SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Uniquat™ QAC-50
Product Use Description: Inhibitor
Company: Lonza Inc.
90 Boroline Road
Allendale, NJ 07401
Telephone: 1-201-316-9200
Emergency telephone number: CHEMTREC 1-800-424-9300

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Danger
Form: liquid, Colour: light yellow, Odour: mild
Hazard Summary: Causes burns.
OSHA Hazards: CORROSIVE TO SKIN
FLAMMABLE

Primary Routes of Entry: Inhalation
Ingestion
Eyes
Skin

Inhalation: No information available.
Skin: Causes skin burns.
Eyes: Causes eye burns.
Ingestion: Harmful if swallowed.
SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Weight percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides</td>
<td>68424-85-1</td>
<td>50,00</td>
</tr>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>10,00</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>40,00</td>
</tr>
</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. Call a physician immediately. Take off all contaminated clothing immediately.

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

Ingestion: Call a physician immediately. Clean mouth with water and drink afterwards plenty of water. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

SECTION 5. FIRE-FIGHTING MEASURES

Flammable properties

Flash point: 106 °F (41 °C)
   Method: Setaflash Closed Tester (ASTM D3278)

Ignition temperature: 689 °F (365 °C)

Lower explosion limit: 3,3 % (V)
   Remarks: (solvent)

Upper explosion limit: 19 % (V)
   Remarks: (solvent)
**Fire fighting**

Suitable extinguishing media: Dry powder  
Water spray  
Foam  

Further information: Use water spray to cool unopened containers.  

**Protective equipment and precautions for firefighters**

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

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

**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).  

**SECTION 7. HANDLING AND STORAGE**

**Handling**

Handling: Avoid contact with skin and eyes.  
Provide sufficient air exchange and/or exhaust in work rooms.  

Advice on protection against fire and explosion: Highly flammable.  
Keep away from sources of ignition - No smoking.  
Take precautionary measures against static discharges.  

**Storage**

Requirements for storage areas and containers: Keep container tightly closed.  
To maintain product quality, do not store in heat or direct sunlight.  
Keep in a dry, cool and well-ventilated place.  

Further information on: Store containers in compliance with the most recent NFPA
SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>TWA</td>
<td>1 000 ppm</td>
<td>2008</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>REL</td>
<td>1 000 ppm</td>
<td>2005</td>
<td>NIOSH/GUIDE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 900 mg/m3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>1 000 ppm</td>
<td>2009</td>
<td>ACGIH</td>
</tr>
</tbody>
</table>

Engineering measures

Personal protective equipment

Eye protection : Tightly fitting safety goggles

   Face-shield

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.

   Rubber or plastic apron
   Rubber or plastic boots

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

Hygiene measures : Avoid contact with skin, eyes and clothing.

   Wash hands before breaks and immediately after handling the product.
SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Form : liquid
Colour : light yellow
Odour : mild

Safety data
Flash point : 106 °F (41 °C)
Method: Setaflash Closed Tester (ASTM D3278)
Ignition temperature : 689 °F (365 °C)
Lower explosion limit : 3 % (V)
Note: (solvent)
Upper explosion limit : 19 % (V)
Note: (solvent)
pH : 6,5 - 8,3
at 100,00 g/l
77 °F (25 °C)
Pour point : 14 °F (-10 °C)
Boiling point/boiling range : 214 °F (101 °C)
Vapour pressure : 58 hPa (44 mmHg)
at 68 °F (20 °C)
Density : 0,96 g/cm³
at 77 °F (25 °C)
Water solubility : Note: completely soluble
Viscosity, dynamic : <100 mPa.s
at 77 °F (25 °C)

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid : Remarks: no data available
### Uniquat™ QAC-50

**Materials to avoid**
- Remarks: Strong oxidizing agents
- Reducing agents

**Hazardous decomposition products**
- Note: nitrogen oxides (NOx)
- Carbon oxides

**Thermal decomposition**
- Remarks: no data available

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#### SECTION 11. TOXICOLOGICAL INFORMATION

**Acute oral toxicity**
- LD50 rat
  - Dose: 404 mg/kg

**Acute dermal toxicity**
- LD50 rabbit
  - Dose: 3 418 mg/kg

**Skin irritation**
- rabbit
  - Result: Corrosive
  - Method: DOT

**Eye irritation**
- rabbit
  - Result: severe irritant

**Sensitisation**
- Photoallergy guinea pig
  - Result: not photoallergenic

- guinea pig
  - Result: not sensitizing

**Further information**
- Information given is based on data on the components and the toxicology of similar products. No data is available on the product itself.

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The following toxicological data refer to:

**N-Alkyl(C12-16)-N,N-dimethyl-N-benzylammonium chloride** (CAS-No.: 68424-85-1)

**Acute oral toxicity**
- LD50 rat
  - Dose: ca. 344 mg/kg

**Acute dermal toxicity**
- LD50 rabbit
  - Dose: ca. 3 340 mg/kg

**Skin irritation**
- rabbit
  - Result: Corrosive
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Version 1.3  Revision Date 2011.02.18  Print Date 2011.02.19

Method: DOT
Exposure time: 24 h

Eye irritation: rabbit
Result: Corrosive
Method: DOT

Sensitisation: Buehler Test guinea pig
Classification: Did not cause sensitization on laboratory animals.
Result: not sensitizing
Method: OECD Test Guideline 406

SECTION 12. ECOLOGICAL INFORMATION

Additional ecological information: Information given is based on data on the components and the ecotoxicology of similar products.

