Section 1: Identification of the substance or mixture and the company

1.1. Product Identifier

EM-Tec C30 water based conductive carbon paint. Also known as colloidal graphite or graphite in water.

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

Against electrostatic charge, mounting SEM samples and making grounding paths for SEM samples

1.3. Details of the supplier of the Safety Data Sheet

Vof Micro to Nano
Wateringweg 79
2031EK Haarlem
Netherlands
Tel: +31(0)85-2013155
E: info@microtonano.com

1.4 Emergency telephone number

112 (NLD) or your national emergency telephone number for chemical spills, leaks, fires, exposures or accidents

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Physical: None
Health: Eye irritation, category 2
Skin irritation, category 2
Environment: None
Other hazards: None

Classification according to Regulation EC Nr. 1272/2008

Health: R36: Irritating to eyes
R38: Irritation to skin
Physical: Not classified
Environment: Not classified
Other hazards: Not classified
Safety Data Sheet

Product name: EM-Tec C30 water based conductive carbon paint
Document Nr.: SDS0015001130-01

Date: May 25th 2016
Version: 1.0

2.2 Labelling elements

Labelling accordance to Regulation EC Nr. 1272/2008

Hazard pictogramm:

Warning

Signal word: Warning

Hazard statement(s):
H315: Causes skin irritation
H319: Causes serious eye irritation

Precautionary statement(s):
P102: Keep out of reach of children
P233: Keep container tightly closed
P280: Wear protective gloves/protective clothing/eye protection/face protection
P337/313: If eye irritation persists; get medical advice/attention
P501-2: Dispose of contents/container to an authorised waste collection point

Supplemental hazard info: None

2.3 Other hazards

None

Section 3: Composition / information on components

3.1. Substances

Not applicable
### 3.2 Mixtures

<table>
<thead>
<tr>
<th>1. CAS Nr 231-955-3 not available 01-2119486977-12-xxxx</th>
<th>2. EC Nr 231-955-3 not available 01-2119486977-12-xxxx</th>
<th>3. Index Nr 007-001-01-2 not available</th>
<th>4. REACH No 01-2119486977-12-xxxx</th>
<th>% (weight)</th>
<th>Name</th>
<th>Classification according to directive 67/548/EEC [DSD]</th>
<th>Classification according to regulation Nr 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>7782-42-5</td>
<td>215-647-6</td>
<td></td>
<td></td>
<td>15-25</td>
<td>graphite</td>
<td>R48/20</td>
<td>STOT-RE category 2; H373</td>
</tr>
<tr>
<td>1336-21-6</td>
<td>215-647-6</td>
<td></td>
<td></td>
<td>1-5</td>
<td>Ammonium hydroxide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7732-18-5</td>
<td>215-791-2</td>
<td></td>
<td></td>
<td>70 - 85</td>
<td>Water</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(* Explanation notes: see section 16)

### Section 4: First aid measures

#### 4.1. Description of first aid measures

- **Contact with eyes:** Rinse cautiously with water for several minutes. If possible, remove contact lenses. Continue rinsing.
- **Contact with skin:** Wash with water and soap. Seek medical attention if irritation persists.
- **Inhalation:** Fresh air, keep warm and at rest. Seek medical attention of ill effects occur
- **Ingestion:** If swallowed, do not induce vomiting. Seek immediate medical advice

#### 4.2. Important symptoms and effects, either immediate or delayed

- **Inhalation:** Excessive inhalation of aerosols may give rise to nausea, headaches and dizziness
- **Ingestion:** May cause respiratory and digestive tract irritation
- **Skin contact:** Mildly irritating to skin
- **Eye contact:** Irritating to eyes

Symptoms: sore throat, abdominal pain, nausea, vomiting

Symptoms: redness and pain

Symptoms: redness and pain, impaired vision
4.3. Indication of any immediate medical attention and special treatment

General advise: If you feel unwell, seek medical advice; show product label if possible
If symptoms persist, always call a doctor

Section 5: Firefighting Measures

5.1. Extinguishing media

Water spray, foam, carbon dioxide or dry agent

5.2 Special hazards arising from the substance or mixture

Not a fire hazard

5.3 Advice to firefighters

Wear full protective clothing. Wear self-contained breathing apparatus.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Wear suitable protective clothing including eye/face protection

6.2 Environmental precautions

Do not allow to enter public sewers and waterways

6.3 Methods and material for containment and clean up

Absorb spillage in suitable inert material
Clean up spills immediately
Collect spillage, absorbed spillage and wipes in a suitable container for disposal
Wash spill area with soap and water to remove last traces of residue

6.4 Reference to other sections

For further information see section 8
Section 7: Handling and storage

7.1 Precautions for safe handling

Do not breathe aerosols or vapours
Ensure adequate ventilation
Avoid contact with skin and eyes
Wash thoroughly after use
Wear protective gloves/protective clothing/eye protection/face protection
Have eyewash bottles available

