

Safety Data Sheet(SDS)

Last revised date : 21-07-2026

1. Identification

1) Product identifier : Radianz

2) Relevant identified uses of the substance or mixture and uses advised against

○ Relevant identified uses

○ Restrictions on use

Use for recommended use only

Do not use it for weapons manufacturing and related purposes.

3) Supplier information

○ Seller

Company name : Lotte Chemical Corporation

Address : 05551 Lotte World Tower, 300, Olympic-ro, Songpa-gu, Seoul, 05551 Rep. of KOREA

Telephone number :

Basic Chemicals	+82-2-829-4114	Advanced Materials	+82-31-596-3114
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Emergency phone number

Yeosu Plant	+82-61-688-2100	Ulsan Plant	+82-52-278-3500
		Yeosu Plant(Advanced Materials)	+82-61-689-1100

Fax number : +82-2-834-6070

2. Hazards identification

1) Hazard classification

- Carcinogenicity Category 1A

- Specific target organ toxicity single exposure Category 3(Respiratory tract irritation)

2) Allocation label elements

Hazard pictograms



Signal word

- DANGER

Hazard statements

H335 May cause respiratory irritation

H350 May cause cancer

Precautionary statements

- Prevention

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

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

P271 Use only outdoors or in a wellventilated area.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

- Response

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P308+P313 If exposed or concerned: Get medical advice/attention.

P312 Call a POISON CENTER/ doctor/.../if you feel unwell.

- Storage

P403+P233 Store in a wellventilated place. Keep container tightly closed.

P405 Store locked up.

- Disposal

P501 Dispose of contents/container to ...

3) Other hazards:

○ Product NFPA Level : Health, Flammability, Reactivity

(※ 0 = Insufficient , 1 = Slightly , 2 = ordinary , 3 = Highness , 4 = Very high)

○ Substance NFPA Level :

Chemical name	NFPA Level		
	Health	Flammability	Reactivity
Quartz (SiO ₂)			

3. Composition/Information on ingredients

Chemical name	Common name	CAS No.	Content(wt%)
Quartz (SiO ₂)	quartz (SiO ₂)	14808-60-7	>=85 ~ <=93

4. First-aid measures

1) Following eye contact

- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Seek immediate medical assistance.

2) Following skin contact

- For minor skin contact, avoid spreading material on unaffected skin.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Remove and isolate contaminated clothing and shoes.
- Seek immediate medical assistance.

3) Following inhalation

- Administer oxygen if breathing is difficult.
- 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.
- Give artificial respiration if victim is not breathing.
- If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop.
- Keep victim warm and quiet.
- Move to fresh air.

4) Following ingestion

- 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.
- Seek immediate medical assistance.

5) Delayed and immediate effects and also chronic effects from short and long term exposure

- May cause cancer
- May cause respiratory irritation

6) Advice to physician

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Exposures require specialized first aid with contact and medical follow-up .

5. Fire-Fighting measures

1) Suitable (and unsuitable) extinguishing media

- Suitable extinguishing media
 - Dry chemical.
 - Use dry sand or earth to smother fire.
 - Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
 - CO₂.
 - Water spray.
- Unsuitable extinguishing media
 - Direct water.

2) Special hazards arising from the substance or mixture

- Pyrolytic product
 - Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
 - Can decompose at high temperatures forming toxic gases.
 - Risk of fire and explosion
 - Containers may explode when heated.
 - Some may burn but none ignite readily.
 - Other
 - May cause toxic effects if inhaled.
- 3) Special protective equipment for firefighters
- Substance may be transported in a molten form.
 - Dike fire-control water for later disposal; do not scatter the material.
 - Evacuate area and fight fire from a safe distance.
 - Fire involving Tanks: ALWAYS stay away from tanks engulfed in fire.
 - Fire involving Tanks: Cool containers with flooding quantities of water until well after fire is out.
 - Fire involving Tanks: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
 - Fire involving Tanks: For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.
 - Fire involving Tanks: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
 - Move containers from fire area if you can do it without risk.
 - Rescuers should put on appropriate protective gear.

