

Material Safety Data Sheet



1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

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24-Hour Emergency Phone Number: 989-636-4400

Product: DOWFLAKE* 77-80% CALCIUM CHLORIDE (50 LB BAG)

Product Code: 04539

Effective Date: 12/16/03 Date Printed: 12/17/03 MSD: 000517

The Dow Chemical Company, Midland, MI 48674

Customer Information Center: 800-258-2436

2. COMPOSITION/INFORMATION ON INGREDIENTS

Calcium chloride	CAS# 010043-52-4	77-80%
Sodium chloride	CAS# 007647-14-5	<5%
Potassium chloride	CAS# 007447-40-7	2-3%
Water	CAS# 007732-18-5	15-20%

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

* White to off-white flakes. Odorless. Causes eye irritation. May *
* cause skin irritation. May be harmful if swallowed. *

POTENTIAL HEALTH EFFECTS (See Section 11 for toxicological data.)

EYE: Flakes may cause slight eye irritation. Dusts may cause severe irritation with corneal injury. Effects may be slow to heal. When dissolving, the heat produced may cause more intense effects as well as thermal burns.

SKIN: Brief contact is essentially nonirritating to skin. Prolonged or repeated exposure may cause skin irritation, even a burn. Prolonged skin contact is unlikely to result in absorption of harmful amounts. Not classified as corrosive to the skin according to DOT guidelines. May cause more severe response if skin is damp. May cause more severe response if confined to skin or skin is abraded (scratched or cut). When dissolving, the heat produced may cause more intense effects as well as thermal burns.

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INGESTION: Low toxicity if swallowed. Swallowing may result in irritation of the mouth, throat, and gastrointestinal tract. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

INHALATION: Dust may cause irritation to upper respiratory tract (nose and throat). Vapors are unlikely due to physical properties.

SYSTEMIC & OTHER EFFECTS: For potassium chloride: In animals, effects have been reported on the following organs following ingestion: gastrointestinal tract, heart, kidney. Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.

CANCER INFORMATION: No relevant information found.

TERATOLOGY (BIRTH DEFECTS): No relevant information found.

REPRODUCTIVE EFFECTS: No relevant information found.

4. FIRST AID

EYES: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist.

SKIN: Wash skin with plenty of water.

INGESTION: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

INHALATION: Move person to fresh air; if effects occur, consult a physician.

NOTE TO PHYSICIAN: If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT: Not applicable.

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METHOD USED: Not applicable.
AUTOIGNITION TEMPERATURE:

FLAMMABILITY LIMITS

LFL: Not applicable.
UFL: Not applicable.

HAZARDOUS COMBUSTION PRODUCTS: Not applicable.

OTHER FLAMMABILITY INFORMATION: Heat is generated when product mixes with water.

EXTINGUISHING MEDIA: This material does not burn. If exposed to fire from another source, use suitable extinguishing agent for that fire.

FIRE FIGHTING INSTRUCTIONS: Keep people away. Isolate fire area and deny unnecessary entry. This material does not burn. Fight fire for other material that is burning. Water should be applied in large quantities as a fine spray.

PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, pants, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with SCBA. If this is not available, wear full chemical resistant clothing with SCBA and fight fire from a remote location. For protective equipment in post-fire or non-fire clean up situations, refer to the relevant sections.

6. ACCIDENTAL RELEASE MEASURES (See Section 15 for Regulatory Information)

PROTECT PEOPLE: Isolate area. Refer to Section 7, Handling for additional precautionary measures. Keep unnecessary and unprotected personnel from entering the area. Spilled material may cause a slipping hazard. For additional information, refer to "Exposure Controls/Personnel Protection", MSDS Section 8.

PROTECT THE ENVIRONMENT: Prevent from entering into soil, ditches, sewers, waterways and or groundwater. See Section 12, Ecological Information.

CLEANUP: Small spills: Contain spilled material if possible.

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Collect in suitable and properly labeled containers. Wash the spill site with large quantities of water. Large spills: Dike area to contain spill. Collect in suitable and properly labeled containers. Wash the spill site with large quantities of water.

7. HANDLING AND STORAGE

HANDLING: Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Heat developed during diluting or dissolving is very high. Use cool water when diluting or dissolving (temperature less than 80F, 27C). Refer to Exposure Controls/Personal Protection, Section 8, of the MSDS.

For more storage and Handling Information refer to bulletin 173-01534.

STORAGE: Store in original unopened containers. Store in a dry place. Protect from atmospheric moisture. Keep containers closed. Do not store in: zinc.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

PERSONAL PROTECTIVE EQUIPMENT

EYE/FACE PROTECTION: Use safety glasses. For dusty operations or when handling solutions of the material, wear chemical goggles.

SKIN PROTECTION: Wear clean, long-sleeved, body-covering clothing. Use gloves chemically resistant to this material. When prolonged or frequently repeated contact could occur, use chemically protective clothing resistant to this material. Selection of specific items such as faceshield, gloves, boots, apron, or full-body suit will depend on operation. If hands are cut or scratched, use gloves chemically resistant to this material even for brief exposures.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline. For most conditions, no respiratory protection should be needed; however, in misty

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atmospheres, use an approved mist respirator.

