## 1. Product and company identification

<table>
<thead>
<tr>
<th>Field</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product name</td>
<td>Electrolyte Formula B10</td>
</tr>
<tr>
<td>Material uses</td>
<td>Electrolyte solution.</td>
</tr>
</tbody>
</table>
| Supplier/Manufacturer          | Marking Methods, Inc.  
301 S. Raymond Avenue  
Alhambra, CA 91803-1531  
Tel: (626)282-8823          |
| MSDS authored by               | KMK Regulatory Services Inc.                                           |
| In case of emergency           | CHEMTREC, U.S.: 1-800-424-9300  
International: +1-703-527-3887 |

## 2. Hazards identification

### Emergency overview

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Liquid.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Clear.</td>
</tr>
<tr>
<td>Odor</td>
<td>Not available.</td>
</tr>
<tr>
<td>Signal word</td>
<td>WARNING!</td>
</tr>
<tr>
<td>Hazard statements</td>
<td>HARMFUL IF SWALLOWED.  CAUSES EYE AND SKIN IRRITATION.  CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.</td>
</tr>
<tr>
<td>Precautionary measures</td>
<td>Do not ingest.  Avoid contact with eyes, skin and clothing.  Wash thoroughly after handling.</td>
</tr>
</tbody>
</table>

### OSHA/HCS status

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### Routes of entry

- Dermal contact.  Eye contact.  Inhalation.  Ingestion.

### Potential acute health effects

#### Inhalation

- Exposure to decomposition products may cause a health hazard.  Serious effects may be delayed following exposure.

#### Ingestion

- Harmful if swallowed.

#### Skin

- Irritating to skin.

#### Eyes

- Irritating to eyes.

### Potential chronic health effects

#### Chronic effects

- Contains material that may cause target organ damage, based on animal data.

#### Carcinogenicity

- No known significant effects or critical hazards.

#### Mutagenicity

- No known significant effects or critical hazards.

#### Teratogenicity

- No known significant effects or critical hazards.

#### Developmental effects

- No known significant effects or critical hazards.

#### Fertility effects

- No known significant effects or critical hazards.

#### Target organs

- Contains material which may cause damage to the following organs: mucous membranes, skin, eyes.

### Over-exposure signs/symptoms

#### Inhalation

- No specific data.

#### Ingestion

- No specific data.
2. Hazards identification

**Skin**
- Adverse symptoms may include the following:
  - irritation
  - redness

**Eyes**
- Adverse symptoms may include the following:
  - pain or irritation
  - watering
  - redness

**Medical conditions aggravated by overexposure**
- Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

3. Composition/information on ingredients

**United States**

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium nitrate</td>
<td>10124-37-5</td>
<td>10 - 30</td>
</tr>
<tr>
<td>Sodium chlorate</td>
<td>7775-09-9</td>
<td>5 - 10</td>
</tr>
</tbody>
</table>

**Canada**

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
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<td>7775-09-9</td>
<td>5 - 10</td>
</tr>
</tbody>
</table>

**Mexico**

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS number</th>
<th>UN number</th>
<th>%</th>
<th>IDLH</th>
<th>H</th>
<th>F</th>
<th>R</th>
<th>Special</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium nitrate</td>
<td>10124-37-5</td>
<td>UN1454</td>
<td>10 - 30</td>
<td>-</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>OX</td>
</tr>
</tbody>
</table>

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

**Eye contact**
- Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 20 minutes, occasionally lifting the upper and lower eyelids. Get medical attention if symptoms occur.

**Skin contact**
- In case of contact, immediately flush skin with plenty of water for at least 20 minutes. Get medical attention if symptoms occur.

**Inhalation**
- Move exposed person to fresh air. Get medical attention if symptoms occur.

**Ingestion**
- Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Call medical doctor or poison control center immediately.

**Protection of first-aiders**
- If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

**Notes to physician**
- Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
5. Fire-fighting measures

**Flammability of the product**: Non-flammable.

**Extinguishing media**

- **Suitable**: Use an extinguishing agent suitable for the surrounding fire.
- **Not suitable**: None known.

