

Product name: EM-Tec C39 conductive carbon cement
Document Nr.: SDS0015001139-01

Date: April 1st 2022
Version: 2.0

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

1.1. Product Identifier

EM-Tec C39 strong conductive carbon cement

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

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

1.3. Details of the supplier of the Safety Data Sheet

Vof Micro to Nano
Tappersweg 91
2031ET 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:	Aspiration irritation, category 1 Skin corrosion/irritation category 2 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

Classification according to Regulation EC Nr. 1272/2008

F: HIGHLY FLAMMABLE



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	Xi: Irritant Xn: Harmful
Health:	R36: Irritating to eyes R38: Irritating to skin R40 (3): Limited evidence of carcinogenic effect R48/20: Harmful: danger of serious damage to health by prolonged exposure through inhalation R63 (3): Possible risk of harm to the unborn child R67: Vapours may cause drowsiness and dizziness
Physical	R11: Highly flammable R7 : May cause fire
Environment:	Not classified
Other hazards:	Not classified

2.2 Labeling elements

Labelling accordance to Regulation EC Nr. 1272/2008

Hazard pictogramm(s):



Signal word:

Danger

Hazard statement(s):

H225: Highly flammable liquid and vapour
H315: Causes skin irritation
H319: Causes serious eye irritation
H336: May cause drowsiness or dizziness
H351: Suspected of causing cancer
H361d: Suspected of damage to the unborn child
H373: May cause damage to organs through prolonged or repeated exposure

Precautionary statement(s)

Prevention:

P102: Keep out of reach of children
P 201: Obtain special instructions before use
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P233: Keep container tightly closed
P241: Use explosion proof electrical/ventilating/lighting/intrinsically safe equipment
P242: Use only non-sparking tools
P243: Take precautions against static discharge
P260: Do not breath dust/fumes/gas/mist/vapours/spray
P 271: Use outdoors or in well ventilated area (fume hood)
P280: Wear protective gloves/protective clothing/eye protection/face protection



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Response: P301+P310: If swallowed: Immediately call a poison Center/doctor/physician/first aider
P308+P313: If exposed or concerned: Get medical attention
P331: No NOT induce vomiting
P370+P378: In case of fire: Use alcohol resistant foam or protein foam for extinction
P305+P351+P338: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if easy to do. Continue rinsing.
P337+P313: If eye irritation persists: Get medical attention
P302+P352: If on skin: Wash with plenty of water and soap.
P303+P361+P353: If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340: If inhaled: Remove person to fresh air and keep comfortable for breathing
P332+P313: If skin irritation occurs: Get medical attention
P362+P364: Take of contaminated clothing and wash before resue
Storage: P403+P235: Store in a well-ventilated place. Keep cool.
P405: Store locked up
Disposal: 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

1. CAS Nr 2. EC Nr 3. Index Nr 4. REACH No	% (weight)	Name	Classification according to directive 67/548/EEC [DSD]	Classification according to regulation Nr 1272/2008 [CLP]
108-88-3 203-625-9 601-021-00-3 01-2119471310-51-xxxx	10-30	toluene	R11R38R48/20R63 R65R67	Flam.Liq. 2, Repr. 2, Asp Tox. 1 STOT RE 2, Skin Irrit.2, STOT RE 3, H225, H361d, H304, H373, H315, H336(3)
7782-42-5	10-30	graphite	R48/20	STOT-RE category 2; H373



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231-955-3 not available 01-2119486977-12-xxxx				
110-43-0 203-767-1 606-024-00-3 01-2119902391-49-xxxx	5-10	Amyl/methyl ketone	R10R20/22	Flam. Liq. 3, Acute Tox, 4; H226, H332, H302
67-64-1 200-662-2 606-001-00-8 01-2119471330-49-xxxx	5-10	acetone	R11R36R66R67	Flam. Liq. 2, Eye Irri. 2, STOT SE 3; H225, H319, H336, EUH066
64-17-5 200-578-6 603-002-00-5 01-2119457610-43-xxxx	5-10	ethanol	R11	Flam. Liq. 2; H225
110-19-0 203-745-1 607-026-00-7 01-2119488971-22xxxx	5-10	Isobutyl acetate	R11R66	Flam. Liq. 2; H225,EUH066
108-65-6 203-603-9, 283-152-2 607-195-00-7 01-2119475791-29-xxxx	1-5	Propylene glycol monomethyl ether acetate, alpha isomer	R10	Flam. Liq. 2; H226
141-78-6 205-500-4 607-022-00-5 01-2119475103-46-xxxx	1-5	Ethyl acetate	R11R36R66R67	Flam. Liq. 2, Eye Irri. 2, STOT SE 3; H225, H319, H336, EUH066
1333-86-4 215-609-9 not available 01-2119384822-32-xxxx	0.5-1.5	Carbon black	R40(3)R7	Carcinogen Category 2; H351

(* 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.
 Seek medical attention if irritation persists.
- Contact with skin:** Wash with water and soap.
 Seek medical attention if irritation persists.



