

SAFETY DATA SHEET

1. Identification

Product identifier **SIR-CHEM® DRY POWDER 61 GRAY**

Other means of identification Not available.

Recommended use Non-destructive testing.

Recommended restrictions None known.

Manufacturer / Importer / Supplier / Distributor information

Company name Circle Systems, Inc.

Address 1210 Osborne Road
 Saint Marys, GA 31558

Telephone 912-729-2735

E-mail customerservice@circlesafe.com

Emergency phone number Chem-Tel 800-255-3924 (US & Canada); +1-813-248-0585 (International)

2. Hazard(s) identification


Physical hazards Not classified.

Health hazards Carcinogenicity. Category 2

OSHA defined hazards Combustible dust.

Label elements

Hazard symbol



Signal word Warning.

Hazard statement Suspected of causing cancer. May form combustible dust concentrations in air.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Prevent dust accumulation to minimize explosion hazard. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection.

Response Remove and wash contaminated clothing before re-use. In case of fire: Use appropriate media for extinction. If exposed or concerned: Get medical advice/attention.

Storage Store locked up. Store away from incompatible materials.

Disposal Dispose of contents/containers in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC) Not classified.

Supplemental information Not applicable.

3. Composition/information on ingredients

Mixtures

| Chemical name | CAS number | % |
|--|------------|------|
| Iron Powder | 7439-89-6 | > 90 |
| Titanium Dioxide (alternative CAS # 1317-70-0) | 13463-67-7 | < 10 |

4. First-aid measures

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.

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| Eye contact | Do not rub eyes. Rinse with water. Get medical attention if irritation develops and persists. |
| Ingestion | Rinse mouth. Get medical attention if symptoms occur. |
| Most important symptoms/effects, acute and delayed | Dust may cause eye, skin and respiratory tract irritation. |
| Indication of immediate medical attention and special treatment needed | Provide general supportive measures and treat symptomatically. Symptoms may be delayed. |
| General information | Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. |

5. Fire-fighting measures

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| Suitable extinguishing media | Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂). Apply extinguishing media carefully to avoid creating airborne dust. |
| Unsuitable extinguishing media | Do not use water jet as an extinguisher, as this will spread the fire. |
| Specific hazards arising from the chemical | Explosion hazard: Avoid generating dust; fine dust dispersed in air in sufficient concentrations and in the presence of an ignition source is a potential dust explosion hazard. |
| Special protective equipment and precautions for firefighters | Self-contained breathing apparatus and full protective clothing must be worn in case of fire. |
| Fire-fighting equipment/instructions | In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers. |
| General fire hazards | Heat may cause the containers to explode. May form combustible dust concentrations in air . |

6. Accidental release measures

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| Personal precautions, protective equipment and emergency procedures | Keep unnecessary personnel away. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Use only non-sparking tools. Wear appropriate personal protective equipment. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. |
| Methods and materials for containment and cleaning up | <p>ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).</p> <p>Large Spills: Sweep or shovel up material and place in a clearly labeled container for waste. Following product recovery, flush area with water.</p> <p>Small Spills: Collect dust using a vacuum cleaner equipped with HEPA filter.</p> <p>Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.</p> |
| Environmental precautions | Avoid discharge into drains, water courses or onto the ground. |

7. Handling and storage

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| Precautions for safe handling | Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Explosion proof exhaust ventilation is recommended. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Avoid prolonged exposure. |
| Conditions for safe storage, including any incompatibilities | Keep containers tightly closed in a dry, cool and well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Keep away from heat, sparks and open flame. |

8. Exposure controls/personal protection

Occupational exposure limits

US OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

| Components | Type | Value | Form |
|--|------|----------|-------------|
| Titanium Dioxide (alternative CAS # 1317-70-0) (CAS 13463-67-7) | PEL | 15 mg/m3 | Total dust. |

US ACGIH Threshold Limit Values

| Components | Type | Value | Form |
|--|------|----------|------|
| Titanium Dioxide (alternative CAS # 1317-70-0) (CAS 13463-67-7) | TWA | 10 mg/m3 | |

Biological limit values

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

Exposure guidelines

No exposure standards allocated.

Appropriate engineering controls

Explosion-proof general and local exhaust ventilation. 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

Eye/face protection

Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection

For prolonged or repeated skin contact use suitable protective gloves.

Other

Wear suitable protective clothing.

Respiratory protection

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

When using, do not eat, drink or smoke. 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

Appearance

Physical state

Solid.

Form

Powder.

Color

Gray.

Odor

Odorless

Odor threshold

Not available.

pH

Not available.

Melting point/freezing point

2795 °F (1535 °C)

Initial boiling point and boiling range

Not available.

Flash point

Not relevant.

Evaporation rate

Not relevant.

Flammability (solid, gas)

Not available.

Upper/lower flammability or explosive limits

Flammability limit – lower (%)

Not relevant.

Flammability limit – upper (%)

Not relevant.

