SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
- Trade name: CASO® FCC FLAKES
- Chemical name: Calcium chloride dihydrated
- Molecular formula: CaCl2.2H2O

1.2 Relevant identified uses of the substance or mixture and uses advised against

**Uses of the Substance / Mixture**
- Food additive
- Agriculture industry

1.3 Details of the supplier of the safety data sheet

**Company**
SOLVAY CHEMICALS, INC.
3737 Buffalo Speedway,
Suite 800,
Houston, TX 77098
USA
Tel: +1-800-7658292; +1-713-5256800
Fax: +1-713-5257804

1.4 Emergency telephone

FOR EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT CONTACT: CHEMTREC 800-424-9300 within the United States and Canada, or 703-527-3887 for international collect calls.

SECTION 2: Hazards identification

Although WHMIS has not adopted the environmental portion of the GHS regulations, this document may include information on environmental effects

2.1 Classification of the substance or mixture

**Hazardous Products Regulations (WHMIS 2015)**

Eye irritation, Category 2A

**H319**: Causes serious eye irritation.

2.2 Label elements

**Hazardous Products Regulations (WHMIS 2015)**

- **Pictogram**
- **Signal Word**: Warning

**Hazard Statements**
- **H319**: Causes serious eye irritation.
Precautionary Statements

Prevention
- P264 Wash skin thoroughly after handling.
- P280 Wear eye protection/ face protection.

Response
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P337 + P313 If eye irritation persists: Get medical advice/ attention.

2.3 Other hazards which do not result in classification

- Irritating to eyes.

SECTION 3: Composition/information on ingredients

3.1 Substance

WHMIS Hazardous Ingredients and Impurities

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Identification number CAS-No.</th>
<th>Concentration [% wt/wt or V/V]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium chloride dihydrate</td>
<td>10035-04-8</td>
<td>&gt;= 99 - &lt; 100</td>
</tr>
</tbody>
</table>

3.2 Mixture

Not applicable, this product is a substance.

SECTION 4: First aid measures

4.1 Description of first-aid measures

In case of inhalation
- Move to fresh air.
- If symptoms persist, call a physician.

In case of skin contact
- Wash off with soap and water.
- If symptoms persist, call a physician.

In case of eye contact
- In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- In the case of difficulty of opening the lids, administer an analgesic eye wash (oxybuprocaine).
- If eye irritation persists, consult a specialist.

In case of ingestion
- Rinse mouth with water.
- Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed
In case of inhalation

Effects
- May cause nose, throat, and lung irritation.

In case of skin contact

Effects
- Prolonged skin contact may cause skin irritation.

In case of eye contact

Symptoms
- Irritation
- Redness
- Lachrymation

Effects
- Risk of temporary eye lesions.

In case of ingestion

Effects
- Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician
- If accidentally swallowed obtain immediate medical attention.
- When symptoms persist or in all cases of doubt seek medical advice.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
- Water may be ineffective.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting
- Not combustible.
- Water reactive

Hazardous combustion products:
- none

5.3 Advice for firefighters

Special protective equipment for fire-fighters
- In the event of fire, wear self-contained breathing apparatus.
- Use personal protective equipment.
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel
- Evacuate personnel to safe areas.
- Avoid dust formation.

Advice for emergency responders
- Use personal protective equipment.
- Sweep up to prevent slipping hazard.
- Prevent further leakage or spillage.

6.2 Environmental precautions
- Should not be released into the environment.
- Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up
- Pick up and transfer to properly labeled containers.
- Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
- Refer to protective measures listed in sections 7 and 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
- Ensure adequate ventilation.
- Minimize dust generation and accumulation.
- Avoid contact with skin and eyes.
- Keep away from incompatible products

Hygiene measures
- Eye wash bottles or eye wash stations in compliance with applicable standards.
- When using do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

7.2 Conditions for safe storage, including any incompatibilities
Technical measures/Storage conditions
- Store in original container.
- Keep in a well-ventilated place.
- Keep in a dry place.
- Keep in properly labeled containers.
- Keep container closed.
- In bulk: in silo or in heap (covered and isolated from the ground) on a well-drained surface.
- Keep away from:
  - Incompatible products

Packaging material
Suitable material
- Polyethylene
- Polypropylene
- Plastic material PVDF, PTFE, PFA.

Unsuitable material
- Aluminum

7.3 Specific end use(s)
- Contact your supplier for additional information

SECTION 8: Exposure controls/personal protection

Introductory Remarks: These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

8.1 Control parameters
- Contains no substances with occupational exposure limit values above their regulatory reporting threshold.

8.2 Exposure controls
Control measures
Engineering measures
- Provide appropriate exhaust ventilation at places where dust is formed.
- Apply technical measures to comply with the occupational exposure limits.

Individual protection measures
Respiratory protection
- Respirator with a particle filter (EN 143)
- Use NIOSH approved respiratory protection.
- Use only respiratory protection that conforms to international/ national standards.

Hand protection
- Wear suitable gloves.

