1 Identification

· Product identifier
  · Trade name: Calcium Nitrate Saturated Solution
  · Article number: 153-59-5

· Details of the supplier of the safety data sheet
  · Manufacturer/Supplier: OFI Testing Equipment Inc.
  11302 Steeplecrest Dr.
  Houston, TX 77065
  (877) 837-8683
  · Information department: techservices@ofite.com
  · Emergency telephone number: INFOTRAC USA - CANADA: 1-800-535-5053
  INTERNATIONAL: 1-352-323-3500

2 Hazard(s) identification

· Classification of the substance or mixture
  GHS05 Corrosion
  Eye Dam. 1 H318 Causes serious eye damage.

  GHS07
  Acute Tox. 4 H302 Harmful if swallowed.

· Label elements
  · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
  · Hazard pictograms

  GHS05  GHS07

· Signal word Danger
· Hazard statements
  Harmful if swallowed.
  Causes serious eye damage.
· Precautionary statements
  Take any precaution to avoid mixing with combustibles.
  Keep away from heat.
  Keep/Store away from clothing/combustible materials.
  Wear protective gloves / eye protection / face protection.
  Wash thoroughly after handling.
  Do not eat, drink or smoke when using this product.
  If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
  Continue rinsing.
  Immediately call a POISON CENTER/doctor.
  IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

(Contd. on page 2)
Trade name: Calcium Nitrate
Saturated Solution

IF ON SKIN: Wash with plenty of soap and water.
Rinse mouth.
Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:
- NFPA ratings (scale 0 - 4)
  - Health = 1
  - Fire = 3
  - Reactivity = 0

The substance possesses oxidizing properties.

HMIS-ratings (scale 0 - 4)
- Health = 1
- Fire = 3
- Reactivity = 0

Other hazards
- Results of PBT and vPvB assessment
- PBT: Not applicable.
- vPvB: Not applicable.

3 Composition/information on ingredients

- Chemical characterization: Mixtures
- Description: Mixture of the substances listed below with nonhazardous additions.

Dangerous components:
- CAS: 13477-34-4 Calcium Nitrate Tetrahydrate 86.957%

Table of Nonhazardous Ingredients
- CAS: 7732-18-5 Water 13.043%

4 First-aid measures

- Description of first aid measures
- General information:
  Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- After inhalation: Supply fresh air; consult doctor in case of complaints.
- After skin contact: Immediately wash with water and soap and rinse thoroughly.
- After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- After swallowing: Immediately call a doctor.
- Information for doctor:
  Most important symptoms and effects, both acute and delayed No further relevant information available.
  Indication of any immediate medical attention and special treatment needed
  No further relevant information available.
5 Fire-fighting measures

· Extinguishing media
· Suitable extinguishing agents: CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· Special hazards arising from the substance or mixture: No further relevant information available.
· Advice for firefighters
· Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures
  Wear protective equipment. Keep unprotected persons away.
· Environmental precautions: Dilute with plenty of water.
· Methods and material for containment and cleaning up:
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Use neutralizing agent. Dispose contaminated material as waste according to item 13.
· Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.
· Protective Action Criteria for Chemicals

| PAC-1: | CAS: 13477-34-4 Calcium Nitrate Tetrahydrate | 12 mg/m³ |
| PAC-2: | CAS: 13477-34-4 Calcium Nitrate Tetrahydrate | 130 mg/m³ |
| PAC-3: | CAS: 13477-34-4 Calcium Nitrate Tetrahydrate | 770 mg/m³ |

7 Handling and storage

· Handling:
· Precautions for safe handling: No special precautions are necessary if used correctly.
· Information about protection against explosions and fires: No special measures required.
· Conditions for safe storage, including any incompatibilities
· Storage:
· Requirements to be met by storerooms and receptacles: No special requirements.
· Information about storage in one common storage facility: Not required.
· Further information about storage conditions: Keep receptacle tightly sealed.
· Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

· Additional information about design of technical systems: No further data; see item 7.
Control parameters

Components with limit values that require monitoring at the workplace:
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

Additional information: The lists that were valid during the creation were used as basis.

