

Material Safety Data Sheet



1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

Page: 1

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

Product: LIQUIDOW* 35% CALCIUM CHLORIDE SOLUTION

Product Code: 45211

Effective Date: 01/16/02 Date Printed: 12/26/02 MSD: 005489

The Dow Chemical Company, Midland, MI 48674

Customer Information Center: 800-258-2436

2. COMPOSITION/INFORMATION ON INGREDIENTS

Calcium chloride	CAS# 010043-52-4	28-42%
Potassium chloride	CAS# 007447-40-7	0-3%
Sodium chloride	CAS# 007647-14-5	0-2%
Water	CAS# 007732-18-5	

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

* Colorless to pale yellow liquid. Odorless. Causes eye irritation. *
*

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

EYE: Material may be handled at elevated temperatures; contact with heated material may cause thermal burns. May cause severe irritation with corneal injury. Effects may be slow to heal.

SKIN: Short single exposure not likely to cause significant skin irritation. Prolonged or repeated exposure may cause skin irritation, even a burn. May cause more severe response if confined to skin or skin is abraded (scratched or cut). Material may be handled at elevated temperatures; contact with heated material may cause thermal burns. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts. Not classified as corrosive according to DOT.

(Continued on page 2 , over)

* OR (R) INDICATES A TRADEMARK OF THE DOW CHEMICAL COMPANY

Product: LIQUIDOW* 35% CALCIUM CHLORIDE SOLUTION
Product Code: 45211

Effective Date: 01/16/02 Date Printed: 12/26/02 MSD: 005489

INGESTION: Single dose oral toxicity is believed to be low. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; swallowing amounts larger than that may cause injury. Ingestion may cause gastrointestinal irritation or ulceration.

INHALATION: Vapors are unlikely due to physical properties. Mists may cause irritation to upper respiratory tract.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: No relevant information found.

4. FIRST AID

EYES: Irrigate with flowing water immediately and continuously for 15 minutes. Consult medical personnel.

SKIN: Wash off in flowing water or shower.

INGESTION: Do not induce vomiting. Give large amounts of water or milk if available and transport to medical facility.

INHALATION: Remove to fresh air if effects occur. Consult a physician.

NOTE TO PHYSICIAN: If burn is present, treat as any thermal burn, after decontamination. May cause tissue destruction leading to stricture. If lavage is performed, suggest endotracheal and/or esophageal control. No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT: Not applicable.

METHOD USED: Not applicable.

FLAMMABILITY LIMITS

LFL: Not applicable.

UFL: Not applicable.

HAZARDOUS COMBUSTION PRODUCTS: Not applicable.

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

(Continued on page 3)

* OR (R) INDICATES A TRADEMARK OF THE DOW CHEMICAL COMPANY

Product: LIQUIDOW* 35% CALCIUM CHLORIDE SOLUTION
Product Code: 45211

Effective Date: 01/16/02 Date Printed: 12/26/02 MSD: 005489

that fire.

FIRE FIGHTING INSTRUCTIONS: Keep people away. Isolate fire area and deny unnecessary entry.

PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS: Wear positive-pressure self-contained breathing apparatus (SCBA) and full protective fire fighting clothing (includes fire fighting helmet, coat, pants, boots, and gloves).

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

PROTECT PEOPLE: Isolate area. Avoid contact with eyes and skin. May be a slipping hazard. Stop leak if it can be done safely. Wash exposed body areas thoroughly after handling. Use appropriate safety equipment. For additional information, refer to "Exposure Controls/Personnel Protection", MSDS Section 8.

PROTECT THE ENVIRONMENT: For small spills: Losses incidental to correct applications of this product in its intended uses are not expected to be harmful to the environment.

For large spills: Avoid contamination of drinking water, natural water, ground water or any waterway. Losses incidental to correct applications of this product in its intended uses are not expected to be harmful to the environment.

CLEANUP: For small spills: Contain spill if possible. Absorb with material such as sand. Collect material in suitable and properly labeled open containers. Flush residue with plenty of water.

For large spills: Dike and transfer to suitable and properly labeled containers. Absorb with material such as sand. Flush residue with plenty of water.