Suitable material
- PVC
- Neoprene
- Natural Rubber
Eye protection
- Dust proof goggles obligatory.

Skin and body protection
- Dust impervious protective suit
- Apron/boots of PVC, neoprene in case of dusts.

Hygiene measures
- Eye wash bottles or eye wash stations in compliance with applicable standards.
- When using do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

SECTION 9: Physical and chemical properties

Physical and Chemical properties here represent typical properties of this product. Contact the business area using the Product information phone number in Section 1 for its exact specifications.

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Physical state: solid</td>
</tr>
<tr>
<td></td>
<td>Color: white off-white</td>
</tr>
<tr>
<td></td>
<td>Particle size: &lt;= 8 mm</td>
</tr>
<tr>
<td>Odor</td>
<td>odorless</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>no data available</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>147.02 g/mol</td>
</tr>
<tr>
<td>pH</td>
<td>9.0 - 10.5 (100 g/l) (68 °F (20 °C))</td>
</tr>
<tr>
<td></td>
<td>Calcium chloride</td>
</tr>
<tr>
<td>pKa</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>Melting point/range: 349 °F (176 °C)</td>
</tr>
<tr>
<td></td>
<td>Decomposition: yes</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>Boiling point/boiling range: &gt; 2,912 °F (&gt; 1,600 °C)</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation rate (Butylacetate = 1)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>The product is not flammable.</td>
</tr>
<tr>
<td>Flammability / Explosive limit</td>
<td>Explosiveness:</td>
</tr>
<tr>
<td></td>
<td>Not explosive</td>
</tr>
</tbody>
</table>
**SAFE DATA SHEET**

**CASO® FCC FLAKES**

**Revision Date:** 12/18/2017

---

**Autoignition temperature**
Not applicable

**Vapor pressure**

negligible

**Vapor density**

no data available

**Density**

Bulk density: 0.8 - 0.9 kg/dm³

**Relative density**

1.85 (77 °F (25 °C))

**Solubility**

Water solubility:
ca. 745 g/l (68 °F (20 °C)) Dissolution with heat release, Calcium chloride

Solubility in other solvents:
Alcohol: soluble
Acetic acid: soluble
Acetone: soluble

**Partition coefficient: n-octanol/water**

Not applicable

**Decomposition temperature**

349 °F (176 °C)

**Viscosity**

Viscosity, dynamic: Not applicable

**Explosive properties**

no data available

**Oxidizing properties**

Not considered as oxidizing.

---

**SECTION 10: Stability and reactivity**

**10.1 Reactivity**

- hygroscopic
- Potential for exothermic hazard

**10.2 Chemical stability**

- Stable under recommended storage conditions.

**10.3 Possibility of hazardous reactions**

- Reacts violently with water.

**10.4 Conditions to avoid**

- Exposure to moisture.

**10.5 Incompatible materials**
10.6 Hazardous decomposition products
- none

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Acute oral toxicity
LD50 : 2,301 mg/kg - Rat
Test substance: Calcium chloride

Acute inhalation toxicity
no data available

Acute dermal toxicity
LD50 : > 5,000 mg/kg - Rabbit
Test substance: Calcium chloride

Acute toxicity (other routes of administration)
no data available

Skin corrosion/irritation
Rabbit
No skin irritation
Test substance: Calcium chloride

Serious eye damage/eye irritation
Rabbit
Eye irritation
Test substance: Calcium chloride dihydrate

Respiratory or skin sensitization
not sensitizing
Test substance: Calcium chloride

Mutagenicity
Genotoxicity in vitro
in vitro test
Test substance: Calcium chloride
Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Genotoxicity in vivo
no data available
Carcinogenicity

negative

This product does not contain any ingredient designated as probable or suspected human carcinogens by:
ACGIH
ACGIH

Toxicity for reproduction and development

Toxicity to reproduction / fertility  no data available

Developmental Toxicity/Teratogenicity

Gavage
10 Days
Teratogenicity NOAEL:169mg/kg
Did not show teratogenic effects in animal experiments.

STOT

STOT-single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure according to GHS criteria.

STOT-repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure according to GHS criteria.

Experience with human exposure  no data available

Aspiration toxicity  no data available

Further information

Irritating to eyes.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic Compartment

Acute toxicity to fish

LC50 - 96 h : 9,500 - 11,300 mg/l - Lepomis macrochirus (Bluegill sunfish)
Test substance: Calcium chloride

LC50 - 96 h : 4,630 mg/l - Pimephales promelas (fathead minnow)
Test substance: Calcium chloride
Acute toxicity to daphnia and other aquatic invertebrates.

EC50 - 48h : 2,400 mg/l - Daphnia magna (Water flea)
Test substance: Calcium chloride

Toxicity to aquatic plants

EbC50 - 72h : 2,900 mg/l - Algae: Pseudokirchneriella subcapitata (Selenastrum capricornutum)
Endpoint: Biomass
Test substance: Calcium chloride

Toxicity to microorganisms

no data available

Chronic toxicity to fish

no data available

Chronic toxicity to daphnia and other aquatic invertebrates.

