

Section 1.- Identification of the substance/mixture and of the company

- **Identification of the product:** Carbon nanotubes solution
- **Chemical family:** Graphitized carbon nanotubes
- **Product name:** DRP-CNTSOL
- **Use of the substance/preparation:** Research use only
- **Manufacturer/supplier identification:** Metrohm DropSens, S.L. Vivero de Ciencias de la Salud, Calle Colegio Santo Domingo de Guzmán, s/n, 33010 Oviedo, Asturias, Spain
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- **Emergency phone:** Metrohm DropSens, S.L. +34 985 27 76 85

Section 2.- Hazards identification

Caution! To the best of our knowledge the toxicological properties of this material has not been thoroughly investigated. The present substance has been classified according to hazards identification of its components.

If dries, may cause eye, skin and respiratory tract irritation.

Classification of the mixture:

According to Regulation CLP (EC) No1272/2008

- Flammable liquid (Category 3)
- Acute toxicity, inhalation (Category 4)
- Acute toxicity, dermal (Category 4)
- Eye irritation (Category 2)
- Reproductive toxicity (Category 1B)

Label elements:



Hazard statements

- H226 – Flammable liquid and vapour
- H312 + H332 – Harmful in contact with skin or if inhaled.
- H319 – Causes serious eye irritation.
- H360D – May damage fertility or the unborn child.

Precautionary statements

- P201 – Obtain special instructions before use.
- 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.
- P308 + P313 – If exposed or concerned. Get medical advice/ attention.

Supplemental Hazard Statements: None

dangerous substance at the work place. Handle with gloves. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and standard EN 374 derived from it.

- Hygiene measures Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Section 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
 - Boiling temperature: no data available
 - Flash point: no data available
 - Explosion limits (caused by DMF presence) 2.2% (low) to 16% (high)
 - Vapour pressure: not determined
 - Density: not determined

Section 10.- Stability and reactivity

- **Reactivity:** No data available
- **Chemical Stability:** No data available.
- **Possibility of hazardous reactions:** No data available.
- **Incompatible materials:** Strong oxidizing agents.
- **Conditions to avoid:** Heat, flames and sparks. Direct sunlight should be avoid.
- **Hazardous decomposition products:** Other decomposition products – no data available.
- **Further information:** Stable under recommended storage conditions.

Section 11.- Toxicological information

Toxicological information related to carbon nanotubes and N,N-Dimethylformamide

| | Carbon nanotubes | N,N-Dimethylformamide |
|------------------------------------|--|--|
| LD ₅₀ (oral, rat) | No data available | 2800 mg/kg |
| LC ₅₀ (inhalation, rat) | No data available | 9-15 mg/L (4h) |
| LD ₅₀ (dermal rabbit) | No data available | 1500 mg/kg |
| Skin corrosion/ irritation | No data available | Mild skin irritation (24h) |
| Serious eye damage/ eye irritation | Causes serious eye irritation | Moderate eye irritation |
| Respiratory or skin sensitisation | If inhaled, may cause respiratory irritation | No data available |
| Germ cell mutagenicity | No data available | Mutation in mammalian somatic cells |
| Reproductive toxicity | No data available | May cause congenital malformation in the fetus |
| Additional information | No data available | RTECS: LQ2100000 |

* RTECS: registry of toxic effects of chemical substances

Section 12.- Ecological information:

To the best of our knowledge the ecological effects of this solution have not been thoroughly researched.

Ecological information related to carbon nanotubes: No data available.

Ecological information related to N,N-Dimethylformamide

- LC50- Oncorhynchus mykiss (rainbow trout) – 9.000 – 13.000 mg/L – 96h
- LC50- Lepomis macrochirus (Bluegill) – 6.700 – 7.500 mg/L – 96h
- LC50- Pimephales promelas (fathead minnow) – 10.400 – 10.800 mg/L – 96h
- EC50- Daphnia magna (water flea) – 9.600 – 13.100 mg/L – 48h

- LC50- *Desmodesmus subspicatus* (green algae) - > 500 mg/L – 96h

Persistence and degradability: Biodegradability, result > 90% - Readily biodegradable

Section 13.- Disposal considerations

- **Product:** Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose this material.
- **Contaminated packaging:** Dispose of as unused product.

Section 14.- Transport information

- **Road transport ADR/RID:**
 - UN-N°: 2265
 - Class 3 Packaging group III
 - Proper shipping name: Preparation containing N,N-Dimethylformamide
- **Sea transport IMDG:**
 - UN-N°: 2265
 - Class 3 Packaging group III
 - Marine pollutant: NO
 - Proper shipping name: Preparation containing N,N-Dimethylformamide
- **Air transport IATA:**
 - UN-N°: 2265
 - Class 3 Packaging group III
 - Proper shipping name: Preparation containing N,N-Dimethylformamide

Section 15.- Regulatory information

This safety datasheet has been revised to comply with the requirements establish in (EC) 453/2010.

Section 16.- Other information

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The contents and format of this MSDS are in accordance with EC 453/2010.

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