

1.- Identification of the substance/preparation and of the company

- **Identification of the product:** Carbon nanotubes solution
- **Chemical family:** Synthetic Graphite
- **Product name:** DRP-CNTSOL
- **Use of the substance/preparation:** Research use only
- **Manufacturer/supplier identification:** DropSens, S.L.
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2 Hazards identification

Classification of the mixture:

According to Regulation CLP (EC) No1272/2008

- Flammable liquids (Category 3)
- Acute toxicity (Category 4)
- Eye irritation (Category 2)
- Skin irritation (Category 2)
- Respiratory sensitization (Category 1)
- Reproductive toxicity (Category 1B)



- Signal word: Danger

Hazard statements

- H226 Flammable liquid and vapour
- H312 Harmful in contact with skin
- H319 Causes serious eye irritation
- H332 Harmful if inhaled
- H360 May cause harm to the unborn child

Precautionary statements

- P201 Obtain special instructions before use
- P263 Avoid contact during pregnancy
- P280 Wear protective gloves/protective clothing/ eye protection/ face protection
- P305 + P338 + P351 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Physical hazards:

Carbon nanotubes solutions are electrically conductive. Care should be taken.

3.- Composition/Information on ingredients

MATERIAL SAFETY DATA SHEET

Carbon nanotube solution
De acuerdo con la directiva CE N° 1907/2006
Fecha de edición 10/03/2011
Versión 2.0

- | | |
|--|---|
| – Functionalized carbon nanotubes | Synonyms: Carbon nanotubes
CAS: - |
| – N,N-Dimethylformamide | Synonyms: DMF, Formic acid dimethylamide
CAS: 68-12-2
Molecular weight: 73.09 g/mol
EC index no.: -616-001-00-X
EC number: 200-679-5
Formula: C ₃ H ₇ NO |
| – Deionized water | Molecular weight: 18g/mol
Formula: H ₂ O |

4.- First aid measures

- **After inhalation:** Move the person into fresh air. If it is necessary, give artificial respiration with oxygen. Summon physician if necessary.
- **After skin contact:** Wash skin with soap and copious amounts of water. Consult a physician.
- **After ingestion:** Make victim drink plenty of water. Never give anything by mouth to an unconscious person, rinse mouth with water. Consult a physician.
- **After eye contact:** Rinse out with plenty of water with the eyelid held wide open for at least 15 minutes. Summon eye specialist.
- **In case of persisting adverse effects:** Consult a physician.
- **General:** Show this safety data sheet to the doctor in attendance.

5.- Fire-fighting measures

- **Suitable extinguishing media:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
- **Special hazards arising from the substance:** Nitrous oxides, carbon dioxide and carbon monoxide. May form toxic fumes.
- **Special protective equipment for fire fighting:** Wear self contained breathing apparatus for fire fighting if necessary.

6.- Accidental release measures

- **Person-related precautionary measures:** Use personal protective equipment. Ensure adequate ventilation.
- **Environmental precautions:** Do not discharge into the drains/surface waters/groundwaters.
- **Procedures for cleaning/absorption:** Keep in suitable, closed containers for disposal.

7.- Handling and storage

- **Handling:** Avoid eye and skin contact. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.
- **Storage:** Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

8.- Exposure controls/personal protection

Exposure controls

- Respiratory protection Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
- Hand protection The selected protective gloves have to satisfy the specification of EU Directive 89/686/EEC and the standard EN 374 derived from it. Handle with gloves.
- Eye protection Safety glasses with side-shields conforming to EN166.
- Skin and body protection Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- Hygiene measures Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9.- Physical and chemical properties

- **General information:**
 - Form: liquid
 - Colour: black
 - Odour: amine like
- **Important health, safety and environmental information:**
 - pH value: 6 at 25°C
 - Melting temperature: Not data available.
 - Ignition temperature: Not determined
 - Bulk Density: Not data available
 - Solubility in water (20°C): insoluble
 - Solubility in other solvent: No determined.
 - Relative vapour density: Not determined.
 - Refractive index: Not determined.

10.- Stability and reactivity

- **Conditions to be avoided:** Heating should be avoid.
- **Substances to be avoided:** Strong oxidizing agents and/or reducing agents.
- **Hazardous decomposition products:** Hazardous decomposition products formed under fire conditions.
- **Further information:** Stable under recommended storage conditions.

11.- Toxicological information

- **Acute toxicity:**
 - **LD₅₀(oral, rat):** 2800 mg/kg
 - **LC₅₀ (inhalation, rat):** 9-15 mg/l /4h
 - **LD₅₀ (skin, rabbit):** 1500 mg/kg
- **Genotoxicity** in vitro-mouse lymphocyte, mutation in mammalian cells and may cause congenital malformation in the fetus.
- **Carcinogenic:** This product contains a component that is no classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP or EPA classification.
- **Further toxicological information**
 - **Skin corrosion/irritation:** may be harmful if absorbed through skin. Causes skin irritation.
 - **Inhalation:** may be harmful if inhaled. May cause respiratory tract irritation.
 - **Ingestion:** harmful if swallowed.
 - **Serious eye damage/eye irritation:** causes eye irritation.

12.- Ecological information:

To the best of our knowledge the ecological effects have not been thoroughly researched.
Avoid contact with waster, wastewaters or soil.

Ecotoxic effects:

Fish toxicity

- L. macrochirus CL₅₀ : 6300 mg/l / 96h.
- Onchorhynchus mykiss CL₅₀ : 9800 mg/l / 96h.
- P. promelas CL₅₀: 10600 mg/l / 96h.

Daphnia toxicity: Daphnia magna EC₅₀: 15700 mg/l / 48h.

Algae toxicity:

- Desmodesmus subspicatus IC₅₀ > 500 mg/l / 96h.
- Sc. Quadricauda IC₅ : 10 mg/l

Bacterial toxicity:

- Photobacterium phosphoreum CE₅₀: 20000 mg/l / 5min (Microtox test).
 - **Mobility:** log P (o/w): -0.85 (experimental).
- **Bioaccumulative potential:** no bioacumulative.
- **Persistence and degradability:** Biological degradability > 90% / 28d. Good.

13.- Disposal considerations

- **Product:** Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose this material. Dissolve or mix the material with a combustible solvent

- and burn in a chemical incinerator equipped with an afterburner and scrubber.
- **Packaging:** Dispose of as unused product.

14.- Transport information

- **Road transport:** UN-No: 2265
ADR class: 3F1 III
Correct technical name: Preparation containing N,N-Dimetilformamida
- **Sea transport:** UN-No: 2265
IMDG class: 3 III
Correct technical name: Preparation containing N,N-Dimetilformamida
- **Air transport:** UN-No: 2265
IATA/ICAO class: 3 III
Correct technical name: Preparation containing N,N-Dimetilformamida

15.- Regulatory information

This safety datasheet complies with the requirements of Regulation (EC) 1907/2006 and/or 67/548/EEC and/or 1999/45/EC.

- **R-phrases:**
R20/21 Harmful by inhalation and in contact with skin
R36/37 Irritating to eyes and to respiratory system
R61 May cause harm to the unborn child
- **S-phrases:**
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S36 Wear suitable protective clothing
S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label if possible)

16. Other information

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The contents and format of this MSDS are in accordance with EEC Commission Directive 2001/58/EC, 67/548/EC resp. 99/45/EC

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