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

1.1. Product Identifier

EM-Tec C33 fast drying conductive carbon paint

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

Against electrostatic charge 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:
- Flammable liquid, category 2
- Highly flammable liquid and vapour

Health:
- Eye irritation, category 2
- Causes serious eye irritation
- Specific target organ toxicity – single exposure, category 3
- May cause drowsiness or dizziness

Environment:
- Not classified

Other hazards:
- None
Safety Data Sheet

Product name: EM-Tec C33 fast drying conductive carbon paint
Document Nr.: SDS0015001133-01
Date: May 24th 2016
Version: 2.0

Classification according to Regulation EC Nr. 1272/2008

<table>
<thead>
<tr>
<th>F: HIGHLY FLAMMABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xi: IRRITANT</td>
</tr>
</tbody>
</table>

Health:  
R36: Irritating to eyes  
R67: Vapours may cause drowsiness and dizziness

Physical:  
R11: Highly flammable

Environment: Not classified

Other hazards: Not classified

2.2 Labelling elements

Labelling accordance to Regulation EC Nr. 1272/2008

Hazard pictogramm(s):

Signal word: Danger

Hazard statement(s):
H225: Highly flammable liquid and vapour  
H319: Causes serious eye irritation  
H336: May cause drowsiness or dizziness

Precautionary statement(s):
P102: Keep out of reach of children  
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  
P233: Keep container tightly closed  
P261: Avoid breathing dust/fumes/gas/mist/vapours/spray  
P280: Wear protective gloves/protective clothing/eye protection/face protection  
P337/313: If eye irritation persists; get medical advice/attention  
P370/378: In case of fire: Use foam or dry agent for extinction  
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</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>200-661-7</td>
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<tr>
<td>603-117-00-0</td>
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<tr>
<td>not available</td>
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<td></td>
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<tr>
<td>7782-42-5</td>
<td>5-15</td>
<td>graphite</td>
<td>R48/20</td>
<td>STOT-RE category 2; H373</td>
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<tr>
<td>231-955-3</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>not available</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>01-2119486977-12-xxxx</td>
<td></td>
<td></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 if 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 solvent vapours may give rise to nausea, headaches and dizziness

Ingestion: May cause respiratory and digestive tract irritation

Symptoms: sore throat, abdominal pain, nausea, vomiting
Section 5: Firefighting Measures

5.1. Extinguishing media

Foam, carbon dioxide or dry agent

5.2 Special hazards arising from the substance or mixture

May form explosive vapour/air mixtures
Forms hazardous decomposition products
CO, CO2

5.3 Advice to firefighters

Keep container(s) exposed to fire cool by spraying with water
In case of fire; do not breathe fumes

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Shut off all ignition sources
Ensure adequate ventilation
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
Avoid breathing vapours
Control personal contact with the substance, by using protective equipment
Collect spillage, absorbed spillage and wipes in a sealable, solvent resistant container
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

Keep away from sources of ignition
Take precautions against static discharges
Equipment should be grounded
Use explosion proof electrical/ventilating/lighting/...../equipment
Only use non-sparking tools
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
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

<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>Isopropanol</td>
<td>Isopropyl alcohol</td>
<td>UK</td>
<td>999mg/m³</td>
<td>1250mg/m³</td>
<td>Not available</td>
<td>Skin</td>
</tr>
<tr>
<td>Graphite</td>
<td>Graphite</td>
<td>EU</td>
<td>238mg/m³</td>
<td>475mg/m³</td>
<td>Not available</td>
<td>Not available</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Control procedures: Ensure adequate ventilation
                  Keep away from heat sources and ignition sources
                  Take precautions against static discharges

Personal protection: Take precautions to avoid contact with eyes and skin when handling the products
                     Ensure adequate ventilation

Inhalation: In case of insufficient ventilation, wear suitable respiratory equipment:
            Air purifying respirator with organic gas/vapour cartridge (type A)

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

Appearance/physical state: Liquid
Colour: Black
Odour: Solvent
pH: not applicable
Boiling point/range: 82°C
Flash point: 11°C (closed cup)
Evaporation rate: Not available
Explosion limits: upper limit: 12%
                lower limit: 2%
Vapour pressure: 4 kPa @ 20°C
Relative density: 0.84 g/cm³ @ 20°C
Solubility in water: not soluble in water
Auto-ignition: >400°C
Viscosity: Not available
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

10.5 Incompatible materials

Strong oxidising agent

10.6 Hazardous decomposition products

CO, CO2

Section 11: Toxicological information

11.1. Information on toxicological effects

Information on likely routes of exposure:

- **Inhalation:** Inhalation of solvent vapours may give rise to nausea, headaches and dizziness
- **Skin contact:** Prolonged skin contact will result in defatting of the skin, leading to irritation and in some cases to dermatitis
- **Eye contact:** Irritation to eyes
Section 12: Ecological information

12.1. Toxicity

Not classified

Ecotoxicological data:

<table>
<thead>
<tr>
<th>Hazardous ingredient</th>
<th>CAS-nr</th>
<th>Method</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propan-2-ol; isopropyl alcohol, isopropanol</td>
<td>67-63-0</td>
<td>IC50 algae</td>
<td>&gt;1000 mg/l</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LC50 fish</td>
<td>&gt;1000 mg/l</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EC50 daphnia</td>
<td>&gt;1000 mg/l</td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability

No experimental data available

12.3 Bioaccumulative potential

No experimental data available

12.4 Mobility in soil

Insoluble in water

12.5 Results of PBT and vPvB assessment

No information available

12.6 Hazardous decomposition products

No experimental data available
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: 1263

14.2 UN proper shipping name

Proper shipping name: PAINT

14.3 Transport hazard class(es)

Class: 3
ADR/RID-Classification code: F1

14.4 Packing group

Packing: II

14.5 Incompatible materials

ADR/RID- Environmentally hazardous: No
IMDG-Marine pollutant: No
IATA/ICAO-Environmentally hazardous: No

14.6 Special precautions for user

ADR/RID-Tunnel code: (D/E)
IMDG-EMS: F-E, S-D
IATA/ICAO-PAX: 353
IATA/ICAO-CAO: 364
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: 1263

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%
- LCl0: 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 toxicant
- RoHS: Restriction of Hazardous Substance
- SEM: Scanning Electron Microscope
- STEL: Short-Term Exposure Limit
- STOT: Specific Target Organ Toxicity
Safety Data Sheet

Product name: EM-Tec C33 fast drying conductive carbon paint

Document Nr.: SDS0015001133-01

Date: May 24th 2016

Version: 2.0

TCLo Lowest published toxic concentration
vPvB very Persistent and very Bioaccumulative
WEEE Waste Electrical and Electronic Equipment

DSD / DPD label elements

![Flame Symbol]

![X Symbol]

Full Text Risk and Hazard codes

- H225 – Highly flammable liquid and vapour.
- H319 – Causes serious eye irritation.
- H335 – May cause respiratory irritation.
- H336 – May cause drowsines or diziness

- R11 – Highly flammable.
- R36 – Irritating to eyes.
- R66 – Repeated exposure may cause skin dryness and cracking.
- R67 – Vapours may cause drowsiness and diziness

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.
- S16 – Keep away from sources of ignition. No smoking.
- S20 – When using, do not eat or drink.
- S23 – Do not breath 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.
- S33 – Take precautionary measures against static discharges.
- 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....
- 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.
- S52 – Not recommended for interior use on large surfaces.

Wateringweg 79
2031EK Haarlem
The Netherlands
T +31-85-2013155
E info@microtonano.com
I www.microtonano.com
S53 – Avoid exposure – obtain special instructions before use.
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.