

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

Revision date: 15.10.2020

### AEOS Graphene Coating

Product code: CCH-012

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

### 1.1. Product identifier

Graphene Coating

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

#### Use of the substance/mixture

Coating

#### Uses advised against

Only use for the intended purpose.

### 1.3. Details of the supplier of the safety data sheet

Company name:	Carrus Cultus GmbH	
Street:	Turleyplatz 1	
Place:	D-68167 Mannheim	
Telephone:	+49 621 483 450 260	
e-mail:	info@herrenfahrt.com	
Contact person:	Andreas Werner	Telephone: +49 621 483 450 26
e-mail:	a.werner@herrenfahrt.com	
Internet:	www.herrenfahrt.com	

### 1.4. Emergency telephone number:

Emergency Action: In the event of a medical enquiry involving this product, please contact your doctor or local hospital accident and emergency department or the NHS enquiry service.

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## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### Regulation (EC) No. 1272/2008

Hazard categories:

Skin corrosion/irritation: Skin Corr. 1B

Serious eye damage/eye irritation: Eye Dam. 1

Specific target organ toxicity - single exposure: STOT SE 3

Hazard Statements:

Causes severe skin burns and eye damage.

Causes serious eye damage.

May cause respiratory irritation.

### 2.2. Label elements

#### Regulation (EC) No. 1272/2008

##### Hazard components for labelling

Polydimethylsiloxane, 3-aminopropyl-terminated

Silicones, monoorgano

3-(trimethoxysilyl)propylamine

Cyclosilazanes, di-Me, Me hydrogen, polymers with di-Me, Me hydrogen silazanes, reaction products with 3-(triethoxysilyl)-1-propanamine

**Signal word:** Danger

**Pictograms:**



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#### Hazard statements

- H314 Causes severe skin burns and eye damage.  
H335 May cause respiratory irritation.

#### Precautionary statements

- P102 Keep out of reach of children.  
P103 Read carefully and follow all instructions.  
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.  
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.  
P501 Dispose of contents/container according to regional/national regulations. Do not discard with household waste.

#### 2.3. Other hazards

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

##### Hazardous components

CAS No	Chemical name	Quantity
	EC No	
	Index No	
	REACH No	
	GHS Classification	
106214-84-0	Polydimethylsiloxane, 3-aminopropyl-terminated	20-30 %
	600-723-7	
	Skin Irrit. 2, Eye Dam. 1; H315 H318	
63148-53-8	Silicones, monoorgano	5-20 %
	924-722-9	
	Skin Irrit. 2, Eye Irrit. 2, STOT SE 3; H315 H319 H335	
13822-56-5	3-(trimethoxysilyl)propylamine	20 - < 25 %
	237-511-5	
	Skin Irrit. 2, Eye Dam. 1; H315 H318	
475645-84-2	Cyclosilazanes, di-Me, Me hydrogen, polymers with di-Me, Me hydrogen silazanes, reaction products with 3-(triethoxysilyl)-1-propanamine	15 - < 20 %
	Flam. Liq. 2, Acute Tox. 4, Skin Corr. 1B, Eye Dam. 1, Aquatic Chronic 3; H225 H302 H314 H318 H412	

Full text of H and EUH statements: see section 16.

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

##### General information

First aider: Pay attention to self-protection!

##### After inhalation

If irritations or allergic reactions should occur as a consequence of handling the product (particularly if large quantities have been inhaled): Move victim to fresh air. Put victim at rest and keep warm. In case of allergic symptoms, especially in the breathing area, seek medical advice immediately.

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#### After contact with skin

Remove contaminated, saturated clothing immediately. (caution, fire hazard) After contact with skin, wash immediately with plenty of water and soap. Change contaminated clothing. In case of skin irritation, consult a physician.

#### After contact with eyes

Remove contact lenses. In case of contact with eyes, rinse immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart. In case of troubles or persistent symptoms, consult an ophthalmologist.

#### After ingestion

Rinse mouth, spit liquid again. Do NOT induce vomiting. Let water be drunken in little sips (dilution effect). Seek medical attention if problems persist.

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

Causes severe skin burns and eye damage.  
irritation. burnes. gastro-intestinal ailment. Spasms. vomiting. Dyspnoea. Nausea.  
May cause drowsiness or dizziness.

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

Treat symptomatically.

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

##### Suitable extinguishing media

Foam. Carbon dioxide (CO<sub>2</sub>).

##### Unsuitable extinguishing media

Water.

#### 5.2. Special hazards arising from the substance or mixture

In case of fire may be liberated: Carbon monoxide. Carbon dioxide. Irritating/poisonous gasses and vapours.

#### 5.3. Advice for firefighters

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

#### Additional information

Contaminated fire-fighting water must be collected separately. Do not allow to enter into surface water or drains.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

Provide adequate ventilation. Avoid contact with skin, eyes and clothes. Wear personal protection equipment.  
Special danger of slipping by leaking/spilling product.

#### 6.2. Environmental precautions

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

#### 6.3. Methods and material for containment and cleaning up

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).  
Treat the recovered material as prescribed in the section on waste disposal.  
Clean contaminated articles and floor according to the environmental legislation.

