



# SAFETY DATA SHEET

**MATERION**

## 1. Product and company identification

Name of the chemical	Carbon (bulk form)
Other means of identification	
SDS number	G32
Recommended use of the chemical and restrictions on use	
Recommended use	Manufacture of computer, electronic and optical products, electrical equipment Other: Manufacture of medical and defense equipment Scientific research and development
Recommended restrictions	Professional uses: Public domain (administration, education, entertainment, services, craftsmen) Consumer uses: Private households (= general public = consumers)
Manufacturer/Importer/Supplier/ Distributor information	Materion Advanced Materials
Address	6070 Parkland Boulevard Mayfield Heights OH 44124 United States
Telephone	EH&S 1.216.383.4019
E-mail	ehs@materion.com
Contact person	Theodore Knudson
Emergency telephone number	See Section 16.

## 2. Hazards identification

Hazard classification		
Physical hazards	Self-heating substances and mixtures	Category 2
Health hazards	Not classified.	
Environmental hazards	Not classified.	
Label elements		
Symbols	None.	
Signal word	None.	
Hazard statement	The material as sold in solid form is generally not considered hazardous. However, if the process involves grinding, melting, cutting or any other process that causes a release of dust or fumes, hazardous levels of airborne particulate could be generated.	
Precautionary statement		
Prevention	Keep cool. Protect from sunlight. Wear protective gloves/eye protection/face protection.	
Response	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.	
Storage	Maintain air gap between stacks/pallets. Store away from other materials.	
Disposal	Dispose of waste and residues in accordance with local authority requirements.	
Other hazards	None known.	
Supplemental information	For further information, please contact the Product Stewardship Department at +1.216.383.4019.	

## 3. Composition/information on ingredients

Substance	CAS Number	Concentration (%)
Carbon	7440-44-0	100

## 4. First aid measures

First aid measures for different exposure routes	
Inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Wash off with soap and water. Get medical attention if irritation develops and persists.

<b>Eye contact</b>	Rinse with water. Get medical attention if irritation develops and persists.
<b>Ingestion</b>	Rinse mouth. Get medical attention if symptoms occur.
<b>Most important symptoms and effects</b>	Under normal conditions of intended use, this material does not pose a risk to health.
<b>Personal protection for first-aid responders</b>	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.
<b>Notes to physician</b>	Treat symptomatically.

## 5. Fire-fighting measures

<b>Extinguishing media</b>	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
<b>Extinguishing media to avoid</b>	None.
<b>Specific hazards during fire fighting</b>	This product is not flammable.
<b>Special fire fighting procedures</b>	Use water spray to cool unopened containers.
<b>Protection of fire-fighters</b>	Wear suitable protective equipment.
<b>General fire hazards</b>	Not relevant, due to the form of the product.
<b>Specific methods</b>	Use standard firefighting procedures and consider the hazards of other involved materials.

## 6. Accidental release measures

<b>Personal precautions</b>	Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.
<b>Environmental precautions</b>	Avoid discharge into drains, water courses or onto the ground.
<b>Spill cleanup methods</b>	Stop the flow of material, if this is without risk. For waste disposal, see section 13 of the SDS.

## 7. Handling and storage

<b>Handling</b>	Minimize dust generation and accumulation. Observe good industrial hygiene practices.
<b>Storage</b>	Store in a closed container away from incompatible materials.

## 8. Exposure controls/personal protection

### Exposure limits

#### OELs. (Standards on Workplace Atmosphere of Dangerous and Hazardous Materials)

Material	Type	Value	Form
Carbon (bulk form)	STEL	15 mg/m3	Total dust.
		10 mg/m3	Respirable dust.
	TWA	5 mg/m3	Respirable dust.
		10 mg/m3	Total dust.
Components	Type	Value	Form
Carbon (CAS 7440-44-0)	STEL	15 mg/m3	Total dust.
		10 mg/m3	Respirable dust.
	TWA	5 mg/m3	Respirable dust.
		10 mg/m3	Total dust.

<b>Biological limit values</b>	No biological exposure limits noted for the ingredient(s).
<b>Appropriate engineering controls</b>	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

### Individual protection measures, such as personal protective equipment

<b>Eye/face protection</b>	Wear safety glasses with side shields (or goggles).
<b>Skin protection</b>	
<b>Hand protection</b>	Wear protective gloves.
<b>Other</b>	Wear suitable protective clothing.
<b>Respiratory protection</b>	In case of insufficient ventilation, wear suitable respiratory equipment.
<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.

**General hygiene considerations** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking.

## 9. Physical and chemical properties

### Appearance

Physical state	Solid.
Form	Solid.
Color	Dark grey.
Odor	None.
Odor threshold	Not applicable.
Melting point/freezing point	6332 °F (3500 °C) estimated
pH	Not applicable.
Boiling point, initial boiling point, and boiling range	Not applicable.
Flammability (solid, gas)	None known.
Flash point	Not applicable.
Decomposition temperature	Not applicable.
Auto-ignition temperature	Not applicable.

