



MATERIAL SAFETY DATA SHEET

MATERION

1. Chemical product and company identification

A. Product name	Silicon Carbide (SiC)	
B. Recommended use and Limitations on use	Recommended use Not available.	
C. Supplier information	Company name Materion Advanced Chemicals Inc.	
Address	407 N 13th Street 1316 W. St. Paul Avenue Milwaukee WI 53233 United States	
Division	Milwaukee	
Email	advancedmaterials@materion.com	
Contact person	Noreen Atkinson	
Emergency telephone number	Chemtrec	800.424.9300
MSDS number	S-MSDS0039	

2. Hazards identification

A. Hazard category/Classification

Physical hazards	Substances and mixtures which, in contact with water, emit flammable gases	Category 3
Health hazards	Carcinogenicity	Category 1B
Environmental hazards	Not classified.	

B. Warning label items including precautionary statement

• Pictogram



• Signal word

Danger

• Hazard statement

H261	In contact with water releases flammable gas.
H350	May cause cancer.

• Precautionary statement

Prevention

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P231 + P232	Handle under inert gas. Protect from moisture.
P280	Wear protective gloves/eye protection/face protection.

Response

P308 + P313	IF exposed or concerned: Get medical advice/attention.
P370 + P378	In case of fire: Use appropriate media for extinction.

Storage

P402 + P404	Store in a dry place. Store in a closed container.
P405	Store locked up.

Disposal

P501	Dispose of contents/container (in accordance with related regulations).
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C. Other hazards not included in the hazard category criteria (e.g. dust explosion hazard) None known.

3. Composition/information on ingredients

Chemical identity	Common and alternative names	CAS number	ID number	Content in percent (%)
Silicon Carbide (SiC)		409-21-2	KE-31031	100

4. First aid measures

A. In case of eye contact	Rinse with water. Get medical attention if irritation develops and persists.
B. In case of skin contact	Wash off with soap and water. Get medical attention if irritation develops and persists.
C. In case of inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
D. In case of swallowing	Rinse mouth. Get medical attention if symptoms occur.
E. Note to physician	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.
General advice	IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

A. Suitable (and unsuitable) extinguishing media	
Suitable extinguishing media	Not available.
Unsuitable extinguishing media	Water.
B. Specific hazards arising from the chemical (example: hazardous combustion products)	Water reactive material.
C. Specific methods of fire-fighting	
Special protective equipment for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Special fire fighting procedures	Do not get water inside container.
General fire hazards	In contact with water releases flammable gas.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

A. Personal precautions, protective equipment and emergency measures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the MSDS.
B. Environmental precautions	Avoid discharge into drains, water courses or onto the ground.
C. Methods and materials for containment and cleaning up	Do not get water on spilled substance or inside containers. The product is immiscible with water and will spread on the water surface. Stop the flow of material, if this is without risk. Cover with DRY earth, DRY sand, or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain. For waste disposal, see section 13 of the MSDS.

7. Handling and storage

A. Precautions for safe handling	Do not allow water to get into container because of violent reaction and possible flash fire. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Handle under inert gas. Provide adequate ventilation. Avoid prolonged exposure. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.
B. Conditions for safe storage (including any incompatibilities)	Store locked up. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a dry place. Never allow product to get in contact with water during storage. Store in a building without sprinklers. Store away from incompatible materials (see Section 10 of the MSDS).

8. Exposure controls/personal protection

A. Exposure limit values, biological limit values, etc

Korea. OELs. Standards for Exposure to Chemical Substances and Physically Hazardous Factors

Material	Type	Value
Silicon Carbide (SiC) (CAS 409-21-2)	TWA	10 mg/m3

Biological limit values

No biological exposure limits noted for the ingredient(s).

B. Appropriate engineering controls

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.

C. Personal protective equipment

- **Respiratory protection** In case of insufficient ventilation, wear suitable respiratory equipment.
- **Eye protection** Wear eye/face protection.
- **Hand protection** Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.
- **Body protection** Wear suitable protective clothing. Use of an impervious apron is recommended.