6. Accident release measures

- 1) Personal precautions, protective equipment and emergency procedures
- Clean up spills immediately, observing precautions in Protective Equipment section.
 - Cover with plastic sheet to prevent spreading.
 - Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
 - ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
 - Isolate hazard area.
 - Keep unnecessary and unprotected personnel from entering.
 - Please note that materials and conditions to be avoided.
 - Stop leak if you can do it without risk.
- 2) Environmental precautions
- Prevent entry into waterways, sewers, basements or confined areas.
- 3) Methods and materials for containment and cleaning up
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
 - Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container.
 - Absorb the liquid and scrub the area with detergent and water.

7. Handling and storage

1) Precautions for safe handling

- Avoid breathing vapors from heated material.
- Do not enter storage area unless adequately ventilated.
- Follow all MSDS/label precautions even after container is emptied because they may retain product residues.
- Handling refer to engineering control/personal protection section.
- Loosen closure cautiously before opening.
- Please note that materials and conditions to be avoided.
- Use care in handling/storage.
- Use only in a well-ventilated area.

2) Conditions for safe storage (including any incompatibilities)

- Empty drums should be completely drained, properly bunged, and promptly returned to a drum reconditioner, or properly disposed of.

8. Exposure controls & personal protection

1) Chemical exposure limits, Biological exposure standard

Components	Occupational exposure limits (USA)	ACGIH regulations	Biological limit values
Quartz (SiO ₂)	0.1 mg/m ³ TWA (respirable dust)	0.025 mg/m ³ TWA (respirable particulate matter)	No data available

2) Appropriate engineering controls

- If user operations generate dust, fume, or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
- Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

3) Personal protective equipment

- Respiratory protection
 - If you have a direct contact or exposed to the material, wear the appropriate form of respiratory protection certified.
- Eye protection
 - If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles.
- Hand protection
 - Wear chemical safety gloves.
- Skin protection
 - Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

9. Physical and chemical information

Property name	Values	Source
Appearance		
Physical state	solid	
Color	No data available	
Odor	No data available	
Odor threshold	No data available	
pH	No data available	
Melting point/freezing point	No data available	
Initial boiling point and boiling range(°C)	No data available	
Flash point(°C)	No data available	
Evaporation rate	No data available	
Flammability(solid, gas)	No data available	
Upper/lower flammability or explosive limits	No data available	
Vapour pressure	No data available	
Solubility(ies)	No data available	
Vapour density	No data available	
Relative density	No data available	
n-octanol/water partition coefficient	No data available	
Auto ignition temperature	No data available	
Decomposition temperature	No data available	
Viscosity(mm²/s, 40°C)	No data available	
Molecular weight(mass)	No data available	
Specific gravity	No data available	

10. Stability and hazardous reactivity

1) Chemical stability and Possibility of hazardous reactions

- Can decompose at high temperatures forming toxic gases.
- Containers may explode when heated.
- Fire may produce irritating, corrosive and/or toxic gases.
- Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
- Some may burn but none ignite readily.

2) Conditions to avoid

- Ignition source(heat, spark, flame, etc.).
- 3) Incompatible materials
 - Combustibles, reducing material.
- 4) Hazardous decomposition products
 - Corrosive/toxic fume.
 - Irritating, corrosive and/or toxic gas.

11. Toxicological information

1) Information on the likely routes of exposure

- No data available

2) Delayed and immediate effects and also chronic effects from short and long term exposure

- Acute toxicity
 - Acute toxicity(Oral) PRODUCT : Not classified
 - No data available
 - Acute toxicity(Dermal) PRODUCT : Not classified
 - No data available
 - Acute toxicity(Inhalation:Gases) PRODUCT : Not classified
 - No data available
 - Acute toxicity(Inhalation:Vapours) PRODUCT : Not classified
 - No data available
 - Acute toxicity(Inhalation:Dust/mist) PRODUCT : Not classified
 - No data available
- Skin corrosion/irritation PRODUCT : Not classified
 - No data available
- Serious eye damage/eye irritation PRODUCT : Not classified
 - No data available
- Respiratory sensitization PRODUCT : Not classified
 - No data available
- Skin sensitization PRODUCT : Not classified
 - No data available
- Carcinogenicity PRODUCT : Category 1A
 - Quartz (SiO₂)
 - : 1 (IARC)
 - K (NTP)
 - Applicable (OSHA)