### Upper/lower flammability or explosive limits

Flammability limit - lower (%)	Not applicable.
Flammability limit - lower (%) temperature	Not applicable.
Flammability limit - upper (%)	Not applicable.
Flammability limit - upper (%) temperature	Not applicable.
Explosive limit - lower (%)	Not applicable.
Explosive limit - lower (%) temperature	Not applicable.
Explosive limit - upper (%)	Not applicable.
Explosive limit - upper (%) temperature	Not applicable.

Vapor pressure Not applicable.

Vapor density Not applicable.

Density Not applicable.

### Solubility(ies)

Solubility (water) Insoluble

Partition coefficient (n-octanol/water) Not applicable.

Evaporation rate Not applicable.

### Other data

Explosive limit Not applicable.

Explosive properties Not explosive.

Molecular formula C

Molecular weight 12.01 g/mol

Oxidizing properties Not oxidizing.

Relative density Not applicable.

Viscosity Not applicable.

## 10. Stability and reactivity

**Reactivity** The product is stable and non-reactive under normal conditions of use, storage and transport.

**Stability** Material is stable under normal conditions.

<b>Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>Conditions to avoid</b>	Contact with incompatible materials.
<b>Incompatible materials</b>	Chlorine.
<b>Hazardous decomposition products</b>	No hazardous decomposition products are known.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	No adverse effects due to inhalation are expected.
<b>Skin contact</b>	No adverse effects due to skin contact are expected.
<b>Eye contact</b>	Not likely, due to the form of the product.
<b>Ingestion</b>	Expected to be a low ingestion hazard.

**Symptoms** None known.

### Information on toxicological effects

**Acute toxicity** Not known.

<b>Components</b>	<b>Species</b>	<b>Test Results</b>
Carbon (CAS 7440-44-0)		
<u>Acute</u>		
Oral		
LD50	Rat	> 10000 mg/kg
<b>Skin corrosion/irritation</b>	Not likely, due to the form of the product.	
<b>Serious eye damage/eye irritation</b>	Not likely, due to the form of the product.	
<b>Respiratory or skin sensitization</b>		
Respiratory sensitization	Not a respiratory sensitizer.	
Skin sensitization	Not a skin sensitizer.	
<b>Germ cell mutagenicity</b>	Not classified.	
<b>Carcinogenicity</b>	Not classified.	
<b>Reproductive toxicity</b>	Not classified.	
<b>Specific target organ toxicity - single exposure</b>	Not classified.	
<b>Specific target organ toxicity - repeated exposure</b>	Not classified.	
<b>Aspiration hazard</b>	Not an aspiration hazard.	
<b>Chronic effects</b>	None known.	

## 12. Ecological information

<b>Ecotoxicity</b>	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
<b>Persistence and degradability</b>	
<b>Bioaccumulation</b>	No data available.
<b>Mobility in soil</b>	The product is immiscible with water and will spread on the water surface.
<b>Other hazardous effects</b>	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

## 13. Disposal considerations

<b>Disposal instructions</b>	Consult authorities before disposal. Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Residual waste</b>	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

**Contaminated packaging** Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

**Local disposal regulations** Dispose in accordance with all applicable regulations.

## 14. Transport information

### IATA

Not regulated as dangerous goods.

### IMDG

Not regulated as dangerous goods.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable.

## 15. Regulatory information

### Applicable regulations

#### Methods and Facilities Standards for the Storage, Clearance and Disposal of Industrial Waste

Not listed.

#### Priority Management Chemical List (Regulations on Handling Priority Managed Chemicals), as amended

Not listed.

#### Toxic Chemical Substances (TCS) List (EPA Toxic Substances Notice No. 0960095331E, Tables 1-3, Dec. 17, 2007, as amended)

Not listed.

#### Standards on Workplace Atmosphere of Dangerous and Hazardous Materials

Carbon (CAS 7440-44-0)

Listed.

#### GHS Classification List: GHS implementation phase 1, 2 and 3 (CLA No. 0980145063, 0990146707, and 1020146801)

Carbon (CAS 7440-44-0)

### International regulations

#### Stockholm Convention

Not applicable.

#### Rotterdam Convention

Not applicable.

#### Montreal Protocol

Not applicable.

#### Kyoto protocol

Not applicable.

#### Basel Convention

Not applicable.

### International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

## 16. Other information

### References

ACGIH  
EPA: ACQUIRE database  
NLM: Hazardous Substances Data Base  
US. IARC Monographs on Occupational Exposures to Chemical Agents  
Taiwan. Dangerous Materials (Rules on Hazard Communication of Dangerous Materials and Toxic Materials)  
Taiwan. Industrial Precursor Chemicals (Categories and Regulations Governing Inspection and Declaration of Industrial Precursor Chemicals, MOEA Decree No. 87, as amended)  
Taiwan. OELs. (Standards on Workplace Atmosphere of Dangerous and Hazardous Materials)  
Taiwan. Toxic Chemical Substances (TCS) (List of Toxic Chemical Substances announced by the Environmental Protection Administration)  
Taiwan. Toxic Materials (Rules on Hazard Communication of Dangerous Materials and Toxic Materials)

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### Prepared by

Not available.