



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 479 West Lincoln Ave.
P.O. Box 1228
Hinckley, IL 60520
Telephone 815-286-3271
E-mail customerservice@circlesafe.com
Emergency phone number Chem-Tel 800-255-3924.

2. Hazard(s) identification

Physical hazards Not classified.
Health hazards Carcinogenicity Category 2
OSHA defined hazards Combustible dust

Label elements



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. 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 waste and residues in accordance with local authority requirements.
Hazard(s) not otherwise classified (HNOC) None known.
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.
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

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

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	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). Large Spills: Sweep or shovel up material and place in a clearly labeled container for waste. Following product recovery, flush area with water. Small Spills: Collect dust using a vacuum cleaner equipped with HEPA filter. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

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 1910.100)

Components	Type	Value	Form
Titanium Dioxide (alternative CAS # 1317-70-0) (CAS 13463-67-7)	PEL	15 mg/m ³	Total dust

US. ACGIH Threshold Limit Values

Components	Type	Value
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 relevant.
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.
Relative density	2.5 (at 20 °C)
Solubility(ies)	
Solubility (water)	Insoluble.
Partition coefficient (n-octanol/water)	Not relevant.
Auto-ignition temperature	Not relevant.

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Decomposition temperature	Not available.
Viscosity	Not relevant.
Other information	
VOC (Weight %)	Not relevant.

10. Stability and reactivity

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

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

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation Direct contact with eyes may cause temporary irritation.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.
Skin sensitization This product is not expected to cause 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) (CAS 13463-67-7) 2B Possibly carcinogenic to humans.

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

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.

Components	Species	Test Results
Iron Powder (CAS 7439-89-6)		
Aquatic		
Fish	LC50 Channel catfish (<i>Ictalurus punctatus</i>)	> 500 mg/l, 96 hours
Titanium Dioxide (alternative CAS # 1317-70-0) (CAS 13463-67-7)		
Aquatic		
Crustacea	EC50 Water flea (<i>Daphnia magna</i>)	> 1000 mg/l, 48 hours
Fish	LC50 Mummichog (<i>Fundulus heteroclitus</i>)	> 1000 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

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

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products 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 Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

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

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 Worker and Community Right-to-Know Law

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).

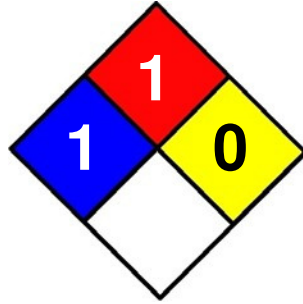
16. Other information, including date of preparation or last revision

Issue date 12-May-2014
Revision date 29-October-2014
Version # 01

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.

NFPA Ratings



List of abbreviations

TWA: Time weighted average.

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