Hygiene measures

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

A. Appearance

- Physical state Solid.
- Form Solid.
- Color Not available.

B. Odor

Not available.

C. Odor threshold

Not available.

D. pH

Not available.

E. Melting point/freezing point

- Melting point 4712 °F (2600 °C)
- Freezing point 4712 °F (2600 °C)

F. Boiling point, initial boiling point, and boiling range

Not available.

G. Flash point

Not available.

H. Evaporation rate

Not available.

I. Flammability (solid, gas)

Not available.

J. Upper/lower limit on flammability or explosive limits

- Flammability limit - lower (%) Not available.
- Flammability limit - upper (%) Not available.
- Explosive limit - lower (%) Not available.
- Explosive limit - upper (%) Not available.

K. Vapor pressure

1323.89 kPa at 25 °C

L. Solubility

- Solubility (water) Insoluble

M. Vapor density

Not available.

N. Specific gravity

3.23

O. n-octanol/water partition coefficient

Not available.

P. Auto-ignition temperature

Not available.

Q. Decomposition temperature	Not available.
R. Viscosity	Not available.
S. Molecular weight	40.07 g/mol
Other data	
Density	3.23 g/cm ³ estimated
Explosive properties	Not explosive.
Molecular formula	C-Si
Oxidizing properties	Not oxidizing.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
A. Stability and hazardous reaction potential	
Stability	Material reacts with water.
Hazardous reaction potential	No dangerous reaction known under conditions of normal use.
B. Conditions to avoid (e.g. static discharge, shock or vibration, etc)	Exposure to moisture. Exposure to water vapor. Contact with incompatible materials.
C. Incompatible materials	Strong oxidizing agents.
D. Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

A. Information on likely routes of exposure	
• Respiratory organs	Prolonged inhalation may be harmful.
• Skin	No adverse effects due to skin contact are expected.
• Eyes	Direct contact with eyes may cause temporary irritation.
• Mouth	Expected to be a low ingestion hazard.
B. Information on health hazards	
• Acute toxicity (list all possible routes of exposure)	No data available.
• Corrosivity or irritation to the skin	Prolonged skin contact may cause temporary irritation.
• Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation.
• Respiratory sensitization	Not a respiratory sensitizer.
• Skin sensitization	This product is not expected to cause skin sensitization.
• Carcinogenic properties /Carcinogenicity	May cause cancer.
• Mutagenic properties /Mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
• Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
• Specific target organ toxicity - single exposure	Not classified.
• Specific target organ toxicity - repeated exposure	Not classified.
• Aspiration hazard	Not an aspiration hazard.

12. Ecological information

A. Ecotoxicity	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.
Hazardous to the aquatic environment, acute hazard	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/degradability	No data is available on the degradability of this product.
C. Bioaccumulative potential	No data available.
D. Mobility in soil	The product is immiscible with water and will spread on the water surface.
E. Other adverse effects	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

A. Method of disposal	Consult authorities before disposal. Do not allow this material to drain into sewers/water supplies. Dispose of contents/container (in accordance with related regulations).
B. Disposal considerations (including disposal of contaminated containers or 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.
Waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

14. Transport information

IATA

A. UN number	UN2813
B. UN proper shipping name	Water-reactive solid, n.o.s. (Silicon Carbide (SiC))
C. Transport hazard class(es)	
Class	4.3
Subsidiary risk	-
D. Packing group	III
E. Environmental hazards	No.
ERG Code	4W
F. Special precautions for user	Read safety instructions, MSDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.

IMDG

A. UN number	UN2813
B. UN proper shipping name	WATER-REACTIVE SOLID, N.O.S. (Silicon Carbide (SiC))
C. Transport hazard class(es)	
Class	4.3
Subsidiary risk	-
D. Packing group	III
E. Environmental hazards	
Marine pollutant	No.
EmS	F-G, S-N
F. Special precautions for user	Read safety instructions, MSDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

IATA; IMDG



15. Regulatory information

A. Restrictions under the Industrial Safety and Health Law

Harmful Substances Prohibited from Manufacturing

Not regulated.