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly close, in a cool, well ventilated place
For safe storage, store between 5° C and 30° C
Protect from freezing
Keep out of reach of children

7.3 Specific end uses(s)

Against electro-static charge
Making grounding paths
Attaching SEM specimens

Section 8: Exposure control and personal protection

8.1 Control parameters

Exposure limits

Occupational exposure limits (OEL)

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Material Name</th>
<th>Source</th>
<th>TWA</th>
<th>STEL</th>
<th>Peak</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphite</td>
<td>Graphite</td>
<td>EU</td>
<td>2mg/m³</td>
<td>15mg/m³</td>
<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td>Ammonium-hydroxide</td>
<td>Ammonia anhydrous</td>
<td>EU</td>
<td>17mg/m³</td>
<td>35mg/m³</td>
<td>Not available</td>
<td>Not available</td>
</tr>
</tbody>
</table>

Wateringweg 79
2031EK Haarlem
The Netherlands
T +31-85-2013155
E info@microtonano.com
I www.microtonano.com
8.2 Exposure controls

Control procedures: Ensure adequate ventilation

Personal protection: Take precautions to avoid contact with eyes and skin when handling the product

Inhalation: In case of insufficient ventilation, wear suitable respiratory equipment:

Hands and skin: Wear suitable gloves against chemicals; recommended gloves: Nitrile

Eyes: Wear safety goggles or full face protection

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance/physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>Black</td>
</tr>
<tr>
<td>Odour</td>
<td>Ammoniacal</td>
</tr>
<tr>
<td>pH</td>
<td>10 - 10.5</td>
</tr>
<tr>
<td>Boiling point/range</td>
<td>100°C</td>
</tr>
<tr>
<td>Melting point/range</td>
<td>0°C</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available</td>
</tr>
<tr>
<td>Explosion limits: upper limit</td>
<td>Not available</td>
</tr>
<tr>
<td>lower limit</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>Not determined</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.12 g/cm³ @ 20°C</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>Dispersible</td>
</tr>
<tr>
<td>Auto-ignition</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Viscosity</td>
<td>&lt;= 10,000cp</td>
</tr>
</tbody>
</table>

9.2 Other information

VOC: None

Section 10: Stability and reactivity

10.1 Reactivity

No hazardous reactions known if used for its intended purposes

10.2 Chemical stability

Stable
10.3 Possibility of hazardous reactions

No hazardous reactions known if used for its intended purposes

10.4 Conditions to avoid

Avoid overheating and keep away from incompatible materials

10.5 Incompatible materials

Strong oxidising agent

10.6 Hazardous decomposition products

CO, CO2, NOx

Section 11: Toxological information

11.1. Information on toxicological effects

Information on likely routes of exposure:

- **Inhalation**: Inhalation may give rise to nausea, headaches and dizziness
- **Skin contact**: Irritation to skin
- **Eye contact**: Irritation to eyes
- **Ingestion**: Ingestion can cause gastrointestinal irritation, nausea, vomiting and diarrhea

Toxicological data:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Toxicity</th>
<th>Irritation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphite, natural</td>
<td>Inhalation (rat) LC50: &gt;2mg/l 4h</td>
<td>Eye (rabbit): non-irritating</td>
</tr>
<tr>
<td></td>
<td>Oral (rat) LD50: &gt;2000 mg/kg</td>
<td>Skin (rabbit): non-irritating</td>
</tr>
<tr>
<td>Ammonium hydroxide</td>
<td>Oral (rat) LD50: 350 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>Oral (rat) LD50: ≥90000 mg/kg</td>
<td></td>
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<tr>
<td>EM-Tec C30 water based conductive carbon paint</td>
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<td>Not available</td>
</tr>
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</table>

Section 12: Ecological information
### Section 12: Toxicological Information

<table>
<thead>
<tr>
<th>12.1. Toxicity</th>
<th>Not classified</th>
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</thead>
<tbody>
<tr>
<td>12.2 Persistence and degradability</td>
<td>No experimental data available</td>
</tr>
<tr>
<td>12.3 Bioaccumulative potential</td>
<td>No experimental data available</td>
</tr>
<tr>
<td>12.4 Mobility in soil</td>
<td>No information available</td>
</tr>
<tr>
<td>12.5 Results of PBT and vPvB assessment</td>
<td>No information available</td>
</tr>
<tr>
<td>12.6 Hazardous decomposition products</td>
<td>No experimental data available</td>
</tr>
</tbody>
</table>

### Section 13: Disposal considerations

**13.1. Waste treatment methods**

**Product:** This material and its container must be disposed of in a safe way. Do not discharge into drains or the environment, dispose to an authorised waste collection point.