**Special exposure hazards**: No specific fire or explosion hazard.

**Hazardous thermal decomposition products**

- Decomposition products may include the following materials:
  - nitrogen oxides
  - halogenated compounds
  - metal oxide/oxides

**Special protective equipment for fire-fighters**: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

**Personal precautions**

- Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

**Environmental precautions**

- Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

**Methods for cleaning up**

- **Small spill**: Stop leak if without risk. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose via a licensed waste disposal contractor.

- **Large spill**: Stop leak if without risk. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7. Handling and storage

**Handling**

- Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

**Storage**

- Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.
8. Exposure controls/personal protection

Canada

Occupational exposure limits
No exposure limit value known.

Mexico

Occupational exposure limits
No exposure limit value known.

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures: Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures: No special ventilation requirements. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory: Not required under normal conditions of use. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Ensure a MSHA/NIOSH-approved respirator or equivalent is used.

Hands: Use gloves appropriate for work or task being performed. Recommended: Natural rubber (latex).

Eyes: Safety eyewear should be used when there is a likelihood of exposure. Recommended: Safety glasses with side shields.

Skin: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: Lab Coat.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

9. Physical and chemical properties

Physical state: Liquid.

Flash point: Not available.

Burning time: Not applicable.

Burning rate: Not applicable.

Auto-ignition temperature: Not available.

Flammable limits: Not available.

Color: Clear.

Odor: Not available.

Taste: Not available.

Molecular weight: Not applicable.

Molecular formula: Not applicable.

pH: 5.5 to 6.5

Boiling/condensation point: 100°C (212°F)

Melting/freezing point: 0°C (32°F)

Critical temperature: Not available.

Relative density: 1.08
9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapor pressure</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapor density</td>
<td>&gt;1 [Air = 1]</td>
</tr>
<tr>
<td>Volatility</td>
<td>Not available.</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not available.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available.</td>
</tr>
<tr>
<td>SADT</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available.</td>
</tr>
<tr>
<td>Ionicity (in water)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Dispersibility properties</td>
<td>Not available.</td>
</tr>
<tr>
<td>Solubility</td>
<td>Miscible in water.</td>
</tr>
<tr>
<td>Physical/chemical properties comments</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

10. Stability and reactivity

- **Chemical stability**: The product is stable.
- **Conditions to avoid**: No specific data.
- **Incompatible materials**: Reactive or incompatible with the following materials: strong base, alkalis, reducing materials and oxidizing materials.
- **Hazardous decomposition products**: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- **Possibility of hazardous reactions**: Under normal conditions of storage and use, hazardous reactions will not occur.

11. Toxicological information

**Acute toxicity**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium nitrate</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>302 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Sodium chlorate</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>1200 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

**Chronic toxicity**

There is no data available.

**Irritation/Corrosion**

- **Skin**: There is no data available.
- **Eyes**: There is no data available.
- **Respiratory**: There is no data available.

**Sensitizer**

- **Skin**: There is no data available.
- **Respiratory**: There is no data available.

**Carcinogenicity**

There is no data available.

**Mutagenicity**

There is no data available.

**Teratogenicity**

There is no data available.

**Reproductive toxicity**

There is no data available.
12. Ecological information

Ecotoxicity: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Aquatic ecotoxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium nitrate</td>
<td>Acute LC50 2400000 ug/L Fresh water</td>
<td>Fish - Lepomis macrochirus - 5 to 9 cm - 1 to 9 g</td>
<td>96 hours</td>
</tr>
<tr>
<td>Sodium chlorate</td>
<td>Acute EC50 298 mg/L Fresh water</td>
<td>Algae - Phaeodactylum tricornutum - Exponential growth phase</td>
<td>72 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 3100000 ug/L Fresh water</td>
<td>Crustaceans - Asellus hilgendorfi - 1 to 5 mg</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 3162 mg/L Fresh water</td>
<td>Daphnia - Daphnia magna</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 1100000 ug/L Fresh water</td>
<td>Fish - Oncorhynchus masou - Fingerling - 6.9 cm - 3 g</td>
<td>96 hours</td>
</tr>
</tbody>
</table>

Persistence/degradability

There is no data available.

13. Disposal considerations

Waste disposal: The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

International transport regulations

DOT / TDG / Mexico / IMDG / IATA: Not regulated by any transport mode.

