avoid contact with skin, eyes and clothing. High risk of slipping due to leakage/spillage of product.

**For emergency responders:**

Personal protective equipment (PPE) - see Section 8. In case of emergency, use of personal protective equipment [DIN EN 469, EN 12021].

**6.2 Environmental precautions**

No data available

**6.3 Methods and material for containment and cleaning up**

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Sweep up or use a suitable vacuum cleaner.

**6.4 Reference to other sections**

No data available

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**7. Handling and storage**

**7.1 Precautions for safe handling**

Avoid inhalation of dust, contact with eyes, skin and clothing. Avoid prolonged or repeated exposition. Provide good ventilation of working area (local exhaust ventilation, if necessary). If workplace exposure limits are exceeded, respiratory protection approved for the particular job must be worn.

**General protective and hygiene measures:**

In case of dust generation at workplace, use local exhaust ventilation. Avoid inhalation of dust, contact of material with eyes, skin and clothing as well as prolonged or repeated exposition.

**Advice on protection against fire and explosion:**

Substance is combustible. Fire extinguishing installations are to be held available. Avoid dust generation. Dust should be aspirated immediately on the spot. Avoid electrostatic charging.

**7.2 Conditions for safe storage, including any incompatibilities**

**Technical measures and storage conditions**

Keep container tightly closed, protected from light and dry.  
Keep in a dry place with good ventilation.  
Storage category (TRGS 510): combustible solids

**7.3 Specific end uses**

No data available

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**8. Exposure controls/personal protection**

**8.1 Control parameters**

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## 8.1.1 Occupational exposure limit values

| Substance | EG-No.    | CAS-No.   | Threshold   | Time-weighted average per work shift               | Remarks  |
|-----------|-----------|-----------|---|--|--|
| Graphite  | 231-955-3 | 7782-42-5 | General dust emission threshold according to TRGS 900 | 1,25 mg/m <sup>3</sup> A<br>10 mg/m <sup>3</sup> E | E-Fraction: exceedance factor 2, 15 min, 1x per work shift *<br>A-Fraction: exceedance factor 8, 15 min, 4x per work shift * |

Graphite CAS No. 7782-42-5 TRGS 900 - Threshold  
Remarks:  
General dust emission threshold (Germany).

## 8.1.2 DNEL- und PNEC- values

Not applicable

## 8.2 Exposure controls

### 8.2.1 Technical measures for exposure control

Processing and handling in closed facility, if possible. Ensure good ventilation of workplace.  
Aspiration of dust right at point of origin.

### 8.2.2 Individual measures for exposure control - Personal protective equipment



#### Respiratory protection:

In case of dust exposure, a respiration protection (respiration filter mask type P1 (EN 143)) must be worn. Use respiratory masks and components tested and approved under government standards such as NIOSH (US) or CEN (EU).



#### Eye / face protection:

In case of dust exposure use safety glasses with integrated side protection shield according to DIN (EN 166). Only use safety glasses or other eye protection equipment tested and approved under government standards such as NIOSH (US) or CEN (EU).



#### Hand protection:

The use of safety gloves complying with directive 89/686/EWG and European Standard EN 374 is advised in the event of frequent skin contact with the product. Recommended safety gloves, e.g., nitrile rubber, 0.11mm thickness, breakthrough time of 480 minutes.

#### Body protection:

No additional requirements.

#### Workplace hygiene:

Avoid inhalation of dust.

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### 8.2.3 Environmental exposure controls

Do not discharge into the drains/surface waters/groundwater.

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## 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

|   |                                  |
|---|----------------------------------|
| a) Physical state                           | solid                            |
| b) Appearance/form                          | flaky to rounded particles       |
| c) Odour                                    | odourless                        |
| d) Geruchsschwelle                          | No data available                |
| e) pH-value                                 | neutral                          |
| f) Melting point                            | Melting range 3652-3697°C (lit.) |
| g) Boiling point                            | No data available                |
| h) Flashpoint                               | No data available                |
| i) Evaporation rate                         | No data available                |
| j) Flammability                             | No data available                |
| k) Upper and lower explosion limit          | No data available                |
| l) Vapour pressure                          | No data available                |
| m) Vapour density                           | No data available                |
| n) Density                                  | 2.26 g/cm <sup>3</sup>           |
| o) Water solubility                         | Slightly soluble                 |
| p) Distribution coefficient n-Octanol/Water | No data available                |
| q) Auto-ignition temperature                | No data available                |
| r) Decomposition temperature                | No data available                |
| s) Viscosity                                | No data available                |
| t) Explosive properties                     | Dust ST1                         |
| u) Oxidising properties                     | No data available                |

### 9.2 Other information

No further information of security relevant parameters necessary.

