

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

Date: October 5th, 2022
Version: 4.0 Page 1 of 12

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

1.1. Product Identifier

EM-Tec C30 water based conductive graphene paint. Also known as colloidal graphite or graphite in water.
The substance is not subject to registration according to REACH

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

Rave Scientific
100 Franklin Square Dr.
Suite 101
Somerset, NJ 08873
Telephone: 1-732-898-3828
Email: info@ravescientific.com
Web: www.ravescientific.com

1.4 Emergency telephone number

911 (USA) 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 according to regulation EC Nr. 1272/2008 (CLP)

Physical:	None
Health:	Causes serious eye damage, category 2, H319 Causes skin irritation, category 2, H315
Environment:	Not classified
Other hazards:	Not classified

(Contd. on page 2)

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

Date: October 5th, 2022

Version: 4.0

Page 2 of 12

(Contd. of page 1)

2.2 Labelling elements

Labelling accordance to Regulation EC Nr. 1272/2008

Hazard pictogramm(s):

GHS07



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

P305+P351+P338: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing

P337/313: If eye irritation persists; get medical advice/attention

P370/378: In case of fire: Use foam or dry agent for extinction

P405: Store locked up

P501-2: Dispose of contents/container to an authorised waste collection point

Supplemental hazard info:

None

2.3 Other hazards

Results of PBT and vPvB assessment

According to the results of its assessment, the substance is not a PBT or a vPvB

(Contd. on page 3)

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

Date: October 5th, 2022
Version: 4.0 Page 3 of 12

(Contd. of page 2)

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 regulation Nr 1272/2008 [CLP]
7732-18-5 231-791-2 Not available Not available	70-85	Water	
7782-42-5 231-955-3 Not available 01-2119486977-12-xxxx	15-25	Graphite	STOT-RE category 2; H373
7732-18-5 231-791-2 Not available Not available	1-5	Ammonium hydroxide	

Section 4: First aid measures

4.1. Description of first aid measures

- General information:** The usual precautions for handling chemical substances should be observed. If symptoms should occur, seek medical advice. Immediately remove any clothing soiled by the product
- 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

(Contd. on page 4)

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

Date: October 5th, 2022

Version: 4.0

Page 4 of 12

(Contd. of page 3)

4.2. Important symptoms and effects, either immediate or delayed

Inhalation: No further relevant information available
Ingestion: No further relevant information available
Skin contact: Irritating to skin – Symptoms redness and pain
Eye contact: Irritating to eyes – Symptoms redness, pain and/or impaired vision.
Other information: No further data available

4.3. Indication of any immediate medical attention and special treatment

No further relevant information available

Section 5: Firefighting Measures

5.1. Extinguishing media

Water spray, foam, carbon dioxide or dry agent
Unsuitable extinguishing agents: Water with full yet.

5.2 Special hazards arising from the substance or mixture

Not a fire hazard

5.3 Advice to firefighters

In case of fire: do not breathe fumes

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

(Contd. on page 5)

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

Date: October 5th, 2022

Version: 4.0

Page 5 of 12

(Cont. of page 4)

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 sealable, solvent resistant container
Wash spill area with soap and water to remove last traces of residue

6.4 Reference to other sections

See Section 7 for information on safe handling
See section 8 for information on personal protection equipment
See section 13 for disposal information

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)

No further relevant information available

(Contd. on page 6)

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

Date: October 5th, 2022

Version: 4.0

Page 6 of 12

(Contd. of page 5)

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
Graphite	Graphite	EU	2 mg/m ³	15 mg/m ³	Not available	Not available
Ammonium hydroxide	Ammonia anhydrous	EU	17 mg/m ³	35 mg/m ³	Not available	Not available
EM-Tec C30	Carbon paint	EU	Not available	Not available	Not available	Not available

8.2 Exposure controls

Control procedures:	Ensure adequate ventilation Keep away from heat sources and ignition sources
Personal protection:	Take precautions to avoid contact with eyes and skin when handling the products
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 with side protection 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:	Ammonia
pH	10 – 10.5
Boiling point/range:	100°C
Melting point/range:	0°C
Flash point:	Not applicable
Evaporation rate:	Not available
Explosion limits: upper limit:	Not available
lower limit:	Not available
Vapour pressure:	Not determined
Relative density:	1.12 g/cm ³ @ 20°C
Solubility in water:	soluble in water
Auto-ignition:	Not applicable
Viscosity:	Not available

(Contd. on page 7)

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

Date: October 5th, 2022

Version: 4.0

Page 7 of 12

(Contd. of page 6)

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 freezing

10.5 Incompatible materials

Strong oxidising agent

10.6 Hazardous decomposition products

CO, CO₂

(Cont. on page 8)

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

Date: October 5th, 2022
Version: 4.0 Page 8 of 12

(Contd. of page 7)

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:** Causes serious eye irritation
- CMR effects:** Carcinogenicity classification criteria not met based on available data
 Germ cell mutagenicity classification criteria not met based on available data
 Reproductive toxicity classification criteria not met based on available data
- STOT-single exposure:** may cause drowsiness or dizziness
- STOT- repeated exposure:** classification criteria not met based on available data
- Aspiration hazard:** classification criteria not met based on available data

Toxicological data:

Ingredient	Toxicity	Irritation
Graphite, (graphene)	Inhalation (rat) LC50: >2mg/l 4h	Eye (rabbit): non-irritating
	Oral (rat) LD50: >2000 mg/kg	Skin (rabbit): non-irritating
Ammonium hydroxide	Oral (rat) LD50: >350mg/kg	
EM-Tec C32 conductive graphene paint	Not available	Not available

Symptoms related to physical, chemical and toxicological characteristics

- If swallowed:** No effects known
- If in eyes:** causes serious eye irritation – redness, pain, impaired vision
- If inhaled:** No effects known
- If on skin:** No effects known

11.2. Endocrine disrupting properties

Not listed

11.3. Toxicity

There is no additional information

(Cont. on page 9)

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

Date: October 5th, 2022

Version: 4.0

Page 9 of 12

(Cont. of page 8)

Section 12: Ecological information

12.1. Toxicity

Not classified

12.2 Persistence and degradability

No experimental data available

12.3 Bio-accumulative 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 Endocrine disrupting properties

Not listed

12.7 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.

(Cont. on page 10)

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

Date: October 5th, 2022
Version: 4.0 Page 10 of 12

(Contd. of page 9)

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)

Class: N/A
ADR/RID-Classification code: N/A

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-Tunnel code: 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 (Cont. on page 11)

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

Date: October 5th, 2022
Version: 4.0 Page 11 of 12

(Cont. of page 10)

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 Bio-accumulative 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 Bio-accumulative
WEEE	Waste Electrical and Electronic Equipment

(Cont. on page 12)

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

Date: October 5th, 2022
Version: 4.0 Page **12** of **12**

(Contd. of page 11)

Relevant phrases

- H315 – Causes skin irritation.
- H319 – Causes serious eye irritation.

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.

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