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**SECTION 1: IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY**

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**1.1 Product identifiers**

Product Name : ACS Material Graphitized Carboxylic Multi-Walled Carbon Nanotubes  
Brand : ACS Material LLC  
CAS-No. : 1333-86-4

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

Identified uses : Laboratory chemicals, Manufacture of substances

**1.3 Details of the supplier of the safety data sheet**

Company : ACS MATERIAL LLC  
959 E Walnut St., Suite 100  
Pasadena, CA 91106  
USA  
Telephone : +1 (866)-227-0656  
Fax : +1 (781)-518-0284

**1.4 Emergency telephone number**

Emergency Phone #: +1 (866)-227-0656

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**SECTION 2: HAZARDS IDENTIFICATION**

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**2.1 Classification of the substance or mixture****GHS Classification**

Eye irritation (Category 2A)

Specific target organ toxicity - single exposure (Category 3)

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal word : Warning

Hazard statement(s)

H319 : Causes serious eye irritation.

H335 : May cause respiratory irritation.

Precautionary statement(s)

P261 : Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

P305 + P351 + P338 : IF IN EYES: Rinse cautiously with water for several minutes. Remove



contact lenses, if present and easy to do. Continue rinsing.

## 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

### WHMIS Classification

D2A	Very Toxic Material Causing Other Toxic Effects	Carcinogen
D2B	Toxic Material Causing Other Toxic Effects	Moderate respiratory irritant Moderate eye irritant

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

Substance name : ACS Material Graphitized Carboxylic Multi-Walled Carbon Nanotubes  
 Synonyms : Graphitized MWNTs-COOH  
 CAS-No. : 1333-86-4

#### Hazardous components

Component	Concentration	CAS-No.
Carbon Nanotubes	>99.9 wt%	1333-86-4
-COOH	0.25 wt%	No data available

For the full text of the phrases mentioned in this Section, see Section 16.

**Hazardous impurities:** None known.

## SECTION 4: FIRST AID MEASURES

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

#### If inhaled

If inhaled, remove to fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

#### In case of eye contact

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and consult a physician.

#### If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**4.2 Most important symptoms and effects, both acute and delayed**

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

**4.3 Indication of any immediate medical attention and special treatment needed**

No data available.

**SECTION 5: FIREFIGHTING MEASURES**

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**5.1 Extinguishing media****Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.2 Hazards arising from the substance or mixture**

Hazardous decomposition products formed under fire conditions. - Carbon oxides.

**5.3 Advice for firefighters**

Wear self-contained breathing apparatus for firefighting if necessary.

**5.4 Conditions of flammability**

Not flammable or combustible.

**5.5 Further information**

No data available.

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

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**6.1 Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

**6.2 Environmental precautions**

Do not let product enter drains.

**6.3 Methods and materials for containment and cleaning up**

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

**6.4 Reference to other sections**

For disposal see section 13.

**SECTION 7: HANDLING AND STORAGE**

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**7.1 Precautions for safe handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.2.

## 7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

## 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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### 8.1 Control parameters

#### Components with workplace control parameters

Contains no substances with occupational exposure limit values.

### 8.2 Exposure controls

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

#### Appropriate engineering controls

Use mechanical exhaust or laboratory fumehood to avoid exposure.

#### Personal protective equipment

##### Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

##### Skin protection

Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

##### Body Protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

##### Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

##### Control of environmental exposure

Do not let product enter drains.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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**9.1 Information on basic physical and chemical properties**

1) Appearance	Form: Powder
	Colour: Black
2) Odour	No data available
3) Odour Threshold	No data available
4) pH	No data available
5) Melting point/freezing point	3,652 - 3,697 °C (6,606 - 6,687 °F)
6) Initial boiling point and boiling range	No data available
7) Flash point	No data available
8) Evaporation rate	No data available
9) Flammability (solid, gas)	No data available
10) Upper/lower flammability or explosive limits	No data available
11) Vapour pressure	No data available
12) Vapour density	No data available
13) Relative density	No data available
14) Water solubility	Slightly soluble
15) Partition coefficient: n- octanol/water	No data available
16) Auto-ignition temperature	No data available
17) Decomposition temperature	No data available
18) Viscosity	No data available
19) Explosive properties	No data available
20) Oxidizing properties	No data available

**9.2 Other safety information**

No data available.

**SECTION 10: STABILITY AND REACTIVITY**

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**10.1 Reactivity**

No data available.

**10.2 Chemical stability**

Stable under recommended storage conditions.

**10.3 Possibility of hazardous reactions**

No data available.

**10.4 Conditions to avoid**

No data available.

**10.5 Incompatible materials**

Strong oxidizing agents.

#### 10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides.

Other decomposition products - No data available.

In the event of fire: see section 5.

### SECTION 11: TOXICOLOGICAL INFORMATION

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#### 11.1 Information on toxicological effects

##### Acute toxicity

Oral LD50: No data available.

Inhalation LC50: No data available.

Dermal LD50: No data available.

##### Skin corrosion/irritation

No data available.

##### Serious eye damage/eye irritation

No data available.

##### Respiratory or skin sensitisation

No data available.

##### Germ cell mutagenicity

No data available.

##### Carcinogenicity

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Carbon Nanotubes, Single walled, functionalized)

2B - Group 2B: Possibly carcinogenic to humans (Carbon Nanotubes, Single walled, functionalized)

3 - Group 3: Not classifiable as to its carcinogenicity to humans (Carbon Nanotubes, Single walled, functionalized)

##### Reproductive toxicity

No data available.

##### Specific target organ toxicity - single exposure

Inhalation - May cause respiratory irritation.

##### Specific target organ toxicity - repeated exposure

No data available.

##### Aspiration hazard

No data available.

##### Potential health effects

**Inhalation** May be harmful if inhaled. Causes respiratory tract irritation.

<b>Ingestion</b>	May be fatal if swallowed.
<b>Skin</b>	May be harmful if absorbed through skin. Causes skin irritation.
<b>Eyes</b>	Causes eye irritation.

**Signs and Symptoms of Exposure**

No data available.

**Additional Information**

RTECS: Not available.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**SECTION 12: ECOLOGICAL INFORMATION**

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**12.1 Toxicity**

No data available.

**12.2 Persistence and degradability**

No data available.

**12.3 Bioaccumulative potential**

No data available.

**12.4 Mobility in soil**

No data available.

**12.5 Results of PBT and vPvB assessment**

No data available.

**12.6 Other adverse effects**

No data available.

**SECTION 13: DISPOSAL CONSIDERATIONS**

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**13.1 Waste treatment methods****Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

**Contaminated packaging**

Dispose of as unused product.

**SECTION 14: TRANSPORT INFORMATION**

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**UN number**

DOT (US): -                      IMDG: -                      IATA: -

**UN proper shipping name**

DOT (US): -                      IMDG: -                      IATA: -

**Transport hazard class(es)**

DOT (US): -                   IMDG: -                   IATA: -

**Packaging group**

DOT (US): -                   IMDG: -                   IATA: -

**Environmental hazards**

DOT (US): no           IMDG Marine pollutant: no           IATA: no

**Special precautions for user**

No data available.

**SECTION 15: REGULATORY INFORMATION**

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**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****Authorisations and/or restrictions on use****WHMIS Classification**

D2A	Very Toxic Material Causing Other Toxic Effects	Carcinogen
D2B	Toxic Material Causing Other Toxic Effects	Moderate eye irritant Moderate respiratory irritant

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

**SECTION 16: OTHER INFORMATION**

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**HMIS Classification**

Health hazard:	2
Chronic Health Hazard:	
Flammability:	0
Physical Hazard:	0

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