Exposure controls

Personal protective equipment:

General protective and hygienic measures:
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes.
Avoid contact with the eyes and skin.

Breathing equipment: Not required.

Protection of hands:

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:

Tightly sealed goggles

Body protection: Protective work clothing

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form: Liquid
Color: Colorless
Odor: Odorless
Odor threshold: Not determined.

pH-value: Not determined.
Trade name: Calcium Nitrate
Saturated Solution

- Change in condition
  - Melting point/Melting range: Undetermined.
  - Boiling point/Boiling range: Undetermined.
- Flash point: Not applicable.
- Flammability (solid, gaseous): Not applicable.
- Ignition temperature:
  - Decomposition temperature: Not determined.
  - Auto igniting: Product is not selfigniting.
- Danger of explosion: Product does not present an explosion hazard.
  - Explosion limits:
    - Lower: Not determined.
    - Upper: Not determined.
  - Vapor pressure at 20 °C (68 °F): 23 hPa (17 mm Hg)
  - Density at 20 °C (68 °F): 2.3 g/cm³ (19.194 lbs/gal)
  - Relative density Not determined.
  - Vapor density Not determined.
  - Evaporation rate Not determined.
- Solubility in / Miscibility with Water: Fully miscible.
- Partition coefficient (n-octanol/water): Not determined.
- Viscosity:
  - Dynamic: Not determined.
  - Kinematic: Not determined.
- Solvent content:
  - Organic solvents: 0.0 %
  - Water: 13.0 %
  - VOC content: 0.0 g/l / 0.00 lb/gl
- Other information No further relevant information available.

10 Stability and reactivity
- Reactivity: No further relevant information available.
- Chemical stability
  - Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
  - Possibility of hazardous reactions: No dangerous reactions known.
  - Conditions to avoid: No further relevant information available.
  - Incompatible materials: No further relevant information available.
  - Hazardous decomposition products: No dangerous decomposition products known.
11 Toxicological information

· Information on toxicological effects
  · Acute toxicity:
    · LD/LC50 values that are relevant for classification:
      ATE (Acute Toxicity Estimates)
      Oral  | LD50       | 4485 mg/kg (rat)
      Dermal | LD50       | 3900 mg/kg (rat)
      Irritation of skin | Skin Corrosion/Irritation | mild (rabbit)
      Irritation of eyes | Eye damage/eye irritation | mild (rabbit)
      CAS: 13477-34-4 Calcium Nitrate Tetrahydrate

· Primary irritant effect:
  · on the skin: No irritant effect.
  · on the eye: Strong irritant with the danger of severe eye injury.
  · Sensitization: No sensitizing effects known.

· Additional toxicological information:
  The product shows the following dangers according to internally approved calculation methods for preparations:
  Harmful
  Irritant

· Carcinogenic categories
  · IARC (International Agency for Research on Cancer)
    None of the ingredients is listed.
  · NTP (National Toxicology Program)
    None of the ingredients is listed.
  · OSHA-Ca (Occupational Safety & Health Administration)
    None of the ingredients is listed.

12 Ecological information

· Toxicity
  · Aquatic toxicity: No further relevant information available.
  · Persistence and degradability: No further relevant information available.
  · Behavior in environmental systems:
    · Bioaccumulative potential: No further relevant information available.
    · Mobility in soil: No further relevant information available.
  · Additional ecological information:
    · General notes: Must not reach bodies of water or drainage ditch undiluted or unneutralized.
    · Results of PBT and vPvB assessment
    · PBT: Not applicable.
    · vPvB: Not applicable.
    · Other adverse effects: No further relevant information available.
### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:** Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
  - **Recommendation:** Disposal must be made according to official regulations.
  - **Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

- **UN-Number**
  - DOT, IMDG, IATA: UN3139

- **UN proper shipping name**
  - DOT: Oxidizing liquid, n.o.s. (Calcium nitrate)
  - IMDG, IATA: OXIDIZING LIQUID, N.O.S. (CALCIUM NITRATE)