Harmful Substances Requiring Permission for Manufacture or Use

Not regulated.

Controlled Hazardous Substances

Not regulated.

Harmful Substances Requiring Special Medical Examination

Not regulated.

Workplace Environmental Monitoring Harmful Materials

Not regulated.

Occupational Exposure Limit

Silicon Carbide (SiC) (CAS 409-21-2)

B. Restrictions under the Chemicals Control Law (Previously Toxic Chemicals Control Law)

Accidental Release Prevention Substances

Not regulated.

Observational Chemicals

Not regulated.

C. Restrictions under the Dangerous Substance Safety Management Act

D. Restrictions under the Wastes Control Act

Halogenated Materials in Waste Organic Solvents

Not regulated.

Hazardous Substances

Not regulated

E. Restrictions under other foreign or domestic laws

Clean Air Conservation Act

Air Pollutants

Not regulated.

Specific Air Pollutants

Not regulated.

Act on the Registration and Evaluation of Chemicals

Banned Toxic Chemicals

Not regulated.

Designated Existing Chemicals Subject to Registration (PEC) (MoE No. 2015-92)

Not listed.

Restricted Chemical Substances

Not regulated.

Toxic Chemicals

Not regulated.

Further information

This material safety data sheet was prepared in accordance with Article 41 of the Industrial Safety and Health Law.

Inventory status

Country(s) or region

Korea

Inventory name

Existing Chemicals List (ECL)

On inventory (yes/no)*

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

A. Source of information

ACGIH
EPA: AQUIRE database
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents
Korea. Accidental Release Prevention Substances (Presidential Decree of Toxic Chemical Control Law, Executive Order No. 19203)
Korea. Dangerous Substances Threshold Quantity (Presidential Decree of Dangerous Substances Safety Management Act No. 18406, Schedule 1)
Korea. Harmful Substances Prohibited from Manufacturing (Presidential Decree on the Industrial Safety and Health Act (No. 13053), Article 29)
Korea. Harmful Substances Requiring Permission for Manufacture or Use (Presidential Decree on the Industrial Safety and Health Act (No. 13053), Article 30)
Korea. Non-Toxic Chemicals List (National Institute of Environment Research (NIER) Public Notice No. 1997-10, as amended)
Korea. Observational Chemicals (Ministerial Decree of TCCL Article 6)
Korea. OELs. Regulation for Permitted Concentration of Hazardous Substances (Ministry of Labor (MOL) Public Notice No. 1986-45, as amended)
Korea. Prohibited Chemical Substances (TCCL Article 11)
Korea. Regulated volatile organic compounds (VOCs) (MOE Notice No. 2001-36, March 8, 2001, as amended)
Korea. Restricted Chemical Substances (TCCL Article 11)
Korea. Toxic Chemical Control Law (TCCL), Existing Chemicals Inventory (KECI)
Korea. Toxic Chemical Control Law (TCCL), pre-1997 List
Korea. Toxic Chemicals (TCCL Article 10)
Korea. Toxic Release Inventory (TRI) Chemicals (TCCL Article 14)

B. Issue date

12-12-2016

C. Number of revisions and date of most recent revision

Not applicable.

D. Other

Not available.

Disclaimer

Materion Advanced Chemicals Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. This document has been prepared using data from sources considered to be technically reliable and the information is believed to be correct. Materion makes no warranties, expressed or implied, as to the accuracy of the information contained herein. Materion cannot anticipate all conditions under which this information and its products may be used and the actual conditions of use are beyond its control. The user is responsible to evaluate all available information when using this product for any particular use and to comply with all Federal, State, Provincial and Local laws, statutes and regulations.