**National regulations:** Disposal should be in accordance with local, state or national legislation.

### Section 14: Transport information

**14.1. UN number**

**UN-number:** N/A

**14.2 UN proper shipping name**

**Proper shipping name:** N/A
**14.3 Transport hazard class(es)**

<table>
<thead>
<tr>
<th>Class:</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADR/RID-Classification code:</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**14.4 Packing group**

| Packing: | N/A |

**14.5 Incompatible materials**

| ADR/RID- Environmentally hazardous: | N/A |
| IMDG-Marine pollutant: | N/A |
| IATA/ICAO-Environmentally hazardous: | N/A |

**14.6 Special precautions for user**

| ADR/RID-Tunnelcode: | N/A |
| IMDG-Ems: | N/A |
| IATA/ICAO-PAX: | N/A |
| IATA/ICAO-CAO: | N/A |

**14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC code**

Not applicable

**Section 15: Regulatory information**

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

| UN-number: | N/A |

**15.2 Chemical safety assessment**

No information available
Section 16: Other information

RoHS Directive Compliant
This product is fully compliant with the directive 2100/65/EU Annex II (RoHS). It does not contain any lead, cadmium, mercury, hexavalent chromium, PBB’s or PBDE’s.

WEEE
This product is not a piece of electrical or electronic equipment, and it therefore not governed by Directive 2002/96/EC on waste electrical and electronic equipment (WEEE)

Abbreviations:
- Asp. Tox: Aspiration hazard
- Carc.: Carcinogenicity
- Exp.: Exposure
- Flam.: Flammable
- GHS: Global Harmonised System of Classification of Labelling Chemicals
- Irrit.: Irritant
- LC50: Lethal Concentration 50%
- LCLo: Lowest published lethal concentration
- LD50: Lethal Dose 50%
- N/A: Not applicable
- N/E: Not estimated
- PBT: Persistent Bioaccumulative and Toxic
- WEL: Workplace Exposure Limit
- Repr.: Reproductive toxitant
- RoHS: Restriction of Hazardous Substance
- SEM: Scanning Electron Microscope
- STEL: Short-Term Exposure Limit
- STOT: Specific Target Organ Toxicity
- TCLo: Lowest published toxic concentration
- vPvB: very Persistent and very Bioaccumulative
- WEEE: Waste Electrical and Electronic Equipment

DSD / DPD label elements
None

Full Text Risk and Hazard codes
- H315 – Causes skin irritation.
- H319 – Causes serious eye irritation.
- H335 – May cause respiratory irritation.
- H373 – May cause damage to organs through prolonged or repeated exposure.

- R36 – Irritating to eyes.
- R38 – Irritating to skin.
- R48/20 – Danger of serious damage to health by prolonged exposure through inhalation
Safety Data Sheet

Product name: EM-Tec C30 water based conductive carbon paint
Document Nr.: SDS0015001130-01

Date: May 25th 2016
Version: 1.0

Safety advice:
S01 – Keep locked up.
S02 – Keep out of reach of children.
S09 – Keep container in a well ventilated place.
S13 – Keep away from food, drink and animal feeding stuff.
S20 – When using, do not eat or drink.
S23 – Do not breathe gas/fumes/vapour/spray.
S26 – In case of contact with eyes, rinse with plenty of water and seek medical help.
S281 – After contact with skin, wash immediately with detergent and plenty of waterways.
S29 – Do not empty in drains.
S35 – This materials and its container must be disposed of in a safe way.
S36 – Wear suitable protective clothing.
S37 – Wear suitable gloves.
S38 – In case of insufficient ventilation, wear suitable respiratory equipment.
S39 - Wear eye / face protection.
S40 – In case of insufficient ventilation, wear suitable respiratory equipment.
S41 – In case of fire and/or explosion; DO NOT breathe fumes.
S43 – In case of fire use water, foam or dry agent
S45 – In case of accident or if you feel unwell, immediately contact Doctor or Poisons information center (show label if possible).
S46 – If swallowed, seek immediate medical advice and show label if possible.
S56 – Dispose of this materials and its container at hazardous or special waste collection point.
S57 – Use appropriate container to avoid environment contamination.
S61 – Avoid release to the environment
S63 – In case of accident by inhalation; remove casualty to fresh air and keep at rest
S64 – If swallowed, rinse mouth with water (only if person is conscious)

This product should be stored, handled and used in accordance with good industrial hygiene practices and in accordance with any legal regulation.
The information contained herewith is based on the present state of our knowledge and is intended to describe the product from the point of view of safety requirements. It does not guarantee any specific properties.
It is the responsibility of the user to query and verify any information seeming suspect or where doubt on the validity may exist. The buyer assumes all responsibility of using and handling the product in accordance with local, state, federal and international regulations.