- **Transport hazard class(es)**

  - **DOT**
    - **Class:** 5.1 Oxidizing substances
    - **Label:** 5.1

  - **IMDG, IATA**
    - **Class:** 5.1 Oxidizing substances
    - **Label:** 5.1

- **Packing group**
  - DOT, IMDG, IATA: III

- **Environmental hazards:**
  - Marine pollutant: No

- **Special precautions for user**
  - Warning: Oxidizing substances

- **Danger code (Kemler):** 51

- **EMS Number:** F-A,S-Q

- **Stowage Category:** B

- **Segregation Code**
  - SG38 Stow "separated from" ammonium compounds.
  - SG49 Stow "separated from" cyanides
  - SG60 Stow "separated from" peroxides

- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**
  - Not applicable.
Trade name: Calcium Nitrate
Saturated Solution

- Transport/Additional information:
  - DOT
    - Remarks: Not regulated
  - IMDG
    - Remarks: Not regulated
  - IATA
    - Remarks: Not regulated
  - UN "Model Regulation": UN 3139 OXIDIZING LIQUID, N.O.S. (CALCIUM NITRATE), 5.1, III

### 15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - Sara
    - Section 355 (extremely hazardous substances):
      None of the ingredients is listed.
    - Section 313 (Specific toxic chemical listings):
      CAS: 13477-34-4 Calcium Nitrate Tetrahydrate
  - TSCA (Toxic Substances Control Act):
    None of the ingredients is listed.
  - Proposition 65
    - Chemicals known to cause cancer:
      None of the ingredients is listed.
    - Chemicals known to cause reproductive toxicity for females:
      None of the ingredients is listed.
    - Chemicals known to cause reproductive toxicity for males:
      None of the ingredients is listed.
    - Chemicals known to cause developmental toxicity:
      None of the ingredients is listed.

- Carcinogenic categories
  - EPA (Environmental Protection Agency)
    None of the ingredients is listed.
  - TLV (Threshold Limit Value established by ACGIH)
    None of the ingredients is listed.
  - NIOSH-Ca (National Institute for Occupational Safety and Health)
    None of the ingredients is listed.
  - GHS label elements
    The product is classified and labeled according to the Globally Harmonized System (GHS).
Trade name: Calcium Nitrate
Saturated Solution

- **Hazard pictograms**

  ![Pictograms](image)

  - GHS05
  - GHS07

- **Signal word** Danger
- **Hazard statements**
  Harmful if swallowed.
  Causes serious eye damage.

- **Precautionary statements**

  Take any precaution to avoid mixing with combustibles.
  Keep away from heat.
  Keep/Store away from clothing/combustible materials.
  Wear protective gloves / eye protection / face protection.
  Wash thoroughly after handling.
  Do not eat, drink or smoke when using this product.
  If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  Immediately call a POISON CENTER/doctor.
  IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
  IF ON SKIN: Wash with plenty of soap and water.
  Rinse mouth.
  Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

---

### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** Environment protection department.
- **Contact:**

  **Date of preparation / last revision**

  Revision 0.0, 05-01-2015: Creation date for SDS. STN
  Revision 0.1, 05-01-2015: revised to correct emergency contact and information dept contact. STN
  Revision 0.2, 07-03-2017: Reviewed SDS. STN
  07/03/2017 / -

- **Abbreviations and acronyms:**

  ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  IMDG: International Maritime Code for Dangerous Goods
  DOT: US Department of Transportation
  IATA: International Air Transport Association
  ACGIH: American Conference of Governmental Industrial Hygienists
  EINECS: European Inventory of Existing Commercial Chemical Substances
  ELINCS: European List of Notified Chemical Substances
  CAS: Chemical Abstracts Service (division of the American Chemical Society)
  NFPA: National Fire Protection Association (USA)
  HMIS: Hazardous Materials Identification System (USA)
  VOC: Volatile Organic Compounds (USA, EU)
  LC50: Lethal concentration, 50 percent
  LD50: Lethal dose, 50 percent
  PBT: Persistent, Bioaccumulative and Toxic
  vPvB: very Persistent and very Bioaccumulative
  NIOSH: National Institute for Occupational Safety
Trade name: Calcium Nitrate
Saturated Solution

OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Acute Tox. 4: Acute toxicity – Category 4
Eye Dam. 1: Serious eye damage/eye irritation – Category 1