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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
If vomiting appears imminent or occurs hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.
Never give liquid to a person with reduced awareness
Give water to rinse out mouth, then provide water slowly as much as casually can comfortably drink
Avoid giving milk or oils
Avoid giving alcohol

4.2. Important symptoms and effects, either immediate or delayed

Inhalation: Excessive inhalation of solvent vapours may give rise to nausea, blurred vision, fatigue, headaches and dizziness

Ingestion: May cause respiratory and digestive tract irritation
Symptoms: sore throat, abdominal pain, nausea, vomiting

Skin contact: Mildly irritating to skin
Symptoms: redness and pain

Eye contact: Irritating to eyes
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

Use dry chemical, carbon dioxide or chemical foam to extinguish

5.2. Special hazards arising from the substance or mixture

May form explosive vapour/air mixtures
Forms hazardous decomposition products
CO, CO₂, nitrous oxide and smoke

5.3. Advice to firefighters

Keep container(s) exposed to fire cool by spraying with water
In case of fire; do not breathe fumes
Wear self-contained breathing apparatus for fire fighting



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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

Avoid release to the environment
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



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7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly close, in a cool, well ventilated place
 Keep cool
 Keep out of reach of children

7.3 Specific end uses(s)

Against electro-static charge
 Making grounding paths.
 Bonding SEM specimens

Section 8: Exposure control and personal protection

8.1. Control parameters

Exposure limits

Occupational exposure limits (OEL)

Ingredient	Material Name	Source	TWA	STEL	Peak	Notes
toluene	Toulene	UK	191mg/m ³	384mg/m ³	Not available	Skin
		EU	191mg/m ³	384mg/m ³	Not available	Skin
Amyl methyl ketone	Heptan-2-one	UK	237mg/m ³	475mg/m ³	Not available	Skin
		EU	238mg/m ³	475mg/m ³	Not available	Skin
acetone	Acetone	UK	1210mg/m ³	3620mg/m ³	Not available	Not available
		EU	1210mg/m ³	Not available	Not available	Not available
ethanol	Ethanol	UK	1920mg/m ³	Not available	Not available	Not available
Isobutyl acetate	Isobutyl acetate	UK	724mg/m ³	903mg/m ³	Not available	Not available
Propylene glycol monomethyl ether acetate	1-Methoxypropyl acetate	UK	274mg/m ³	548mg/m ³	Not available	Skin
		EU	275mg/m ³	548mg/m ³	Not available	Skin
ethyl acetate	Ethyl acetate	UK	200ppm	400ppm	Not available	Not available
carbon black	Carbon black	UK	3.5mg/m ³	7mg.m ³	Not available	Not available

8.2 Exposure controls

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



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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: Dark grey
Odour: Solvent
pH not applicable
Boiling point/range: 56°C
Flash point: -18°C (closed cup)
Evaporation rate: Not available
Explosion limits: upper limit: 10%
lower limit: 1%
Vapour pressure: Not available
Relative density: 0.996 g/cm³ @ 20°C
Solubility in water: not soluble in water
Auto-ignition: >315°C
Viscosity: t>34 cSt

9.2 Other information

VOC: 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 at normal temperatures and pressures



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10.3 Possibility of hazardous reactions

No hazardous reactions known if used for its intended purposes

10.4 Conditions to avoid

Avoid overheating, ignition sources and incompatible substances

10.5 Incompatible materials

Strong oxidising agents, strong acids, strong bases

10.6 Hazardous decomposition products

CO, CO₂, nitrous oxides and smoke

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

Toxicological data:

Ingredient	Toxicity	Irritation
Toluene	Dermal (rabbit) LD: 12124mg/l	Eye (rabbit): 2mg/24h - severe
	Inhalation (rat) LC50: 49mg/l	Eye (rabbit): 100mg/30s - mild
	Oral (rat) LD50: 636 mg/kg	Skin (rabbit): 20mg/24h - moderate
Graphite, natural	Inhalation (rat) LC50: >2mg/l 4h	Eye (rabbit): non-irritating
	Oral (rat) LD50: >2000 mg/kg	Skin (rabbit): non-irritating
Amyl methyl ketone	Dermal (rabbit) LD: 12600mg/l	Skin (rabbit): 14mg/24h - mild
	Inhalation (rat) LC50: 4000ppm/4h	
	Oral (rat) LD50: 1670 mg/kg	
Acetone	Dermal (rabbit) LD: 20000mg/l	Eye (human): 500ppm - irritant
	Inhalation (rat) LC50: 50.1mg/l/8h	Eye (rabbit): 20mg/24h - moderate