LC50: 1,830 mg/l - Crustaceans, Ceriodaphnia sp.
Calcium chloride

NOEC: 320 mg/l - 21 Days - Daphnia magna (Water flea)
Reproduction Test
Calcium chloride

Chronic Toxicity to aquatic plants

no data available

12.2 Persistence and degradability

Abiotic degradation

Stability in water
instantaneous ionization, Medium, Water, Soil
Test substance: Calcium
complexation/precipitation of inorganic and organic materials, Medium, Water, Soil

Physical- and photo-chemical elimination

no data available

Biodegradation

Biodegradability
The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water
no data available
**Bioconcentration factor (BCF)**

potential chlorides accumulation into soil and plants

12.4 Mobility in soil

**Adsorption potential (Koc)**

- Air
  - mobility as solid aerosols
- Water/soil/sediments
  - soluble
- Water/soil/sediments
  - mobile
- Soil/sediments
  - adsorption on mineral and organic soil constituents
- Test substance
- Calcium

Known distribution to environmental compartments no data available

12.5 Results of PBT and vPvB assessment no data available

12.6 Other adverse effects no data available

---

**SECTION 13: Disposal considerations**

13.1 Waste treatment methods

**Product Disposal**

- Contact waste disposal services.
- In accordance with local and national regulations.

**Advice on cleaning and disposal of packaging**

- Where possible recycling is preferred to disposal or incineration.
- Clean container with water.
- Dispose of rinse water in accordance with local and national regulations.
- Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities.

---

**SECTION 14: Transport information**

**TDG**

Not regulated

**DOT**

Not regulated

**NOM**
Note: The above regulatory prescriptions are those valid on the date of publication of this sheet. Given the possible evolution of transportation regulations for hazardous materials, it would be advisable to check their validity with your sales office.

### SECTION 15: Regulatory information

#### 15.1 Notification status

<table>
<thead>
<tr>
<th>Inventory Information</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States TSCA Inventory</td>
<td>- Listed on Inventory</td>
</tr>
<tr>
<td>Mexico INSQ (INSQ)</td>
<td>- Listed on Inventory</td>
</tr>
<tr>
<td>Canadian Domestic Substances List (DSL)</td>
<td>- Listed on Inventory</td>
</tr>
<tr>
<td>New Zealand. Inventory of Chemical Substances</td>
<td>- Listed on Inventory</td>
</tr>
<tr>
<td>Australia Inventory of Chemical Substances (AICS)</td>
<td>- Listed on Inventory</td>
</tr>
<tr>
<td>Japan. CSCL - Inventory of Existing and New Chemical Substances</td>
<td>- Listed on Inventory</td>
</tr>
<tr>
<td>Korea. Korean Existing Chemicals Inventory (KECI)</td>
<td>- Listed on Inventory</td>
</tr>
<tr>
<td>China. Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>- Listed on Inventory</td>
</tr>
<tr>
<td>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>- Listed on Inventory</td>
</tr>
<tr>
<td>EU. European Registration, Evaluation, Authorisation and Restriction of Chemical (REACH)</td>
<td>- When purchased from a European Solvay legal entity, this product is compliant with the registration provisions of the REACH Regulation (EC) No. 1907/2006 as all its components are either excluded, exempt, pre-registered and/or registered. When purchased from a legal entity outside of Europe, please contact your local representative for additional information.</td>
</tr>
</tbody>
</table>

#### 15.2 National Regulations

**Canada. CEPA 1999 Significant New Activity (SNAc) List:**

- No substances are subject to a Significant New Activity Notification.
SECTION 16: Other information

Revision Date:
12/18/2017

NFPA (National Fire Protection Association) - Classification

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>1 slight</td>
</tr>
<tr>
<td>Flammability</td>
<td>0 minimal</td>
</tr>
<tr>
<td>Instability or Reactivity</td>
<td>0 minimal</td>
</tr>
<tr>
<td>Special Notices</td>
<td>None</td>
</tr>
</tbody>
</table>

HMIS (Hazardous Materials Identification System (Paint & Coating)) - Classification

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>1 slight</td>
</tr>
<tr>
<td>Flammability</td>
<td>0 minimal</td>
</tr>
<tr>
<td>Reactivity</td>
<td>0 minimal</td>
</tr>
<tr>
<td>PPE</td>
<td>Determined by User; dependent on local conditions</td>
</tr>
</tbody>
</table>

- ACGIH American Conference of Governmental Industrial Hygienists
- OSHA Occupational Safety and Health Administration
- NTP National Toxicology Program
- IARC International Agency for Research on Cancer
- NIOSH National Institute for Occupational Safety and Health

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose, and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. It should be used in conjunction with technical sheets but do not replace them. Thus, the information only relates to the designated specific product and may not be applicable if such product is used in combination with other materials or in any other manufacturing process, unless otherwise specifically indicated. It does not release the user from ensuring he is in conformity with all regulations linked to its activity.