A2 (ACGHI)

1A (Ministry of Employment and Labor notice)

- Germ cell mutagenicity PRODUCT : Not classified
 - Quartz (SiO₂)
 - : Negative results from chromosomal aberration test using in vivo mammalian bone marrow cells
- Reproductive toxicity PRODUCT : Not classified
 - No data available
- Specific target organ toxicity single exposure PRODUCT : Category 3 (Respiratory tract irritation)
 - Quartz (SiO₂)
 - : Acute inhalation toxicity test results using humans showed effects on the respiratory system.
- Specific target organ toxicity repeated exposure PRODUCT : Not classified
 - Quartz (SiO₂)
 - : Repeated toxicity tests on humans revealed effects on the respiratory system and kidneys. Due to carcinogenic effects, this substance is not classified in this category.
- Aspiration hazard PRODUCT : Not classified
 - No data available

12. Ecological information

- 1) Ecotoxicity
 - No data available
- 2) Persistence and degradability
 - No data available
- 3) Bioaccumulative potential
 - No data available
- 4) Mobility in soil
 - No data available
- 5) Other adverse effects
 - No data available

13. Disposal considerations

- 1) Disposal methods
 - Empty containers should be taken to an approved waste handling site for recycling or disposal.
- 2) Precautions (including disposal of contaminated container or package)
 - Dispose of in accordance with local regulations.
 - Send to a licensed waste management company.

14. Transport information

- 1) UN No. : Not applicable
- 2) Proper shipping name : Not applicable
- 3) Hazard class : Not applicable
- 4) Packing group : Not applicable
- 5) Marine pollutant : Not applicable
- 6) Special precautions for user related to transport or transportation measures :
 - Emergency measures in case of fire : Not applicable
 - Emergency measures in the effluent : Not applicable
- ADR
 - Tunnel restriction code : Not applicable
- IMDG
 - Marine pollutant : Not applicable
- Air transport(IATA)
 - UN No. : Not applicable
 - Proper shipping name : Not applicable
 - Class or division : Not applicable
 - Packing group : Not applicable
- Maritime transport in bulk according to IMO instruments :
 - Not applicable

15. Regulatory information

California Safe Drinking Water and Toxic Enforcement Act

- Not applicable

U.S. CERCLA Priority List of Hazardous Substances

- Not applicable

U.S. Designation, Reportable Quantities, and Notification

- Not applicable

U.S. Emergency Planning and Notification

- Not applicable

U.S. Hazard Communication Standard

- U.S. - OSHA - Hazard Communication Carcinogens

- Quartz (SiO₂) : Present

U.S. Toxic Substances Control Act

- Inventory - United States - Section 8(b) Inventory (TSCA)

- Quartz (SiO₂) : Present (ACTIVE)

16. Other information

1) Reference

NCIS, KOSHA, Montreal Protocol, ECHA, OECD SIDS, EU IUCLID, HSDB(PubChem), NITE, NTP, ACGIH, IARC, NIOSH, ChemIDplus, EPA, EPI Suite, INCHEM

2) Issue date : 14-09-2023

3) Revision date

- Revised date count : 2-3
- Last revised date : 21-07-2026

4) Other

ACGIH : American Conference of Governmental Industrial Hygienists
ADR : Agreement Concerning the International Carriage of Dangerous Goods by Road
ATE : The Acute Toxicity Estimate
ECHA : European Chemicals Agency
EPA : United States Environmental Protection Agency
EPI Suite : The Estimation Programs Interface for Windows
EU IUCLID : International Uniform Chemical Information Database
HSDB : Hazardous Substances Data Bank
IARC : International Agency for Research on Cancer
IATA : International Air Transport Association
IMDG : International Maritime Dangerous Goods Codes
INCHEM : Internationally Peer Reviewed Chemical Safety Information
M-Factor : The Multiplication Factor
NIOSH : National Institute of Occupational Safety and Health
NITE : National Institute of Technology and Evaluation(JAPAN)
NTP : National Toxicology Program
SCL : Specific Concentration Limit
OECD SIDS : Organization for Economic Co-operation and Development Screening Information Dataset
USA/EN