Explosive limit – lower (%)

Not available.

| | |
|--|----------------------|
| Explosive limit – upper (%) | Not available. |
| Vapor pressure | Not relevant. |
| Vapor density | Not relevant. |
| Specific gravity | 2.5 (68 ° F (20 °C)) |
| Solubility(ies) | Insoluble in water. |
| Partition coefficient (n-octanol/water) | Not relevant. |
| Auto-ignition temperature | Not relevant |
| Decomposition temperature | Not available. |
| Viscosity | Not relevant. |
| Other information | |
| VOC (Weight %) | Not applicable. |

10. Stability and reactivity

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| Reactivity | The product is stable and non-reactive under normal conditions of use, storage and transport. |
| Chemical stability | Material is stable under normal conditions. |
| Possibility of hazardous reactions | No dangerous reaction known under conditions of normal use. |
| Conditions to avoid | Keep away from heat, sparks and open flame. Minimize dust generation and accumulation. Contact with incompatible materials. |
| Incompatible materials | Strong oxidizing agents. |
| Hazardous decomposition products | No hazardous decomposition products are known. |

11. Toxicological information

Information on likely routes of exposure

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| Ingestion | Expected to be a low ingestion hazard. |
| Inhalation | Inhalation of dusts may cause respiratory irritation. Dust or powder may irritate the skin. |
| Skin contact | |
| Eye contact | Dust may irritate the eyes. |

Symptoms related to the physical, chemical and toxicological characteristics Dust may cause eye, skin and respiratory tract irritation.

Information on toxicological effects

Acute toxicity Expected to be a low hazard for usual industrial or commercial handling by trained personnel.

| Components | Species | Test Results |
|--|--|----------------------|
| Iron Powder (CAS 7439-89-6) | | |
| Acute | | |
| <i>Oral</i> | | |
| LD50 | Rat | 30 g/kg |
| Titanium Dioxide (alternative CAS # 1317-70-0) (CAS 13463-67-7) | | |
| Acute | | |
| <i>Inhalation</i> | | |
| LC50 | Rat | > 2.28 mg/l, 4 Hours |
| <i>Oral</i> | | |
| LD50 | Rat | > 11000 mg/kg |
| Skin corrosion/irritation | Prolonged skin contact may cause temporary irritation. Direct contact with eyes may cause temporary irritation. | |
| Serious eye damage/eye irritation | Not a respiratory sensitizer. | |
| Respiratory sensitization | This product is not expected to cause skin sensitization. | |
| Skin sensitization | | |
| Germ cell mutagenicity | No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic. | |
| Carcinogenicity | Suspected of causing cancer. | |

IARC Monographs. Overall Evaluation of Carcinogenicity

Titanium Dioxide (alternative CAS # 1317-70-0) 2B Possibly carcinogenic to humans.
(CAS 13463-67-7)

| | |
|---|--|
| 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. |
| Chronic effects | Prolonged inhalation may be harmful. |

12. Ecological information

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| 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. |
| Persistence and degradability | No data is available on the degradability of this product. |
| Bioaccumulative potential | No data available for this product. |
| Mobility in soil | Not available. |
| 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

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|--|---|
| Disposal instructions | Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations. 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). |
| Waste from residues / unused products | |

14. Transport information

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|---|-----------------------------------|
| DOT | Not regulated as dangerous goods. |
| 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

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|-------------------------------|---|
| US federal regulations | This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List. |
|-------------------------------|---|

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt D)

Not regulated.

US OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

| | |
|--------------------------|--|
| Hazard Categories | Immediate Hazard – No Delayed Hazard – Yes Fire Hazard – Yes Pressure Hazard – No Reactivity Hazard – No |
|--------------------------|--|

SARA 302 Extremely hazardous substance
Not listed.

SARA 311/312 Hazardous chemical
Yes

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.**US state regulations****US Massachusetts RTK - Substance List**

Titanium Dioxide (alternative CAS # 1317-70-0) (CAS 13463-67-7)

US New Jersey Worker and Community Right-to-Know Act

Titanium Dioxide (alternative CAS # 1317-70-0) (CAS 13463-67-7)

US Pennsylvania RTK - Hazardous Substances

Titanium Dioxide (alternative CAS # 1317-70-0) (CAS 13463-67-7)

US Rhode Island RTK

Not regulated.

US California Proposition 65**WARNING: This product contains a chemical known to the State of California to cause cancer.**

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Titanium Dioxide (alternative CAS # 1317-70-0) (CAS 13463-67-7)**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) | Yes |
| Korea | Existing Chemicals List (ECL) | Yes |
| New Zealand | New Zealand Inventory | Yes |
| Philippines | Philippine Inventory of Chemicals and Chemical Substances (PICCS) | Yes |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | Yes |

*A "Yes" indicates this product complies 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, including date of preparation or last revision

| | |
|----------------------------|---|
| Issue date | 12-May-2014 |
| Revision date | 31-January-2019 |
| Version # | 05 |
| Further information | Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling. |
| HMIS® ratings | Health: 1 Flammability: 1 Physical hazard: 0 |

NFPA Ratings



List of abbreviations

LC50: Lethal Concentration, 50%
LD50: Lethal Dose, 50%
PEL: Permissible exposure limit
TWA: Time weighted average

References

HSDB® - Hazardous Substances Data Bank

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