

Material Safety Data Sheet

1. Product and company identification

Product name: Radiolite

Product code: #600, #700, #900, #900S, #1100, Ace II, F, Deluxe W-50

Company name: Showa Chemical Industry Co., Ltd.

Head Office: 2-23-18, Shimo-meguro, Meguro-ku, Tokyo

TEL +81-3-3494-0431 FAX +81-3-3493-7889

China Office: C510 Focus Square, No.6 Futong East Rd., Chaoyang District, Beijing City,

People Republic of China Radiolite Trading Co., Ltd.

TEL +86(10)6475 2538 FAX +86(10)6475 2538

Reference No.: No.SW-1

2. Hazards information

GHS classification

Physical and chemical hazards: Outside of division, not subject to classification or not classifiable

Health hazards: Outside of division, not subject to classification or not classifiable

* Hazard information

Carcinogenicity: Outside of division (IRAC classification is Group 3.)

Specific target organ toxicity (repeated exposure): Not classifiable (If inhaled for a long period or repeatedly, lung may be damaged.)

Environmental hazards: Not classifiable

Labeling:

- Pictorial indication or symbol: Not required
- Warning words: Not required
- Hazard information: If inhaled for a long period or repeatedly, lung may be damaged.

3. Composition and ingredients

Substance or mixture composition: Substance

Generic name: Diatomaceous earth (flux-calcined)

Component and content: Flux-calcined diatomaceous earth 100%

Chemical property: Main elements of diatomaceous earth are O, Si, Al and Fe.

Pure diatom frustules consist of amorphous silica (silicon dioxide), but diatomaceous earth is a mineral and may contain several percent of natural amorphous silica. When diatomaceous earth is calcined, part of amorphous silica, which constitutes diatom frustules, may crystallize.

CAS No.: Diatomaceous earth (flux-calcined) 68855-54-9 ^(*)

Reference Number in Gazettes List in Japan (Chemical Substance Control Law / Industrial Safety and Health Act): Not applicable

Chemical Substance Management Law: Not applicable

TSCA: Already existing as diatomaceous earth (flux-calcined) ^(*)

EINECS: Diatomaceous earth (flux-calcined) 272-489-0 ^(*)

REACH Regulation: Subject material Radiolite products are registered.

Inventory of Existing Chemical Substances: in China Contained as diatomaceous earth (flux-calcined) ^(*)

Korean Existing Chemicals List: Diatomaceous earth (flux-calcined) KE-21796 ^(*)

4. First aid measures

Inhalation: In case of inhaling the material, breathe in fresh air, blow nose and gargle throat to exhaust powder dust.

Skin contact: If touched the material, flush skin with water and then wash with soap water well.

Eye contact: If the material gets into eyes, do not rub them or close firmly. Flush eyes with plenty of clean flowing water.

Ingestion: If swallowed accidentally, wash the inside of mouth with water.

5. Fire fighting measures

Extinguishing agents: Incombustible
 Specific firefighting: Incombustible

6. Measures taken in case of accidental release

Cautions for personnel: Wear a dust mask not to inhale powder dust during work.
 Removal method: Use a vacuum cleaner to suck the material or sweep it into a container while taking care not to stir up dust (by sprinkling water).

7. Precautions for handling and storage

Handling: Be careful not to damage the container. Install a booth or local exhaust equipment provided with a hood in a place where dust is generated. In addition, wear protective gear such as a dust mask and goggles.

Storage: Keep away the material from water, moisture and contaminants.

8. Exposure prevention and protective measures

Measures by equipment: Use local exhaust equipment during work wherever possible.
 Control concentration: Type and name of material; soil and stone, rock, mineral, metal or carbon dust

$$E = \frac{3.0}{1.19 \times Q + 1} \quad (*5)$$

E: Administrative control level [mg/m^3], Q: Content [%] of free silicic acid (crystalline silica) in relevant dust

Permissible exposure level:

	Japan Society for Occupational Health Upper row: respirable dust Lower row: total dust (*6)	ACGIH; TLV-TWA (*7)	OSHA; PEL Upper row: respirable dust Lower row: total dust (*8)
	mg/m^3	mg/m^3	mg/m^3
Diatomaceous earth	0.5 2	—	(Amorphous silica containing natural diatomaceous earth) 80 %SiO ₂
(for reference) Quartz	0.03	0.025	10 %SiO ₂ + 2
(Respirable crystalline silica)			30 %SiO ₂ + 2
(for reference) Cristobalite	0.03	0.025	5 %SiO ₂ + 2
(Respirable crystalline silica)			15 %SiO ₂ + 2

Protective gear: Respiratory protective gear; Be sure to wear a respirator during work in dusty environment.