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	Oral (rat) LD50: 5800 mg/kg	Skin (rabbit): 500mg/24hr - mild
ethanol	Dermal (rabbit) LD: 17100mg/l	Eye (rabbit): 500mg - severe
	Inhalation (rat) LC50: 64000ppm/4h	Eye (rabbit): 100mg/24h - moderate
	Oral (rat) LD50: 11872769 mg/kg	Skin (rabbit): 20mg/24hr - moderate
Isobutyl acetate	Dermal (rabbit) LD: >5000mg/kg	moderate
	Oral (rat) LD50: 134000 mg/kg	Skin (rabbit): 500mg open mild
Propylene glycol monomethyl ether acetate, alpha isomer	Dermal (rabbit) LD: >5000mg/kg	Nil reported
	Inhalation (rat) LC50: 4345ppm/6h	
	Oral (rat) LD50: >8532 mg/kg	
Ethyl acetate	Dermal (rabbit) LD: >18000mg/kg	Eye (human):400ppm
	Inhalation (rat) LC50: >6000ppm/6h	
	Oral (rat) LD50: >10170 mg/kg	
Carbon black	Dermal (rabbit) LD: >3000mg/kg	Not available
	Oral (rat) LD50: >8000 mg/kg	
EM-Tec C39 conductive carbon cement	Not available	Not available

Section 12: Ecological information

12.1. Toxicity

Not classified

Ecotoxicological data:

Hazardous ingredient	CAS-nr	Method	
Propan-2-ol; isopropyl alcohol, isopropanol	67-63-0	IC50 algae	>1000 mg/l
		LC50 fish	>1000 mg/l
		EC50 daphnia	>1000 mg/l

12.2 Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
toluene	LOW (Half-life = 28 days)	LOW (Half-life = 4.33 days)
amyl methyl ketone	LOW	LOW
acetone	LOW (Half-life = 14 days)	Medium (Half-life = 116.25 days)



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ethanol	LOW (Half-life = 2.17 days)	LOW (Half-life = 5.08 days)
Isobutyl acetate	LOW	LOW
Propylene glycol monomethyl ether acetate, alpha-isomer	LOW	LOW
Ethyl acetate	LOW (Half-life = 14 days)	LOW (Half-life = 14.71 days)

12.3 Bioaccumulative potential

Ingredient	Bioaccumulation
toluene	LOW (BCF = 90)
amyl methyl ketone	LOW (logKOW = 1.98)
acetone	LOW (BCF = 90)
ethanol	LOW (logKOW = 0.31)
Isobutyl acetate	LOW (logKOW = 1.78)
Propylene glycol monomethyl ether acetate, alpha-isomer	LOW (logKOW = 0.56)
Ethyl acetate	High (BCF = 90)

12.4 Mobility in soil

Ingredient	Bioaccumulation
toluene	LOW (KOC = 268)
amyl methyl ketone	LOW (KOC = 24)
acetone	HIGH(KOC = 1.981)
ethanol	HIGH (KOC = 1)
Isobutyl acetate	LOW (KOC = 17.48)
Propylene glycol monomethyl ether acetate, alpha-isomer	HIGH (KOC = 1.838)
Ethyl acetate	LOW (KOC = 6.131)

12.5 Results of PBT and vPvB assessment

No information available

12.6 Hazardous decomposition products

No experimental data available



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Section 13: Disposal considerations

13.1. Waste treatment methods

Product: This material and its container must be disposed of in a safe way.
Containers may still present a chemical hazard when empty
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

Label required:



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
Limited Quantity: 5L

14.5 Incompatible materials

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



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14.6 Special precautions for user

ADR/RID-Tunnelcode:	(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%
LCLo	Lowest published lethal concentration
LD50	Lethal Dose 50%
N/A	Not applicable



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

DSD / DPD label elements



Full Text Risk and Hazard codes

- H220 – Extremely flammable gas.
 - H226 – Flammable liquid and vapour.
 - H228 – Flammable solid.
 - H251 – Self-heating, may catch fire.
 - H301 – Toxic if swallowed.
 - H302 – Harmful if swallowed.
 - H311 – Toxic in contact with skin.
 - H318 – Causes serious eye damage.
 - H331 – Toxic if inhaled.
 - H332 – Harmful if inhaled.
 - H335 – May cause respiratory irritation.
 - H340 – May cause genetic defects.
 - H350 – May cause cancer.
 - H360 – May damage fertility or the unborn child.
 - H361 – Suspected of damaging fertility or the unborn child.
 - H362 – May cause harm to breast-fed children.
 - H370 – Causes damages to organs.
 - H371 – May cause damage to organs.
 - H372 – Causes damage to organs through prolonged or repeated exposure.
 - H400 – Very toxic to aquatic life.
 - H410 – Very toxic to aquatic life with long lasting effects.
 - H411 – Toxic to aquatic life with long lasting effects.
 - H412 – Harmful to aquatic life with long lasting effects.
-
- R10 – Flammable.
 - R20/22 – Harmful by inhalation and if swallowed.
 - R36 – Irritating to eyes.
 - R63 – Possible risk of harm to the unborn child.



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R66 – Repeated exposure may cause skin dryness and cracking.

Safety advice:

- 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.
- S23 – Do not breath gas/fumes/vapour/spray.
- 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.
- 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.
- S56 – Dispose of this materials and its container at hazardous or special waste collection point.
- 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.