7. HANDLING AND STORAGE

HANDLING: Product shipped/handled hot can cause thermal burns. Refer to Exposure Controls/Personal Protection, Section 8, of the MSDS.

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

(Continued on page 4 , over)

* OR (R) INDICATES A TRADEMARK OF THE DOW CHEMICAL COMPANY

Product: LIQUIDOW* 35% CALCIUM CHLORIDE SOLUTION
Product Code: 45211

Effective Date: 01/16/02 Date Printed: 12/26/02 MSD: 005489

STORAGE: Product may become a solid at temperatures below 32F,
0C (concentrations above 36% calcium chloride).

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 chemical goggles.

SKIN PROTECTION: When prolonged or frequently repeated contact could occur, use protective clothing impervious 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 impervious to this material even for brief exposures. Use gloves with insulation for thermal protection, when needed.

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

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

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE/PHYSICAL STATE: Colorless to pale yellow liquid.

ODOR: None.

VAPOR PRESSURE: 9-15 mmHg @ 25C, 77F.

VAPOR DENSITY: Same as water.

BOILING POINT: 230-251F, 110-122C

SOLUBILITY IN WATER/MISCIBILITY: Completely miscible.

SPECIFIC GRAVITY OR DENSITY: 1.275-1.439 @ 25C/77F

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable. Hygroscopic.

CONDITIONS TO AVOID: None known.

(Continued on page 5)

* OR (R) INDICATES A TRADEMARK OF THE DOW CHEMICAL COMPANY

Product: LIQUIDOW* 35% CALCIUM CHLORIDE SOLUTION
Product Code: 45211

Effective Date: 01/16/02 Date Printed: 12/26/02 MSD: 005489

INCOMPATIBILITY WITH OTHER MATERIALS: Corrosive to some metals. Avoid contact with metals such as: brass, mild steel, aluminum, or ferrous metals. Flammable hydrogen may be generated from contact with metals such as zinc or sodium. Avoid contact with sulfuric acid.

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)

ACUTE

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

INGESTION: The oral LD50 for rats is in the range of 900-2100 mg/kg for CaCl₂ (100% basis).

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)

ENVIRONMENTAL FATE

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

DEGRADATION & TRANSFORMATION: Biodegradation is not applicable.

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

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

(Continued on page 6 , over)

* OR (R) INDICATES A TRADEMARK OF THE DOW CHEMICAL COMPANY

Product: LIQUIDOW* 35% CALCIUM CHLORIDE SOLUTION
Product Code: 45211

Effective Date: 01/16/02 Date Printed: 12/26/02 MSD: 005489

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 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

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

=====

SARA 313 INFORMATION: To the best of our knowledge, this product

(Continued on page 7)

* OR (R) INDICATES A TRADEMARK OF THE DOW CHEMICAL COMPANY

Product: LIQUIDOW* 35% CALCIUM CHLORIDE SOLUTION
Product Code: 45211

Effective Date: 01/16/02 Date Printed: 12/26/02 MSD: 005489

REGULATORY INFORMATION (CONTINUED)

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 to the possibility of eye or skin irritation.

TOXIC SUBSTANCES CONTROL ACT (TSCA):

The CAS number(s) for TSCA is(are):
CAS# 010043-52-4
CAS# 007447-40-7
CAS# 007647-14-5
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

(Continued on page 8 , over)
* OR (R) INDICATES A TRADEMARK OF THE DOW CHEMICAL COMPANY

Product: LIQUIDOW* 35% CALCIUM CHLORIDE SOLUTION
Product Code: 45211

Effective Date: 01/16/02 Date Printed: 12/26/02 MSD: 005489

REGULATORY INFORMATION (CONTINUED)

(CERCLA, or SUPERFUND):

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

CANADIAN REGULATIONS

=====

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.

- - - - -
CPR STATEMENT: This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) 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	28-40, 40-42%

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

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:

Health	1
Flammability	0
Reactivity	0

MSDS STATUS: Revised Sections 2, 8 and 13.

* OR (R) INDICATES A TRADEMARK OF THE DOW CHEMICAL COMPANY
The Information Herein Is Given In Good Faith, But No Warranty, Express Or Implied, Is Made. Consult The Dow Chemical Company For Further Information.