Protective eyeglasses: It is advised to wear dustproof goggles.

Protective gloves: It is advised to wear dust proof gloves.

9. Physical and chemical properties

External appearance: White powder

Odor: No odor

pH: 8 - 11 (5 - 10 for Dx-W50)

Melting point/coagulation point [$^{\circ}\text{C}$]: No data

Boiling point, initial boiling point and boiling range [$^{\circ}\text{C}$]: No data

Flash point: [$^{\circ}\text{C}$]: Incombustible

Ignition point [°C]: None
 Flammability: None
 Explosion limit [%]: None
 Steam pressure: None
 Specific gravity: 2.3
 Solubility: Solubility in solvent; Almost insoluble in water
 Slightly soluble in strong acid and caustic alkali solvent ^(*)9)

10. Stability and reactivity

Stability/reactivity: Stable under normal handling conditions
 Materials to be avoided: hydrofluoric acid and caustic alkali

11. Toxicological information

Acute toxicity: No data
 Chronic toxicity/long-term toxicity: If a person inhales the material dust in a large amount for a long period, pneumoconiosis may be caused. ^(*)4)

Carcinogenicity: IARC classified Diatomite, Diatomaceous earth(uncalcined), and Diatomaceous earth(flux-calcined) as amorphous silica into group 3 “Not classifiable as to carcinogenicity to humans”, As for crystalline silica, IARC classified it into group 1 “There is sufficient evidence in humans for carcinogenicity of inhaled quartz or cristobalite from occupational sources”. ^(*)10)

12. Environmental impact

No information available

13. Precautions for disposal

Observe the ordinances in the respective areas (landfill, etc.)

14. Precautions for transportation

UN classification and number: None
 Specific safety measures and conditions for transportation: Keep away the material from water, moisture and contaminants

15. Applicable laws and regulations

Food Sanitation Act Section for food additives
 Industrial Safety and Health Law Ordinance on Prevention of Hazards due to Dust (however, limited to the works listed on Appendix 1, Article 2)
 Pneumoconiosis Act Ordinance for Enforcement of Pneumoconiosis Act (however, limited to the works Article 2 applies)
 Working Environment Measurement Act (however, limited to the works, to which Article 25 of the Ordinance on Prevention of Hazards due to Dust applies)

16. Other information

References cited:
 “Guideline for Preparation of Material Safety Data Sheet”, Rev. 2, May 2006, Japan Chemical Industry Association
 JIS Z 7250: 2005 Safety Data Sheet for Chemical Materials (MSDS) Part 1: Contents and items order
 (*1): “Inspection Data for Safety of Existing Chemical Materials”, National Institute of Technology and Evaluation, Chemical Risk Information Platform (CHRIP)
 URL: <http://www.safe.nite.go.jp/japan/db.html>
 (*2): China Chemical Registration Center - State Environmental Protection Administration
 URL: <http://www.crc-sepa.org.cn>
 (*3): Korea National Institute for Environmental Studies
 (*4): New version “Prevention of Diseases Caused by Dust”, Japan Industrial Safety and Health Association
 (*5): “Standards for Assessment of Work Environment” (Notification No.195 by the Ministry of Health, Labor and Welfare, March 31, 2009)
 (*6): Recommended values for 2008-2009 by the Japan Society for Occupational Health
 (*7): American Conference of Governmental Industrial Hygienists (ACGIH), “Advised Allowable Concentration for Work Environment” 2008 TLVs and BEIs
 (Quoted from “Chemical Risk Information Platform (CHRIP)”, the National Institute of Technology and Evaluation
 (*8): Code of Federal Regulations 29CFR1910/1000

(*9): Filtration “Mechanism and Filter Media/Filter Aid” issued by Chijinshokan

(*10): IARC Monographs Volume 68 (1997)

URL:<http://monographs.iarc.fr/ENG/Monographs/vol68/index.php>

Handling of this safety data sheet

This data sheet is based on the currently available information and makes no guarantee with respect to the accuracy or completeness of the information. The information in the data sheet is subject to change based on revision of laws or new knowledge and it is intended for normal use of the product. If special handling is required, take appropriate safety measures.