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## 10. Stability and reactivity

### 10.1 Reactivity:

No data available

### 10.2 Stability:

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reaction:

No data available

### 10.4 Conditions to be avoided:

Very high temperatures.

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**10.5 Incompatible materials:**

Strong oxidants

**10.6 Hazardous decomposition products:**

Carbon oxides by heating in air/oxygen.

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**11. Toxicological information**

**11.1 Information on toxicological effects**

**Acute oral toxicity:**

LD50 oral - rat - female - > 2.000 mg/kg

Method: OECD 423

LC50 inhalation – rat – male and female – 4h – 2.000 mg/m<sup>3</sup>

**Skin corrosion/irritation:**

Species: rabbit

Result: No irritation

Method: OECD 404

**Serious eye damage/eye irritation:**

Species: rabbit

Result: No irritation

Method: OECD 405

**Respiratory or skin sensitization:**

Species: mouse

Result: non-sensitizing

Method: OECD 429

**Germ cell mutagenicity:**

**Test type:** bacterial reverse mutation

S. typhimurium

Result: negative

**Carcinogenicity:**

No data available

**Reproduction toxicity:**

No data available

**11.2 Additional information**

High dust concentrations may cause respiratory problems in case of prolonged inhalation.

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## **12. Ecological Information**

### **12.1 Toxicity**

#### **Toxicity to fish (acute)**

LC50: >100 mg/l  
Duration of exposure: 96h  
Species: Danio rerio  
Method: OECD 203

#### **Toxicity to fish (chronic)**

No data available

#### **Toxicity to Daphnia (acute)**

EC50: >100 mg/l  
Duration of exposure: 48h  
Species: Daphnia magna  
Method: OECD 202  
statischer Test EC50 - Daphnia magna (Großer Wasserfloh) - > 100 mg/l – 48 h

#### **Toxicity to Daphnia (chronic)**

No data available

#### **Toxicity to algae (acute)**

EC50: >100mg/l  
Duration of exposure: 72h  
Species: Pseudokirchneriella subcapitata  
Method: OECD 201

#### **Toxicity to algae (chronic)**

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 product/mixture does not contain components in concentrations of 0.1% or above and classified as PBT or vPvB

### **12.6 Other adverse effects**

No data available



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**12.7 Other information:**

Graphite is a chemically inert material which is not harmful to the environment.

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**13. Disposal considerations**

**13.1 Water treatment methods**

**Produkt**

Residues have to be disposed of in accordance with the regulations for waste removal and in agreement with a designated disposal company.

**Packaging**

Dispose of as unused product

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**14. Transport information**

The product is not subject to ADR/GGVS/RID/GGVE/ICAO/IATA/IDMG regulations.

**14.1 UN-Number**

ADR/RID: - IMDG: - IATA: -

**14.2 Regular UN shipping name**

ADR/RID/IMDG/IATA: - no dangerous goods

**14.3 Transport hazard class**

ADR/RID/IMDG/IATA: - no dangerous goods

**14.4 Packaging group**

ADR/RID: - IMDG: - IATA: -

**14.5 Environmental hazards**

ADR/RID: - IMDG Marine pollutant: - IATA: -

**14.6 Special precautions for user**

No data available

**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code**

Not relevant

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**15. Regulatory information**

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

Non-hazardous to water

**15.1.1 Chemical safety assessment according to directive EG 1907/2006 (REACH)**

A chemical safety assessment (CSA) according to REACH is not yet available for graphite.

**15.1.2 Classification and labelling according to EU directive 67/548/EWG und 1999/45/EG:**

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The substance is not subject to classification.

**15.1.3 Hazard symbols, Hazard- and Precautionary statements**

Not applicable

**15.1.4 Special labelling of particular preparations / Hazard-determining components of labelling**

Not applicable

**15.1.5 Approval and/or restrictions on use**

Not applicable

**15.1.6 Other EU regulations**

Not applicable

**15.1.7 Other requirements, restrictions and prohibitions**

Not applicable

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**16. Other information**

**Changes in this version compared to the previous one**

version 1

**Data sources**

- Hommel interaktiv
- Gefahrstoffinformationssystem der gewerbl. BG (GESTIS)
- CRC Handbook of Chemistry and Physics
- MSDS of other producers
- Ullmann: Technische Chemie

**Training for employees**

No specific training needed. General training on processing, handling and storage of dusty materials sufficient.

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**Further information**

**Issuer of safety data sheet and contact**

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