SECTION 1: IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY

1.1 Product identifiers
Product Name: ACS Material CVD Graphene on PET Substrate
Brand: ACS Material LLC
CAS-No.: 7782-42-5 (graphite), 25038-59-9 (PET).

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Laboratory chemicals, Manufacturing of substances

1.3 Details of the supplier of the safety data sheet
Company: ACS MATERIAL LLC
959 E Walnut Street, 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

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

2.2 Label elements

2.3 Other hazards
None.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances
Substance name: ACS Material CVD Graphene on PET Substrate
CAS-No: 7782-42-5 (graphite), 25038-59-9 (PET)
Synonyms: Graphene, Polyethylene Terephthalate
No components need to be disclosed according to the applicable regulations.

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 breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Flush eyes with water as a precaution.

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

5.1 Extinguishing media
Suitable extinguishing media
Use carbon dioxide, dry chemical extinguishing agents, dry sand or dry ground dolomite.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: ACCIDENTAL RELEASE MEASURES

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**

7.1 **Precautions for safe handling**

**Suitable extinguishing media**
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection. 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**

8.1 **Control parameters**

**Components with workplace control parameters**
Contains no substances with occupational exposure limit values.

8.2 **Exposure controls**
Appropriate engineering controls
General industrial hygiene practice

8.3 **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**
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.

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

**Respiratory protection**
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. 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

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

1) **Appearance**
   - Form: Solid
2) **Odour**
   - Odorless
3) **Odour Threshold**
   - No data available
4) **pH**
   - No data available
5) **Melting point/freezing point**
   - Melting point: 225-260°C / 437-500°F
6) **Initial boiling point and boiling range**
   - No data available
7) **Flash point**
   - Not applicable
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**
    - Insoluble
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
SECTION 10: STABILITY AND REACTIVITY

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, Fluorine, Chlorine trifluoride

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
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: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available
Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: No available

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

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity
See section 11.

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
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

SECTION 13: DISPOSAL CONSIDERATIONS

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

14.1 UN number
ADR/RID: -  IMDG: -  IATA: -
14.2 UN proper shipping name

ADR/RID: Not dangerous goods
IMDG: Not dangerous goods
IATA: Not dangerous goods

14.3 Transport hazard class(es)

ADR/RID: -
IMDG: -
IATA: -

14.4 Packaging group

ADR/RID: -
IMDG: -
IATA: -

14.5 Environmental hazards

ADR/RID: no
IMDG Marine pollutant: no
IATA: no

14.6 Special precaution for user
No data available

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
No data available

15.2 Chemical Safety Assessment
For this product a chemical safety assessment was not carried out

SECTION 16: OTHER INFORMATION

HMIS Rating
Health hazard: 0

Chronic Health Hazard:
Flammability: 0
Physical Hazard: 0

NFPA Rating
Health hazard: 0
Fire Hazard: 0
Reactivity Hazard: 0
Further information

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