#### 6.4. Reference to other sections

Personal protection equipment: see section 8  
Handling and storage: see section 7  
For waste disposal see section 13.

### SECTION 7: Handling and storage

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#### 7.1. Precautions for safe handling

##### **Advice on safe handling**

When in use in confined, warm rooms: Ensure adequate ventilation.  
At the place of work (in production and when refilling): Wear personal protection equipment.  
Do not empty into drains; dispose of this material and its container in a safe way.

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

Keep away from sources of ignition - No smoking. Take action to prevent static discharges.  
Vapours may form explosive mixtures with air.

##### **Further information on handling**

Remove contaminated, saturated clothing immediately. When using do not eat, drink or smoke.

#### 7.2. Conditions for safe storage, including any incompatibilities

##### **Requirements for storage rooms and vessels**

Keep container tightly closed in a cool, well-ventilated place.  
Protect from sunlight and heat sources. Keep only in the original container.  
Prevent entry into drains, the aquatic environment or soil.

##### **Hints on joint storage**

Keep away from: heat. Oxidizing agents. ignition sources. Water.

#### 7.3. Specific end use(s)

Coating

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

##### **Additional advice on limit values**

Currently there are no further exposure limits available.

#### 8.2. Exposure controls

##### **Protective and hygiene measures**

Consider the usual precautions for handling chemicals. Do not eat, drink or smoke when using this product.  
Wash hands before breaks and after work. Protect skin by using skin protective cream. Avoid contact with skin and eyes.

##### **Eye/face protection**

Tightly sealed safety glasses.

##### **Hand protection**

Wear suitable gloves. Suitable material: Rubber. PVC (Polyvinyl chloride). PVA (Polyvinyl alcohol).  
For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. Breakthrough times and swelling properties of the material must be taken into consideration.

##### **Skin protection**

Under normal usage conditions, not necessary.

##### **Respiratory protection**

Within the recommended use and adequate ventilation no respiratory protection is necessary.

### SECTION 9: Physical and chemical properties

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

Physical state:	liquid
Colour:	
Odour:	characteristic
pH-Value:	no data available

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#### Changes in the physical state

Melting point:	no data available
Initial boiling point and boiling range:	150 °C
Flash point:	75 °C

#### Flammability

Solid:	no data available
Gas:	no data available

#### Explosive properties

no data available

Lower explosion limits:	no data available
Upper explosion limits:	no data available
Ignition temperature:	no data available

#### Auto-ignition temperature

Solid:	no data available
Gas:	no data available

Decomposition temperature: no data available

#### Oxidizing properties

no data available

Vapour pressure:	no data available
Density:	no data available
Bulk density:	no data available
Water solubility:	completely miscible

#### Solubility in other solvents

no data available

Partition coefficient:	no data available
Viscosity / dynamic:	no data available
Viscosity / kinematic:	no data available
Vapour density:	no data available
Evaporation rate:	no data available

#### 9.2. Other information

No further information available.

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

The product is rapidly hydrolyzed in the presence of water to: hydrogen, ammonia, siloxanes.

#### 10.2. Chemical stability

The product is stable under normal environmental conditions (room temperature).

#### 10.3. Possibility of hazardous reactions

Reacts with: Acids. hydrogenium peroxide.

#### 10.4. Conditions to avoid

No information available.

#### 10.5. Incompatible materials

Acids. hydrogenium peroxide.

#### 10.6. Hazardous decomposition products

During thermal decomposition, e.g. due to overheating during processing or in the event of fire, harmful gases

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and vapours may be produced: carbon monoxide. carbon dioxide.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

#### Acute toxicity

Based on available data, the classification criteria are not met.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
475645-84-2	Cyclosilazanes, di-Me, Me hydrogen, polymers with di-Me, Me hydrogen silazanes, reaction products with 3-(triethoxysilyl)-1-propanamine				
	oral	ATE 500 mg/kg			

#### Irritation and corrosivity

Causes severe skin burns and eye damage.

Causes serious eye damage.

#### Sensitising effects

Based on available data, the classification criteria are not met.

#### Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

#### STOT-single exposure

May cause respiratory irritation. (Silicones, monoorgano)

#### STOT-repeated exposure

Based on available data, the classification criteria are not met.

#### Aspiration hazard

Based on available data, the classification criteria are not met.

#### Practical experience

#### Other observations

Has degreasing effect on the skin.

## SECTION 12: Ecological information

### 12.3. Bioaccumulative potential

No data available

### 12.4. Mobility in soil

No data available.

### 12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

### 12.6. Other adverse effects

No data available.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

#### Disposal recommendations

Small quantities may be diluted with water and washed away. Larger quantities must be disposed properly according to local regulations.

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

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#### Contaminated packaging

Non-contaminated packages may be recycled.  
Recommended cleaning agent: Water.  
Dispose of waste according to applicable legislation.

### SECTION 14: Transport information

#### Land transport (ADR/RID)

<b>14.1. UN number:</b>	No dangerous good in sense of this transport regulation.
<b>14.2. UN proper shipping name:</b>	No dangerous good in sense of this transport regulation.
<b>14.3. Transport hazard class(es):</b>	No dangerous good in sense of this transport regulation.
<b>14.4. Packing group:</b>	No dangerous good in sense of this transport regulation.

