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|  <p>CHEMLABS Quality Our Forte</p> | <p>LEONID CHEMICALS PVT. LTD., BANGALORE</p> <p>An ISO-9001:2008 Certified Company</p> <p>Quality Assurance Department</p> | <p>(CODE) DOCUMENT : WI (CODE) SECTION : W/SM (DATE) : 01.04.2010</p> |  <p>Issue : 02 Rev.: 00</p> |
| <p>Title: MATERIAL SAFETY DATA SHEET (MSDS): CALCIUM CHLORIDE DIHYDRATE</p> | | | <p>1 Page of 1</p> |

CALCIUM CHLORIDE DIHYDRATE

SECTION 1- CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS Name:
Calcium Chloride Dihydrate

Catalog Numbers:
C004

Synonyms:
UN Listed

Company Information:
LEONID CHEMICALS Pvt Ltd,
62/A-2, 1st Stage,
Yeshvanthpur Industrial Suburb,
Asoka puram School Road,
Bangalore -22, Karnataka, INDIA
Ph- +91-80-23378354
Fax: +918023378354/23377126

SECTION 2- COMPOSITION, INFORMATION ON INGREDIENTS



CAS # : 10035-04-8
Chemical Name : Calcium Chloride, Dihydrate
% : Min 99% (LR)
EINECS# : Unlisted
Hazard Symbols : XI
Risk Phrases : 36

SECTION 3- HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Appearance: white. May be harmful if swallowed. May cause severe respiratory and digestive tract irritation with possible burns. May cause severe eye and skin irritation with possible burns. May cause cardiac disturbances. Hygroscopic. Warning!

Target Organs:
Heart.
Potential Health
Effects

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Eye:

Contact with eyes may cause severe irritation, and possible eye burns.

Skin:

Contact with skin causes irritation and possible burns, especially if the skin is wet or moist.

Ingestion:

May cause severe gastrointestinal tract irritation with nausea, vomiting and possible burns. May cause cardiac disturbances. May be harmful if swallowed. In very severe cases, seizures, rapid respiration, slow heartbeat, or death, may result.

Inhalation:

May cause severe irritation of the upper respiratory tract with pain, burns, and inflammation.

Chronic:

Effects may be delayed.

SECTION 4- FIRST AID MEASURES

Eyes:

Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin:

Get medical aid. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion:

Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation:

Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation.

Notes to Physician:

Treat symptomatically and supportively.

SECTION 5- FIRE FIGHTING MEASURES


General Information:

Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products.

Extinguishing Media:

Use extinguishing media most appropriate for the surrounding fire.

SECTION 6- ACCIDENTAL RELEASE MEASURES

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General Information:

Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:

Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

SECTION 7 - HANDLING and STORAGE

Handling:

Wash thoroughly after handling. Use with adequate ventilation. Minimize dust generation and accumulation. Keep container tightly closed. Do not get on skin or in eyes. Do not ingest or inhale. Wash clothing before reuse. Always use cool water when dissolving Calcium Chloride. Heat evolved is significant.

Storage:

Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Store protected from moisture. Store below melting point.

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits :

Chemical Name : Calcium Chloride, Dihydrate ACGIH : none listed NIOSH : none listed OSHA - Final PELs : none listed

OSHA Vacated PELs:

Calcium Chloride, Dihydrate: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes:

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard En166.

Skin:


Wear impervious gloves.

Clothing:

Wear appropriate protective clothing to minimize contact with skin.

Respirators:

Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

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SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

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| Physical State | : Solid |
| Appearance | : white |
| Odor | : odorless |
| pH | : 4.5-8.5: 5% solution |
| Vapor Pressure | : Not available. |
| Vapor Density | : Not available. |
| Evaporation Rate | : Not available. |
| Viscosity | : Not available. |
| Boiling Point | : 2912 deg F |
| Freezing/Melting Point | : 500 deg F |
| Autoignition Temperature | : Not applicable. |
| Flash Point | : Not applicable. |
| Decomposition Temperature | : Not available. |
| NFPA Rating | : (estimated) Health: 2; |
| Flammability | : 0 |
| Reactivity | : 0 |
| Explosion Limits, Lower | : Not available. |
| Upper | : Not available. |
| Solubility | : Soluble in water. |
| Specific Gravity/Density | : 1.85 (water=1) |
| Molecular Formula | : CaCl ₂ .2H ₂ O |
| Molecular Weight | : 147.0128 |

SECTION 10 - STABILITY AND REACTIVITY

Chemical Stability:

Stable.

