SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : MDE Gel Solution
Product Use Description : Scientific research and development

Company : Lonza Inc. - Rockland
191 Thomaston Street
Rockland, ME 04841-2994
USA
Business Telephone: (207) 594-3400

Lonza Inc. - Walkersville
8830 Biggs Ford Road
Walkersville, MD 21793-0127
USA
Business Telephone (301) 898-7025

Emergency telephone number : 703-527-3887 (US: 800-424-9300)

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Danger
Form: Aqueous solution, Colour: clear, colourless, Odour: odourless
OSHA Hazards : CARCINOGEN
TOXIC BY INGESTION
TOXIC BY SKIN ABSORPTION
SKIN SENSITISER
MUTAGEN
REPRODUCTIVE HAZARD

Potential Health Effects
Primary Routes of Entry : Inhalation
Eyes
Skin

Aggravated Medical Condition : Neurological disorders
Skin disorders

Target Organs : Skin
Kidney
Liver
Nervous system
Inhalation: May cause respiratory tract irritation. Inhalation may cause central nervous system effects. Harmful if inhaled.

Skin: May cause skin irritation. Harmful if absorbed through skin. May cause allergic skin reaction.

Eyes: Causes eye irritation.

Ingestion: Harmful or fatal if swallowed. Abdominal pain, nausea, vomiting, diarrhoea. In extreme case it may cause serious damage to health.

Chronic Exposure: This product contains a material that may cause adverse reproductive effects.*

IARC: Probably carcinogenic to humans
    Acrylamide 79-06-1

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP: Anticipated carcinogen.
    Acrylamide 79-06-1

ACGIH: Confirmed animal carcinogen with unknown relevance to humans.
    Acrylamide 79-06-1
SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Weight percent</th>
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<tbody>
<tr>
<td>Acrylamide</td>
<td>79-06-1</td>
<td>17.00 - 37.00</td>
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<tr>
<td>N-(Hydroxymethyl)acrylamide</td>
<td>924-42-5</td>
<td>&lt; 2.00</td>
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<tr>
<td>Z-Arg-OMe</td>
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<td>17831-71-9</td>
<td>&lt; 2.00</td>
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<tr>
<td>N,N'-Methylenediacrylamide</td>
<td>110-26-9</td>
<td>&lt; 2.00</td>
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</tbody>
</table>

SECTION 4. FIRST AID MEASURES

First aid procedures

Inhalation : Move to fresh air.
Call a physician immediately.
If breathing is irregular or stopped, administer artificial respiration.

Skin contact : After contact with skin, wash immediately with plenty of soap and water.
Take off all contaminated clothing immediately.
If skin irritation persists, call a physician.

Eye contact : Immediately flush eye(s) with plenty of water.
Call a physician immediately.

Ingestion : Immediately give plenty of water (if possible charcoal slurry).
Do not induce vomiting without medical advice.
Never give anything by mouth to an unconscious person.
Take victim immediately to hospital.

SECTION 5. FIREFIGHTING MEASURES

Flammable properties
Flash point : Remarks: no data available

Fire fighting
Suitable extinguishing media : Water spray
Material Safety Data Sheet

MDE Gel Solution

<table>
<thead>
<tr>
<th>Version 01</th>
<th>Revision Date 2012.01.25</th>
<th>Print Date 2012.01.25</th>
</tr>
</thead>
</table>

Dry powder
Foam

Further information: Use water spray to cool unopened containers.

**Protective equipment and precautions for firefighters**

Specific hazards during firefighting: Heating or fire can release toxic gas.

Special protective equipment for firefighters: In the event of fire, wear self-contained breathing apparatus.

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**SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions: Use respirator when performing operations involving potential exposure to vapour of the product.

Environmental precautions: Do not flush into surface water or sanitary sewer system.

Methods for containment / Methods for cleaning up: Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

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**SECTION 7. HANDLING AND STORAGE**

**Handling**

Handling: In case of insufficient ventilation, wear suitable respiratory equipment.

Avoid exposure - obtain special instructions before use.

Use only in area provided with appropriate exhaust ventilation.

Avoid contact with skin and eyes.

Advice on protection against fire and explosion: Take precautionary measures against static discharges.

**Storage**

Requirements for storage areas and containers: Keep container tightly closed and dry.

Storage temperature: < 25°C.

Keep away from heat and sources of ignition.

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**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Exposure Guidelines**

Components with workplace control parameters
Material Safety Data Sheet

MDE Gel Solution

Components  CAS-No.  Value  Control parameters  Update  Basis

Acrylamide  79-06-1  TWA  0.03 mg/m³  2009  ACGIH

Engineering measures
Engineering measures : Use only in area provided with appropriate exhaust ventilation.

Personal protective equipment

Eye protection : Tightly fitting safety goggles
Hand protection : Suitable material : Nitrile rubber
                Break through time : > 480 min

Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Complete suit protecting against chemicals

Respiratory protection : In the case of vapour formation use a respirator with an approved filter.

