

## Multi-Walled Carbon Nanotubes, functionalized with the OH group

### 1. Identification of the substance/preparation and of the company

#### Identification of the substance:

Product name: Single-walled carbon nanotubes functionalized with the OH group

Chemical name: carbon nanotubes

IUPAC name: carbon nanotubes

CAS number: 308068-56-6

REACH registration number: not yet available

#### Importer:

Instytut Technik Węglowych sp. z o.o.

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Emergency contact number: 112 or the nearest toxicological center

### 2. Hazards identification

#### 2.1 Classification of the substance or mixture

##### Classification according to Regulation no. 1272/2008:

|                   |      |                                   |
|-------------------|------|-----------------------------------|
| Eye Irrit. 2 H319 | H319 | Causes eye irritation             |
| STOT SE 3         | H335 | May cause respiratory irritation. |

#### Information pertaining to particular dangers for man and environment:

No additional information available

#### 2.2 Label elements:

##### Pictogram:



GHS07

Signal word

Warning

##### Hazard statements (CLP):

H319 – Cause serious eye irritation

H335 – May cause respiratory irritation.

**Precautionary statements (CLP):**

P261 – Avoid breathing dust/fume/mist/vapours/spray

P264 – Wash hands thoroughly after handling

P280 – Wear protective gloves/protective clothing/eye protection/face protection

P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**2.3. Other hazards**

May cause skin, eyes and respiratory tract.

**3. Composition/information on ingredients**

| Substance                                                         | %         | CAS         |
|-------------------------------------------------------------------|-----------|-------------|
| Carbon nanotubes multi-walled, length: 1-2 µm, diameter: 10-30 nm | above 99% | 308068-56-6 |
| Metal oxide content (Mo, Ni):                                     | below 1%  |             |

**4. First aid measures**

| First aid     |                                                                                                                                     |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Inhalation:   | Remove to fresh air and keep at rest in a position comfortable for breathing.                                                       |
| Skin contact: | Wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. |
| Eye contact:  | Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing                 |

**5. Fire fighting measures**

Carbon nanotubes do not cause fire hazard.

**Extinguishing media**

Use extinguishing media such as powder, alcohol-resistant foam, water spray, carbon dioxide.

**Unsuitable extinguishing media**

None known

**Hazardous products of decomposition**

Carbon dioxide. Carbon monoxide.

**Advice for firefighters**

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

## 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Wear suitable protective clothing. Avoid formation of dust. Avoid contact with skin, eyes and clothes. Ensure adequate ventilation.

### Environmental precautions:

Do not allow to enter into surface water or drains.

### Methods and material for containment and cleaning up

Collect spilled material using a vacuum with HEPA filter. Avoid formation of dust. Material can be moistened.

## 7. Handling and storage

### Precautions for safe handling

Ensure good ventilation of the workplace. Avoid dust formation. Do not breathe dust. Avoid contact with skin, eyes and clothes. . Carry out operations in the open/under local exhaust/ventilation or with respiratory protection. Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse. Avoid the build-up of electrostatic charge.

### Conditions for safe storage

Store in dry, cool, well-ventilated area. Keep container tightly closed.

## 8. Exposure controls/Personal protection

### 8.1. Control parameters

A properly operating chemical fume hood designed for hazardous chemicals having a minimum flow velocity of 0,5 m/s. The highest acceptable concentration of harmful factors as inorganic solids for health in the work environment - 1.2 mg / m<sup>3</sup>.

### 8.2. Exposure controls

#### Personal protective equipment

|                         |                                                                                                                                      |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Protective clothing:    | Wear suitable protective clothing. Wear chemical resistant protective clothing (PN EN ISO 13982-1) and protective shoes (S1P or S3). |
| Hand protection:        | The selected protective gloves have to satisfy the specifications of norm EN ISO 374                                                 |
| Eye protection:         | Safety glasses with side shields                                                                                                     |
| Respiratory protection: | Dust masks P1. Half-masks with filter according to PN-EN149                                                                          |