#### Inland waterways transport (ADN)

<b>14.1. UN number:</b>	No dangerous good in sense of this transport regulation.
<b>14.2. UN proper shipping name:</b>	No dangerous good in sense of this transport regulation.
<b>14.3. Transport hazard class(es):</b>	No dangerous good in sense of this transport regulation.
<b>14.4. Packing group:</b>	No dangerous good in sense of this transport regulation.

#### Marine transport (IMDG)

<b>14.1. UN number:</b>	No dangerous good in sense of this transport regulation.
<b>14.2. UN proper shipping name:</b>	No dangerous good in sense of this transport regulation.
<b>14.3. Transport hazard class(es):</b>	No dangerous good in sense of this transport regulation.
<b>14.4. Packing group:</b>	No dangerous good in sense of this transport regulation.

#### Air transport (ICAO-TI/IATA-DGR)

<b>14.1. UN number:</b>	No dangerous good in sense of this transport regulation.
<b>14.2. UN proper shipping name:</b>	No dangerous good in sense of this transport regulation.
<b>14.3. Transport hazard class(es):</b>	No dangerous good in sense of this transport regulation.
<b>14.4. Packing group:</b>	No dangerous good in sense of this transport regulation.

#### 14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

#### 14.6. Special precautions for user

No special precautions known.

#### 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

not applicable

### SECTION 15: Regulatory information

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

##### EU regulatory information

##### Additional information

Regulation (EC) No. 1005/2009 on substances that lead to the depletion of the ozone layer: not applicable  
Regulation (EC) No 850/2004 on persistent organic pollutants: not applicable  
Regulation (EC) No 649/2012 of the European Parliament and of the Council concerning the export and import of dangerous chemicals: This mix contains no chemicals that are subject to the export notification procedures (annex 1).  
This mixture contains the following substances of very high concern (SVHC) which are included in the Candidate List according to Article 59 of REACH: none  
This mixture contains the following substances of very high concern (SVHC) which are subject to authorisation according to Annex XIV of REACH: none

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Regulation (EC) No. 648/2004 (Detergents regulation): The surfactants contained in this mixture meet the biodegradability terms, which are defined in Regulation (EC) No 648/2004 on detergents. The documents confirming this are held available for the responsible authorities of the member states; the documents will be provided upon their request or upon direct request of a detergent manufacturer.

#### National regulatory information

Water hazard class (D): 2 - obviously hazardous to water

#### 15.2. Chemical safety assessment

For the following substances of this mixture a chemical safety assessment has been carried out:

### SECTION 16: Other information

#### Changes

Version 1,00 - First Creation - 15.10.2020

#### 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)  
BlmSchV (Fed.Imm.Prot.Act): Directive on the Implementation of the Federal Immission Protection Act  
CAS: Chemical Abstracts Service  
DIN: Norm of the Deutsche Institut für Normung (German Institute for Standardization)  
EC: Effective Concentration  
EG: European Community (Europäische Gemeinschaft)  
EN: European Norm  
IATA: International Air Transport Association  
IBC Code: International Code for the Construction and Equipment of ships carrying Dangerous Chemicals in Bulk  
ICAO: International Civil Aviation Organization  
IMDG: International Maritime Code for Dangerous Goods  
ISO: Norm of the International Standards Organization  
CLP: Classification, Labeling, Packaging  
IUCLID: International Uniform Chemical Information Database  
LC: Lethal concentration  
LD: Lethal dose  
log Kow: Octanol/water partition coefficient  
MARPOL: Maritime Pollution Convention = Convention for the Prevention of Maritime Pollution from Ships  
OECD: Organisation for Economic Co-operation and Development  
PBT: Persistent, bio-cumulative, toxic  
RID: Regulation Concerning the International Transport of Dangerous Goods by Rail  
TRGS: Technische Regeln für Gefahrstoffe  
UN: United Nations  
VOC: Volatile Organic Compounds  
vPvB: very persistent and very bio-cumulative  
AwSV: Ordinance on Installations for Handling Substances Hazardous to Water  
WGK: German Water Hazard Class  
GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
EINECS: European Inventory of Existing Commercial Chemical Substances  
ELINCS: European List of Notified Chemical Substances  
DNEL: Derived No Effect Level  
PNEC: Predicted No Effect Concentration  
TLV: Threshold Limiting Value  
STOT: Specific Target Organ Toxicity



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#### Classification for mixtures and used evaluation method according to Regulation (EC) No. 1272/2008 [CLP]

Classification	Classification procedure
Skin Corr. 1B; H314	Calculation method
Eye Dam. 1; H318	Calculation method
STOT SE 3; H335	Calculation method

#### Relevant H and EUH statements (number and full text)

H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H412	Harmful to aquatic life with long lasting effects.

#### Further Information

The information given in this safety data sheet is to describe the product's safety regulations. It is not for guaranteeing certain characteristics and is based on today's knowledge. The safety data sheet was generated upon information of pre-suppliers by:

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*(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)*