Hygiene measures : DANGER!
Avoid contact with the skin and the eyes.
Avoid breathing dust or spray mist.
Wash hands before breaks and immediately after handling the product.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form : Aqueous solution
Colour : clear
colourless

Odour : odourless

Safety data

Flash point : Note: no data available
pH : Note: no data available
Material Safety Data Sheet

**MDE Gel Solution**

Water solubility : Note: soluble

**SECTION 10. STABILITY AND REACTIVITY**


Materials to avoid : Remarks: Strong acids and strong bases
Strong oxidizing agents
Iron
Copper
Finely divided aluminium
polymerisation initiators

Hazardous decomposition products : Note: Carbon dioxide (CO2)
Carbon monoxide
nitrogen oxides (NOx)

Hazardous reactions : Hazardous polymerisation may occur.
Polymerisation occurs when exposed to white light, ultraviolet light or heat.

**SECTION 11. TOXICOLOGICAL INFORMATION**

Further information : There is no data available for this product.

The following toxicological data refer to:

**Acrylamide** (CAS-No.: 79-06-1)

Acute oral toxicity : LD50 rat
Dose: 124 mg/kg

Acute dermal toxicity : LD50 rat
Dose: 400 mg/kg

Skin irritation : rabbit
Classification: No skin irritation
Result: mild irritant
Exposure time: 24 h

Eye irritation : rabbit
Material Safety Data Sheet

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Result: moderate irritant

Sensitisation : Remarks: May cause sensitization by skin contact.

Repeated dose toxicity : via drinking water rat
Dose: 0.05, 0.2, 1, 5 bzw. 20 mg/kg
Number of exposures: daily
NOEL: <= 0.2 mg/kg
Lowest observable effect level: <= 1 mg/kg

SECTION 12. ECOLOGICAL INFORMATION

Additional ecological information : No data is available on the product itself.

The following ecotoxicological data refer to:

Acrylamide (CAS-No.: 79-06-1)

Biodegradability : Closed Bottle test
Exposure time: 28 d
Result: Readily biodegradable.
100 %
Method: OECD 301 D

Acute Fish toxicity : Acute toxicity LC50
Species: Pimephales promelas (fathead minnow)
Concentration: 120.00 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : Immobilization EC50
Species: Daphnia magna (Water flea)
Concentration: 98.00 mg/l
Exposure time: 48 h

Acute toxicity EC50
Species: Mysidopsis bahia
Concentration: 109.00 mg/l
Exposure time: 48 h

SECTION 13. DISPOSAL CONSIDERATIONS
Further information: Dispose of in accordance with local regulations. Contact waste disposal services.

SECTION 14. TRANSPORT INFORMATION

**DOT**
- UN number: 3426
- Description of the goods: Acrylamide solution
- Class: 6.1
- Packing group: III
- Labels: 6.1
- Emergency Response Guidebook Number: 153P

**IATA**
- UN number: 3426
- Description of the goods: Acrylamide solution
- Class: 6.1
- Packing group: III
- Labels: 6.1
- Packing instruction (cargo aircraft): 663
- Packing instruction (passenger aircraft): 655
- Packing instruction (passenger aircraft): Y642

**IMDG-CODE**
- UN number: 3426
- Description of the goods: ACRYLAMIDE SOLUTION
- Class: 6.1
- Packing group: III
- Labels: 6.1
- EmS Number 1: F-A
- EmS Number 2: S-A

**RID**
- UN number: 3426
- Description of the goods: ACRYLAMIDE SOLUTION
- Class: 6.1
- Packing group: III
- Classification Code: T1
- Hazard identification No: 60
- Labels: 6.1
Material Safety Data Sheet

MDE Gel Solution

<table>
<thead>
<tr>
<th>OSHA Hazards</th>
<th>Carcinogen, Toxic by ingestion, Toxic by skin absorption, Skin sensitiser, Mutagen, Reproductive hazard</th>
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<tr>
<td>WHMIS Classification</td>
<td>D1B  Toxic Material Causing Immediate and Serious Toxic Effects</td>
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<td>D2A  Very Toxic Material Causing Other Toxic Effects</td>
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<tr>
<td></td>
<td>D2B  Toxic Material Causing Other Toxic Effects</td>
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<td>Disclosure according to Ingredient Disclosure List.</td>
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<tr>
<td>TSCA Status</td>
<td>All components of this product are currently not listed on the EPA TSCA 8(b) inventory.</td>
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<tr>
<td>DSL Status</td>
<td>This product contains one or several components that are not on the Canadian DSL nor NDSL lists.</td>
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<td>SARA 311/312 Hazards</td>
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<td>Chronic Health Hazard</td>
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EPCRA - EMERGENCY PLANNING COMMUNITY RIGHT - TO - KNOW

<table>
<thead>
<tr>
<th>SARA 302 Components</th>
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<td>SARA 313 Components</td>
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US State Regulations

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<td>N-(Hydroxymethyl)acrylamide 924-42-5</td>
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| California Prop. 65 Components        | WARNING! This product contains a chemical known to the State of California to cause cancer. |
This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

SECTION 16. OTHER INFORMATION

Further information
HMIS Classification : Health hazard: 2
                    Flammability: 1
                    Reactivity: 1

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. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Prepared by:       : Product Safety Americas
                   Email: regcomamer@lonza.com