Conditions to Avoid:

Dust generation, excess heat, exposure to moist air or water.

Incompatibilities with Other Materials:

Bromine trifluoride, 2-Furanpercarboxylic Acid, Solutions attack some metals.

Hazardous Decomposition Products:

Hydrogen chloride, calcium oxide.

Polymerization:

Has not been reported.


SECTION 11 - TOXICOLOGICAL INFORMATION

RTECS#:

CAS# 10035-04-8: Ev9810000

LD50/LC50:

Not available.

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Carcinogenicity:

CAS# 10035-04-8: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

Epidemiology:

No information found.

Teratogenicity:

No information found.

Reproductive Effects:

No information found.

Mutagenicity:

Mutagenic effects have occurred in experimental animals.

Neurotoxicity:

No information found.

Other Studies:

See actual entry in RTECS for complete information.

SECTION 12 - ECOLOGICAL INFORMATION

No information available.

SECTION 13 - DISPOSAL CONSIDERATIONS

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts

261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series : None listed.

RCRA U-Series : None listed.

SECTION 14 - TRANSPORT INFORMATION


US DOT

Shipping Name : No information available

Hazard Class :

UN Number :

Packing Group :

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IATA:

No information available

RID/ADR:

No information available

IMO:

No information available

Canada TDG

Shipping Name : No information available
Hazard Class :
UN Number :
Packing Group :

SECTION 15 - REGULATORY INFORMATION US FEDERAL TSCA:

CAS# 10035-04-8 is not on the TSCA Inventory. It is a hydrate and exempt from TSCA Inventory requirements (40CFR720.3(u)(2)).

Health & Safety Reporting List:

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules:

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b:

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule:

None of the chemicals in this material have a SNUR under TSCA.

Section 302 (RQ)

None of the chemicals in this material have an RQ.

Section 302 (TPQ)

None of the chemicals in this product have a TPQ.

SARA Codes:

CAS # 10035-04-8: acute.

Section 313:

No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depletors. This

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material does not contain any Class 2 Ozone depletors.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE:

CAS# 7048-04-6 is not present on state lists from CA, PA, MN, MA, FL, or NJ. California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

XI

Risk Phrases:

R 36 Irritating to eyes.

Safety Phrases:

S 22 Do not breathe dust.

S 24 Avoid contact with skin.

WGK (Water Danger/Protection)

CAS# 10035-04-8: No information available.

Canada

Canada

None of the chemicals in this product are listed on the DSL or NDSL list. This product has a WHMIS classification of D2B. CAS# 10035-04-8 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits

SECTION 16 - ADDITIONAL INFORMATION

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Leonid Chemicals be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect,

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incidental, consequential or exemplary damages, howsoever arising, even if Leonid Chemicals has been advised of the possibility of such damages.



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| | | (CODE) SECTION : C004 | |
| Title: SPECIFICATION MANUAL - CALCIUM CHLORIDE DIHYDRATE | | | Issue : 02 Rev.: 00 1 Page of 1 |

Specification manual - Calcium Chloride dihydrate

CaCl₂.2H₂O

MW: 147.01

Product : Calcium chloride dihydrate LR
Description : White solid
Cat No : C004
CAS No : 10035-04-8
Prepared Date : 24.11.2009
Approved Date : 24.11.2009

| REVISION HISTORY | | | |
|---------------------|-----------------------|----------------|----------------|
| Issue/Rev | Description of Change | Author | Effective Date |
| 01/00 | Initial Release | S. Paul Joshua | 24.11.2009 |
| 02/00 | Reviewed no changes | S. Paul Joshua | 01.04.2011 |
| Next Review Due : | 02.04.2015 | | |
| To be reviewed by : | Head-QC/QA | | |

| Sl. No. | Tests | Specification |
|---------|-------------------------|---------------|
| | | LR |
| 1 | Assay (KT) | 99-105 % |
| 2 | pH(5% solution at 25°C) | 4.5-8.5 |
| 3 | Melting point | 176°C |

Approved By: S.Paul Joshua, Head Quality Control and Quality Assurance