



Safety Data Sheet

Revision date 09/01/2020

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Semiconducting SWCNT / Chloroform
Product Number : 8012QW
CAS-No. : 67-66-3
Synonyms: Formyl trichloride; Methane trichloride; Methenyl trichloride

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 : Nanostructured & Amorphous Materials Inc.
1526 Katy Gap Road, Suite # 302,
Katy, TX 77494, USA

Telephone : +1 281-858-6571
Fax : +1 281-858-6507

1.4 Emergency telephone number

Emergency Phone # : +1 832-800-0355

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 4
Acute Inhalation Toxicity - Vapors	Category 3
Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Carcinogenicity	Category 2
Reproductive Toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system, Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Heart, Liver, Kidney, Blood.	

2.2 GHS Label elements, including precautionary statements



Pictogram

Signal word

Danger

Hazard Statements:

Harmful if swallowed
Causes skin irritation
Causes serious eye irritation
Toxic if inhaled
May cause respiratory irritation
May cause drowsiness or dizziness
Suspected of causing cancer
Suspected of damaging the unborn child
May cause damage to organs through prolonged

Precautionary Statements

Prevention

Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Wear eye/face protection
Do not breathe dust/fume/gas/mist/vapors/spray

Response

IF exposed or concerned: Get medical attention/advice

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Skin

IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing If eye irritation persists: Get medical advice/attention

Ingestion

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell Rinse mouth

Storage

Store locked up Store in a well-ventilated place. Keep container tightly closed

Disposal

Dispose of contents/container to an approved

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

WARNING. Cancer - <https://www.p65warnings.ca.gov/>.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No	Weight%
Chloroform	67-66-3	>99
Ethyl alcohol	64-17-5	<0.8

4. FIRST AID MEASURES**4.1 Description of first aid measures****General Advice**

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

If inhaled

Move to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required

In case of skin contact

Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

In case of eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice

If swallowed

Do not induce vomiting. Call a physician or Poison Control Center immediately

4.2 Most important symptoms and effects.

Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing: May cause decreases in blood pressure and other cardiac effects: Symptoms may be delayed.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically

5. FIREFIGHTING MEASURES**5.1 Extinguishing media**

No information available

Suitable extinguishing media

Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

5.2 Special hazards arising from the substance or mixture

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes

5.3 Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

5.4 Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO2) Hydrogen chloride gas phosgene

NFPA

Health 2
Flammability 1
Instability 1
Physical hazards N/A

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protective equipment. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

6.2 Environmental precautions

Should not be released into the environment

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe vapors or spray mist. Do not ingest

7.2 Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from direct sunlight. Store under an inert atmosphere. Protect from moisture.

7.3 Specific end use(s)

None

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Chloroform	TWA: 10 ppm	(Vacated) TWA: 2 ppm (Vacated) TWA: 9.78 mg/m3 Ceiling: 50 ppm Ceiling: 240 mg/m3	IDLH: 500 ppm STEL: 2 ppm STEL: 9.78 mg/m3	TWA: 10 ppm TWA: 50 mg/m3 STEL: 50 ppm STEL: 225 mg/m3

Ethyl alcohol	STEL: 1000 ppm	(Vacated) TWA: 1000 ppm (Vacated) TWA: 1900 mg/m ³ TWA: 1000 ppm TWA: 1900 mg/m ³	IDLH: 3300 ppm TWA: 1000 ppm TWA: 1900 mg/m ³	STEL: 1000 ppm
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8.2 Exposure controls

Appropriate engineering controls

Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protective equipment

Eye/face protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. Tightly fitting safety goggles. Face-shield.

Skin protection and Body Protection

Long sleeved clothing.

Respiratory protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

- | | |
|--|----------------------------|
| a) Appearance | Form: Liquid |
| b) Odour | Colorless |
| c) Odour Threshold | aromatic Slight sweet |
| d) pH | No data available |
| e) Melting point/freezing point | -63 °C / -81.4 °F |
| f) Initial boiling point and boiling range | 61 °C / 141.8 142.7 °F |
| g) Flash point | No data available |
| h) Evaporation rate | 11.6 (Butyl Acetate = 1.0) |

i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapour pressure	213 mbar @ 20 °C
l) Vapour density	4.12 (Air = 1.0)
m) Relative density	No data available
n) Water solubility	No data available
o) Partition coefficient: n-octanol/water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Molecular Formula	C H Cl ₃
t) Molecular Weight	119.38

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under normal conditions. Unstable upon depletion of inhibitor. Light sensitive.

10.3 Possibility of hazardous reactions

None under normal processing.

10.4 Conditions to avoid

Incompatible products. Heat, flames and sparks. Excess heat. Exposure to light. Protect from moisture.

10.5 Incompatible materials

Strong oxidizing agents, Alkali metals, Aluminium, Acetone

10.6 Hazardous decomposition products

Carbon monoxide (CO), Carbon dioxide (CO₂), Hydrogen chloride gas, phosgene

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

no data available
Inhalation: no data available
Dermal: no data available
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

Reproductive toxicity

No data available
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: Not available

12. ECOLOGICAL INFORMATION**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

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

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Chloroform - 67-66-3	U044	

14. TRANSPORT INFORMATION

DOT (US)

UN-No UN1888
 Proper Shipping Name CHLOROFORM
 Hazard Class 6.1
 Packing Group III

IMDG

UN-No UN1888
 Proper Shipping Name CHLOROFORM
 Hazard Class 6.1
 Packing Group III

IATA

UN-No UN1888
 Proper Shipping Name CHLOROFORM
 Hazard Class 6.1
 Packing Group III

15. REGULATORY INFORMATION

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
Chloroform	67-66-3	X	ACTIVE	-
Ethyl alcohol	64-17-5	X	ACTIVE	-

TSCA 12(b) - Notices of Export Not applicable

International Inventories Canada

(DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
Chloroform	67-66-3	X	-	200-663-8	X	X	X	X	X
Ethyl alcohol	64-17-5	X	-	200-578-6	X	X	X	X	KE-13217

U.S. Federal Regulations**SARA 313**

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Chloroform	67-66-3	>99	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Chloroform	X	10 lb	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Chloroform	X		

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Chloroform	10 lb 1 lb	10 lb

California Proposition 65 This product contains the following proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Chloroform	67-66-3	Carcinogen Developmental	20 µg/day 40 µg/day	Developmental Carcinogen
Ethyl alcohol	64-17-5	Development (alcoholic beverages only)		Developmental Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Chloroform	X	X	X	X	X
Ethyl alcohol	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y
 DOT Marine Pollutant N
 DOT Severe Marine Pollutant N

U.S. Department of Homeland Security

This product contains the following DHS chemicals:
 Legend - STQs= Screening Threshold Quantities,
 APA = A placarded amount

Component	DHS Chemical Facility Anti-Terrorism Standard
Chloroform	Release STQs - 20000lb

Other International Regulations

Mexico - Grade

No information available

16. OTHER INFORMATION

Further information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgment of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.