EXPOSURE GUIDELINES: Calcium chloride: Dow IHG is 10 mg/m3.
Sodium chloride: Dow IHG is 10 mg/m3.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE/PHYSICAL STATE: White to off-white flakes
ODOR: Odorless
VAPOR PRESS: 1.0 mmHg @ 20C, 68F
VAPOR DENSITY: Not applicable
MELTING POINT: Approx. 345F, 174C
BOILING POINT: 347F, 175C
SOLUBILITY/MISCIBILITY IN WATER: Very soluble
SPECIFIC GRAVITY OR DENSITY: 1.85

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable. Hygroscopic.

CONDITIONS TO AVOID: None known. Avoid moisture.

INCOMPATIBILITY WITH OTHER MATERIALS: Heat is generated when mixed with water. Splattering and boiling can occur. Avoid contact with: sulfuric acid. Corrosive when wet. Flammable hydrogen may be generated from contact with metals such as zinc, sodium.

HAZARDOUS DECOMPOSITION PRODUCTS: Does not decompose.

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION (See Section 3 for Potential Health Effects. For detailed toxicological data, write or call the address or non-emergency number shown in Section 1)

SKIN: The LD50 for skin absorption in rabbits is >5000 mg/kg for CaCl₂.

INGESTION: The oral LD50 in rats is 900-2100 mg/kg for CaCl₂.

MUTAGENICTY (EFFECTS ON GENETIC MATERIAL): For CaCl₂, in vitro mutagenicity studies were negative.

12. ECOLOGICAL INFORMATION (For detailed Ecological data, write or call the address or non-emergency number shown in Section 1)

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ENVIRONMENTAL FATE

MOVEMENT & PARTITIONING: Partitioning from water to n-octanol is not applicable.

DEGRADATION & PERSISTANCE: Biodegradation is not applicable.
Inhibitory concentration (IC50) in OECD Activated Sludge
Respiration Inhibition Test (OECD Test No. 209) is >1000 mg/L.

ECOTOXICITY: Based largely or completely on data for major component(s). Material is practically non-toxic to aquatic organisms on an acute basis (LC50 or EC50 >100 mg/L in the most sensitive species tested).

13. DISPOSAL CONSIDERATIONS (See Section 15 for Regulatory Information)

DISPOSAL: All disposal methods must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. THE DOW CHEMICAL COMPANY HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION 2 (Composition/Information On Ingredients).

FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: reclaimer, landfill, or waste water treatment system.

For additional information, refer to:

- Handling & Storage Information, MSDS Section 7.
- Stability & Reactivity Information, MSDS Section 10.
- Regulatory Information, MSDS Section 15.

As a service to its customers, Dow can provide names of information resources to help identify waste management companies and other facilities which recycle, reprocess or manage chemicals or plastics, and that manage used drums. Telephone Dow's Customer Information Center at 800-258-2436 or 989-832-1556 for further details.

14. TRANSPORT INFORMATION

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DEPARTMENT OF TRANSPORTATION (D.O.T.): This product is not regulated by D.O.T. when shipped domestically by land.

CANADIAN TDG INFORMATION: This product is not regulated by TDG when shipped domestically by land.

15. REGULATORY INFORMATION (Not meant to be all-inclusive--selected regulations represented)

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See other sections for health and safety information.

U.S. REGULATIONS

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SARA 313 INFORMATION: To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard
This product has been categorized as an "immediate health hazard" due the possibility of eye or skin irritation.

TOXIC SUBSTANCES CONTROL ACT (TSCA):

All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

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REGULATORY INFORMATION (CONTINUED)

The CAS number(s) for TSCA is(are):

- CAS# 010043-52-4
- CAS# 007647-14-5
- CAS# 007447-40-7
- CAS# 007732-18-5

STATE RIGHT-TO-KNOW: This product is not known to contain any substances subject to the disclosure requirements of

New Jersey
Pennsylvania

OSHA HAZARD COMMUNICATION STANDARD:

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. This product has been categorized as a "Hazardous Chemical" due to the possibility of eye or skin irritation.

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND):

To the best of our knowledge, this product contains no chemical subject to reporting under CERCLA.

CANADIAN REGULATIONS
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WHMIS INFORMATION: The Canadian Workplace Hazardous Materials Information System (WHMIS) Classification for this product is:

D2B - eye or skin irritant
Refer elsewhere in the MSDS for specific warnings and safe handling information. Refer to the employer's workplace education program.

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CPR STATEMENT: This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR)

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REGULATORY INFORMATION (CONTINUED)

and the MSDS contains all the information required by the CPR.

HAZARDOUS PRODUCTS ACT INFORMATION: This product contains the following ingredients which are Controlled Products and/or on the Ingredient Disclosure List (Canadian HPA section 13 and 14):

COMPONENTS:	CAS #	AMOUNT(%w/w)
CALCIUM CHLORIDE	010043-52-4	77-80%

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA):

All substances in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

16. OTHER INFORMATION

MSDS STATUS: Revised Sections 2, 3, 5, 6, 7, 9, 10 and 15.

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The Information Herein Is Given In Good Faith, But No Warranty, Express Or Implied, Is Made. Consult The Dow Chemical Company For Further Information.