15. Regulatory information

United States

HCS Classification: Toxic material
Irritating material
Target organ effects

U.S. Federal regulations

TSCA 8(a) IUR Exempt/Partial exemption: Not determined
United States inventory (TSCA 8b): All components are listed or exempted.
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Calcium nitrate; Sodium chlorate
SARA 311/312 MSDS distribution - chemical inventory - hazard identification:
Calcium nitrate: Fire hazard; Sodium chlorate: Fire hazard, Immediate (acute) health hazard

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs): Not listed

Clean Air Act Section 602 Class I Substances: Not listed

Clean Air Act Section 602 Class II Substances: Not listed
15. Regulatory information

**DEA List I Chemicals (Precursor Chemicals)**: Not listed

**DEA List II Chemicals (Essential Chemicals)**: Not listed

**SARA 313**

<table>
<thead>
<tr>
<th>Product name</th>
<th>CAS number</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium nitrate</td>
<td>10124-37-5</td>
<td>10 - 30</td>
</tr>
</tbody>
</table>

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

**State regulations**

**Massachusetts**: The following components are listed: Sodium chlorate

**New York**: None of the components are listed.

**New Jersey**: The following components are listed: Calcium nitrate; Sodium chlorate

**Pennsylvania**: The following components are listed: Sodium chlorate

**California Prop. 65**: No products were found.

**Canada**

**WHMIS (Canada)**: Class D-2B: Material causing other toxic effects (Toxic).

**Canadian lists**

**Canadian NPRI**: The following components are listed: Calcium nitrate

**CEPA Toxic substances**: None of the components are listed.

**Canada inventory**: All components are listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

**Mexico**

**Classification**:

Health: 0

Flammability: 1

Reactivity: 0

Special: 0

16. Other information

**Label requirements**: HARMFUL IF SWALLOWED. CAUSES EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

**Hazardous Material Information System (U.S.A.)**

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

**National Fire Protection Association (U.S.A.)**

Health: 1

Flammability: 0

Instability: 0

Deutsch

15. Regulatorische Informationen

**DEA List I Chemicals (Nebenprodukte)**: Nicht aufgelistet

**DEA List II Chemicals (Grundstoffe)**: Nicht aufgelistet

**SARA 313**

<table>
<thead>
<tr>
<th>Produktname</th>
<th>CAS-Nr.</th>
<th>Konzentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calciumnitrat</td>
<td>10124-37-5</td>
<td>10 - 30</td>
</tr>
</tbody>
</table>

SARA 313-Botschaften dürfen nicht vom MSDS abgetrennt werden und jeder Kopiervorgang des MSDS muss die Botschaften mit einschließen, die auf kopierten MSDS's vervielfältigt werden.

**Staaten Regelungen**

**Massachusetts**: Die folgenden Bestandteile sind aufgelistet: Natriumchlorat

**New York**: Keine der Bestandteile sind aufgelistet.

**New Jersey**: Die folgenden Bestandteile sind aufgelistet: Calciumnitrat; Natriumchlorat

**Pennsylvania**: Die folgenden Bestandteile sind aufgelistet: Natriumchlorat

**California Prop. 65**: Keine Produkte wurden gefunden.

**Kanada**

**WHMIS (Kanada)**: Klasse D-2B: Material, das andere giftige Effekte (Toxisch) verursacht.

**Kanadische Listen**

**Kanadisches NPRI**: Die folgenden Bestandteile sind aufgelistet: Calciumnitrat

**CEPA Giftstoffe**: Keine der Bestandteile sind aufgelistet.

**Kanadische Bestände**: Alle Bestandteile sind aufgelistet oder von der Verordnung ausgenommen.

Dieses Produkt wurde gemäß den Kriterien der Bestimmungen der Kontrollverordnung klassifiziert und der MSDS enthält alle Informationen, die der Kontrollverordnung gemäß gefordert werden.

**Mexiko**

**Klassifizierung**:

Health: 0

Flammbarkeit: 1

Reaktivität: 0

Spezialitäten: 0

16. Andere Informationen


**Gefährliche Materialinformationssystem (USA)**


Der Käufer ist verantwortlich für die Ermittlung der PPE-Nummer für dieses Material.

**National Fire Protection Association (USA)**

Health: 1

Flammbarkeit: 0

Auffälligkeit: 0
16. Other information

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Canada

WHMIS (Canada):

History

Date of issue mm/dd/yyyy: 05/15/2012
Date of previous issue: 06/15/2011
Version: 3

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.