## 9. Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

|                                             |                   |
|---------------------------------------------|-------------------|
| Physical state:                             | Solid             |
| Appearance:                                 | Powder            |
| Colour:                                     | Black             |
| Odour:                                      | Odourless         |
| pH:                                         | No data available |
| Relative evaporation rate (butyl acetate=1) | No data available |
| Melting point:                              | No data available |
| Boiling point:                              | No data available |
| Flash point:                                | No data available |
| Auto-ignition temperature:                  | No data available |

|                       |                                         |
|-----------------------|-----------------------------------------|
| Flammability:         | No data available                       |
| Density:              | 1,7 - 1,9 g/cm                          |
| Solubility:           | Insoluble in water and organic solvents |
| Viscosity, kinematic: | No data available                       |
| Viscosity, dynamic:   | No data available                       |
| Oxidising properties: | No data available                       |
| Explosive limits:     | No data available                       |

## 9.2. Other information

No data available

## 10. Stalność i reaktywność

### 10.1. Reactivity

Stable under normal conditions

### 10.2. Chemical stability

Stable under normal conditions

### 10.3. Possibility of hazardous reactions

None known

### 10.4. Conditions to avoid

None known

### 10.5. Incompatible materials

Strong oxidizing agents

### 10.6. Hazardous decomposition products

Thermal combustion may release carbon monoxide and dioxide.

## 11. Toxicological information

|                                                     |                                                                                                                                                                 |
|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Acute toxicity:                                     | Not classified                                                                                                                                                  |
| Skin corrosion/irritation :                         | Not classified                                                                                                                                                  |
| Serious eye damage/irritation:                      | Causes serious eye irritation                                                                                                                                   |
| Respiratory or skin sensitisation:                  | Not classified                                                                                                                                                  |
| Germ cell mutagenicity:                             | Not classified                                                                                                                                                  |
| Carcinogenicity :                                   | IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Carbon Nanotubes)<br>2B - Group 2B: Possibly carcinogenic to humans (Carbon Nanotubes) |
| Reproductive toxicity:                              | Not classified                                                                                                                                                  |
| Specific target organ toxicity (single exposure):   | May cause respiratory irritation                                                                                                                                |
| Specific target organ toxicity (repeated exposure): | Not classified                                                                                                                                                  |
| Aspiration hazard :                                 | Not classified                                                                                                                                                  |

## 12. Ecological information

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### 12.1. Toxicity

No additional information available

### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

No additional information available

### 12.4. Mobility in soil

No additional information available

### 12.5. Results of PBT and vPvB assessment

The substance does not contain components considered to be persistent, bioaccumulable and toxic, or very persistent and undergoing a very strong bioaccumulation (vPvB) at the level of 0.1% or above.

## 13. Disposal considerations

### 13.1. Waste treatment methods

|                                   |                                                                                            |
|-----------------------------------|--------------------------------------------------------------------------------------------|
| Regional legislation:             | Dispose of this material and its container to hazardous or special waste collection point. |
| Waste treatment methods :         | Disposal through controlled incineration or authorised waste dump                          |
| Sewage disposal recommendations : | Prevent entry to sewers and public waters.                                                 |

## 14. Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

### 14.1. UN number

No dangerous good in sense of transport regulations

### 14.2. UN proper shipping name

Not applicable

### 14.3. Transport hazard class(es)

Not applicable

### 14.4. Packing group

Not applicable

### 14.5. Enviromental hazards

Not dangerous according to above specification. All polution during the trasport dispose conformable with valid legal regulations. See point 6.

#### 14.6. Special precautions for user

None

### 15.Regulatory information

The Dangerous Substances Directive 67/548/EWG of 27.06.1967 r. as amended.

Act of 25.02.2011 on chemical substances and their mixtures (Journal of Laws of 2011, no 63, item. 322 as amended)

Regulation (EC) No 1907/2006 of The European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

Regulation (EC) No 1272/2008 of The European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures,

Ordinance of the Minister of Labour and Social Policy of 29.11.2002 on maximum permissible concentration and intensity of harmful factors in the work environment in accordance with national limit values. (Journal of Laws of 2002, no. 217, item. 1833).

European Directive no. 97/69/EC of 5.12.1997 on classification, packaging and labelling of chemical substances and mixtures

The Decree of the Minister of Health of 10.08.2012 on the criteria and method of classification of chemical substances and their mixtures (Journal of Laws of 2012, item. 1018)

The Decree of the Minister of Health of 20.04.2012 on the marking of packages of dangerous substances, dangerous mixtures and certain mixtures (Journal of Laws of 2012, item. 445)

### 16.Other information

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. It is the user's responsibility to take the mentioned precautionary measures and to ensure that this information is complete and sufficient for the use of this product.