The following ecotoxicological data refer to:

N-Alkyl(C12-16)-N,N-dimethyl-N-benzylammonium chloride (CAS-No.: 68424-85-1)

Biodegradability: OECD Confirmatory Test
>90 %
Method: OECD 303 A

Modified SCAS Test
Exposure time: 7 d
>99 %
Method: OECD 302 A

CO2 Evolution Test
Concentration: 5 mg/l
Exposure time: 28 d
Result: Readily biodegradable.
95.5 %
Method: OECD 301 B

Remarks:
The surfactant(s) contained in this mixture complies(comply) with the biodegradability criteria as laid down in Regulation (EC) No.648/2004 on detergents. Data to support this assertion are held at the disposal of the competent authorities of the Member States and will be made available to them, at
Bioaccumulation:
Species: Lepomis macrochirus (Bluegill sunfish)
Exposure time: 35 d
Concentration: 0.05 mg/l
Bioconcentration factor (BCF): 79
Method: US-EPA

Acute Fish toxicity:
Species: Oncorhynchus mykiss (rainbow trout)
Concentration: 0.93 mg/l
Exposure time: 96 h
Analytical monitoring: yes
Method: US-EPA

Acute toxicity LC50
Species: Pimephales promelas (fathead minnow)
Concentration: 0.28 mg/l
Exposure time: 96 h
Analytical monitoring: yes
Method: US-EPA

Acute toxicity LC50
Species: Lepomis macrochirus (Bluegill sunfish)
Concentration: 0.51 mg/l
Exposure time: 96 h
Analytical monitoring: yes
Method: US-EPA

Early-life Stage NOEC
Species: Pimephales promelas (fathead minnow)
Concentration: 0.03 mg/l
Exposure time: 34 d
Analytical monitoring: yes
Method: EPA-FIFRA

Toxicity to daphnia and other aquatic invertebrates:
Immobilization EC50
Species: Daphnia magna (Water flea)
Concentration: 0.01 mg/l
Exposure time: 48 h
Analytical monitoring: yes
Method: OECD Test Guideline 202

Reproduction Test NOEC
Species: Daphnia magna (Water flea)
Concentration: 0.00 mg/l
Exposure time: 21 d
Analytical monitoring: yes
Method: EPA-FIFRA
Chronic toxicity NOEC
Species: Chironomus sp.
Concentration: 520,00 mg/l
Exposure time: 28 d
Analytical monitoring: yes
Method: US-EPA

Toxicity to algae
Species: Pseudokirchneriella subcapitata (green algae)
Dose: 0,04 mg/l
Exposure time: 72 h
Analytical monitoring: yes
Method: OECD Test Guideline 201

Toxicity to bacteria
Species: activated sludge
Dose: 7,75 mg/l
Exposure time: 3 h
Method: OECD 209

Growth inhibition EC100
Species: Pseudomonas putida
Dose: ca. 16,00 mg/l
Exposure time: 96 h
Method:

SECTION 13. DISPOSAL CONSIDERATIONS
Further information: The organic ingredients can be incinerated in a suitable installation when in accordance with local regulations.
Dispose of in accordance with local regulations.

SECTION 14. TRANSPORT INFORMATION

DOT
UN number: 2920
Description of the goods: Corrosive liquids, flammable, n.o.s.
(Alkyldimethylbenzylammoniumchloride, Ethanol solution)
Class: 8
Packing group: II
Labels: 8 (3)
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IATA
UN number : 2920
Description of the goods : Corrosive liquid, flammable, n.o.s.
(Alkyldimethylbenzylammoniumchloride, Ethanol solution)
Class : 8
Packing group : II
Labels : 8 (3)
Packing instruction (cargo aircraft) : 855
Packing instruction (passenger aircraft) : 851
Packing instruction (passenger aircraft) : Y840

IMDG-CODE
UN number : 2920
Description of the goods : CORROSIVE LIQUID, FLAMMABLE, N.O.S.
(Alkyldimethylbenzylammoniumchloride, Ethanol solution)
Class : 8
Packing group : II
Labels : 8 (3)
EmS Number 1 : F-E
EmS Number 2 : S-C
Marine pollutant : yes

RID
UN number : 2920
Description of the goods : CORROSIVE LIQUID, FLAMMABLE, N.O.S.
(Alkyldimethylbenzylammoniumchloride, Ethanol solution)
Class : 8
Packing group : II
Classification Code : CF1
Hazard identification No : 83
Labels : 8 (3)

SECTION 15. REGULATORY INFORMATION

OSHA Hazards : Corrosive to skin, Flammable
WHMIS Classification : E
B2

TSCA Status : All components of this product are currently listed on the EPA TSCA 8(b) inventory list or are incidental byproducts. This product is not an EPA registered pesticide. It cannot be used in the United States as a commercial antimicrobial agents without first obtaining an EPA FIFRA registration. It can be used commercially in non-antimicrobial applications, and for all research and development (R&D) applications including as a
Material Safety Data Sheet

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CERCLA Reportable Quantity: 1 000 lbs
SARA 311/312 Hazards: Fire Hazard
                         Acute Health Hazard

EPCRA - EMERGENCY PLANNING COMMUNITY RIGHT - TO - KNOW

SARA 302 Components: SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components: SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Massachusetts Right To Know Components: Ethanol Listed 64-17-5
Pennsylvania Right To Know Components: Ethanol Listed 64-17-5
New Jersey Right To Know Components: Ethanol Listed 64-17-5
California Prop. 65 Components: WARNING! This product contains a chemical known in the State of California to cause cancer.

WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

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: 3
                         Flammability: 2
Reactivity: 0

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.

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Product Safety Americas  
Email: regcomamer@lonza.com