Issued/revised: July 22, 2011

Material Safety Data Sheet

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GHS classification

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Health hazards: Outside of division, not subject to classification or not classifiable

* Hazard information

Carcinogenicity: Outside of division (IRAC classification is Group 3.)

Specific target organ toxicity (repeated exposure): Not classifiable (If inhaled for a long period or repeatedly, lung may be damaged.)

Environmental hazards: Not classifiable

Labeling:

- Pictorial indication or symbol: Not required
- Warning words: Not required
- Hazard information: If inhaled for a long period or repeatedly, lung may be damaged.

3. Composition and ingredients

Substance or mixture composition: Substance

Generic name: Diatomaceous earth (Calcined)

Component and content: Calcined diatomaceous earth 100%

Chemical property: Main elements of diatomaceous earth are O, Si, Al and Fe.

Pure diatom frustules consist of amorphous silica (silicon dioxide), but diatomaceous earth is a mineral and may contain several percent of natural amorphous silica. When diatomaceous earth is calcined, part of amorphous silica, which constitutes diatom frustules, may crystallize.

CAS No.: Diatomaceous earth (calcined) 91053-39-3 ^{(*)1}

Reference Number in Gazettes List in Japan (Chemical Substance Control Law / Industrial Safety and Health Act): Not applicable

Chemical Substance Management Law: Not applicable

TSCA: Already existing as diatomaceous earth (calcined) ^{(*)1}

EINECS: Diatomaceous earth (calcined) 293-303-4 ^{(*)1}

REACH Regulation: Not applicable

Inventory of Existing Chemical Substances: in China Contained as diatomaceous earth (calcined) ^{(*)2}

Korean Existing Chemicals List: Diatomaceous earth (calcined) KE-21795 ^{(*)3}

4. First aid measures

Inhalation: In case of inhaling the material, breathe in fresh air, blow nose and gargle throat to exhaust powder dust.

Skin contact: If touched the material, flush skin with water and then wash with soap water well.

Eye contact: If the material gets into eyes, do not rub them or close firmly. Flush eyes with plenty of clean flowing water.

Ingestion: If swallowed accidentally, wash the inside of mouth with water.

5. Fire fighting measures

Extinguishing agents: Incombustible
 Specific firefighting: Incombustible

6. Measures taken in case of accidental release

Cautions for personnel: Wear a dust mask not to inhale powder dust during work.
 Removal method: Use a vacuum cleaner to suck the material or sweep it into a container while taking care not to stir up dust (by sprinkling water).

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(Respirable crystalline silica)			
(for reference) Cristobalite	0.03	0.025	5 %SiO ₂ + 2 15 %SiO ₂ + 2
(Respirable crystalline silica)			

Protective gear: Respiratory protective gear; Be sure to wear a respirator during work in dusty environment.
 Protective eyeglasses: It is advised to wear dustproof goggles.
 Protective gloves: It is advised to wear dust proof gloves.

9. Physical and chemical properties

External appearance: Pale reddish brown powder
 Odor: No odor
 pH: 5 - 10
 Melting point/coagulation point [°C]: No data
 Boiling point, initial boiling point and boiling range [°C]: No data
 Flash point: [°C]: Incombustible

Ignition point [°C]: None
 Flammability: None
 Explosion limit [%]: None
 Steam pressure: None
 Specific gravity: 2.2
 Solubility: Solubility in solvent; Almost insoluble in water
 Slightly soluble in strong acid and caustic alkali solvent ^(*)9)

10. Stability and reactivity

Stability/reactivity: Stable under normal handling conditions
 Materials to be avoided: hydrofluoric acid and caustic alkali

11. Toxicological information

Acute toxicity: No data
 Chronic toxicity/long-term toxicity: If a person inhales the material dust in a large amount for a long period, pneumoconiosis may be caused. ^(*)4)

Carcinogenicity: IARC classified Diatomite, Diatomaceous earth(uncalcined), and Diatomaceous earth(flux-calcined) as amorphous silica into group 3 “Not classifiable as to carcinogenicity to humans”, As for crystalline silica, IARC classified it into group 1 “There is sufficient evidence in humans for carcinogenicity of inhaled quartz or cristobalite from occupational sources”. ^(*)10)

12. Environmental impact

No information available

13. Precautions for disposal

Observe the ordinances in the respective areas (landfill, etc.)

14. Precautions for transportation

UN classification and number: None
 Specific safety measures and conditions for transportation: Keep away the material from water, moisture and contaminants

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