Material Safety Data Sheet

Material Name: Elastic Clarifier

** * Section 1 - Chemical Product and Company Identification * * **

Manufacturer Information
VENTANA MEDICAL SYSTEMS INC.
1910 E. Innovation Park Drive
Tucson, AZ 85755
Phone: (520) 887-2155

EMERGENCY TELEPHONE NUMBER:
(800) 424-9300 (USA/Canada)
CHEMTREC: +1 (703) 527-3887 (International)

Material Name: Elastic Clarifier

Product Number(s)
860-005, 1504012, 5279216001, 06038026001

Product Use
clinical/research

** * Section 2 - Hazards Identification * * **

NFPA Ratings: Health: 2 Fire: 3 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Preparation
R:11

Risks
Highly flammable.

EMERGENCY OVERVIEW
Color: colorless
Physical Form: liquid
Odor: alcohol odor

Major Health Hazards: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, liver damage, nerve damage

Physical Hazards: Flammable liquid and vapor. Flash back hazard.

POTENTIAL HEALTH EFFECTS

Inhalation
Short Term: cough, irritation, changes in blood pressure, ringing in the ears, nausea, vomiting, constipation, stomach pain, chest pain, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, disorientation, hallucinations, tingling sensation, pain in extremities, tremors, loss of coordination, internal bleeding, blood disorders, kidney damage, nerve damage, unconsciousness, coma

Long Term: irritation, sensitivity to light, changes in blood pressure, nausea, vomiting, diarrhea, stomach pain, difficulty breathing, irregular heartbeat, tooth discoloration, headache, drowsiness, fatigue, dizziness, disorientation, pain in extremities, tremors, loss of coordination, visual disturbances, dilated pupils or pin-point pupils, blindness, bluish skin color, lung congestion, heart damage, kidney damage, liver damage, nerve damage, reproductive effects, effects on the brain, convulsions, unconsciousness, coma

Skin
Short Term: irritation, absorption may occur, changes in blood pressure, ringing in the ears, nausea, vomiting, constipation, stomach pain, chest pain, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, disorientation, sensitivity to light, hallucinations, tingling sensation, pain in extremities, tremors, loss of coordination, internal bleeding, blood disorders, kidney damage, nerve damage, unconsciousness, coma

Long Term: irritation, absorption may occur, headache, drowsiness, dizziness, loss of coordination, sensitivity to light, blood disorders, nerve damage

Eye
Short Term: irritation, eye damage
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**MSDS ID:** 00231648

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**Long Term:** irritation, eye damage

**Ingestion**

**Short Term:** irritation, changes in body temperature, diarrhea, nausea, vomiting, digestive disorders, fever, irregular heartbeat, headache, drowsiness, dizziness, loss of coordination, disorientation, visual disturbances, dilated pupils, bluish skin color, convulsions, coma

**Long Term:** irritation, changes in blood pressure, diarrhea, loss of appetite, weight loss, irregular heartbeat, headache, drowsiness, dizziness, disorientation, pain in extremities, tremors, loss of coordination, visual disturbances, blindness, bluish skin color, blood disorders, heart damage, kidney damage, liver damage, nerve damage, reproductive effects, birth defects, brain damage

**OSHA Regulatory Status**

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

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***** Section 3 - Composition/Information on Ingredients *****

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Component / EU Number</th>
<th>Percent</th>
<th>Symbol(s)</th>
<th>Risk Phrase(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Available</td>
<td>REAGENT ALCOHOL -</td>
<td>30-60</td>
<td>F Xn</td>
<td>R:11-20/21/22-68/20/21/22</td>
</tr>
<tr>
<td>Not Available</td>
<td>NON-HAZARDOUS -</td>
<td>30-60</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>7647-01-0</td>
<td>HYDROCHLORIC ACID 231-595-7</td>
<td>&lt;1</td>
<td>T C</td>
<td>R:23-35</td>
</tr>
</tbody>
</table>

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***** Section 4 - First Aid Measures *****

**Inhalation**

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

**Skin**

Wash contaminated areas with soap and water. Thoroughly clean and dry contaminated clothing before reuse. Get medical attention, if needed.

**Eyes**

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

**Ingestion**

If a large amount is swallowed, get medical attention.

**Note to Physicians**

For inhalation, consider oxygen.

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***** Section 5 - Fire-Fighting Measures *****

See Section 9 for Flammability Properties

**Flammable Properties**

Severe fire hazard. Vapor/air mixtures are explosive. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back.

**Extinguishing Media**

carbon dioxide, regular dry chemical, regular foam, water

**Fire Fighting Measures**

Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Flood with fine water spray. Do not scatter spilled material with high-pressure water streams. Avoid inhalation of material or combustion by-products.

**Hazardous Combustion Products**

Thermal decomposition or combustion products: oxides of carbon

**Sensitivity to Mechanical Impact**

Not sensitive
### Sensitivity to Static Discharge
Yes

<table>
<thead>
<tr>
<th>*** Section 6 - Accidental Release Measures ***</th>
</tr>
</thead>
</table>

**Occupational Spill/Release**
Avoid heat, flames, sparks and other sources of ignition. Stop leak if possible without personal risk. Reduce vapors with water spray. **Small spills:** Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal.

<table>
<thead>
<tr>
<th>*** Section 7 - Handling and Storage ***</th>
</tr>
</thead>
</table>

**Handling Procedures**
Wash thoroughly after handling.

**Storage Procedures**
Store and handle in accordance with all current regulations and standards. Store between 2 C and 8 C. Subject to storage regulations: U.S. OSHA 29 CFR 1910.106. Grounding and bonding required. See original container for storage recommendations. Keep separated from incompatible substances.
** * Section 8 - Exposure Controls/Personal Protection * * *

**Exposure Limits**

**Ethyl alcohol (64-17-5)**

- **ACGIH:** 1000 ppm STEL
- **NIOSH:** 1000 ppm TWA; 1900 mg/m³ TWA
- **OSHA:** 1000 ppm TWA; 1900 mg/m³ TWA
- **Austria:**
  - 2000 ppm STEL (3 X 60 min); 3800 mg/m³ STEL (3 X 60 min)
  - 1000 ppm MAK; 1900 mg/m³ MAK
- **Belgium:** 1000 ppm TWA; 1907 mg/m³ TWA
- **Denmark:** 1000 ppm TWA; 1900 mg/m³ TWA
- **Finland:** 1300 ppm STEL; 2500 mg/m³ STEL
  - 1000 ppm TWA; 1900 mg/m³ TWA
- **France:**
  - 5000 ppm VLCT; 9500 mg/m³ VLCT
  - 1000 ppm VME; 1900 mg/m³ VME
- **Germany:**
  - 500 ppm TWA (exposure factor 2); 960 mg/m³ TWA (exposure factor 2)
  - 500 ppm MAK; 960 mg/m³ MAK
  - 1000 ppm Peak; 1920 mg/m³ Peak
- **Greece:** 1000 ppm TWA; 1900 mg/m³ TWA
- **Ireland:** 1000 ppm TWA; 1900 mg/m³ TWA
- **Netherlands:** 1900 mg/m³ STEL
  - 260 mg/m³ TWA
  - skin notation
- **Portugal:** 1000 ppm TWA
- **Spain:** 1000 ppm VLA-ED; 1910 mg/m³ VLA-ED
- **Sweden:**
  - 500 ppm LLV; 1000 mg/m³ LLV
  - 1000 ppm STV; 1900 mg/m³ STV
- **United Kingdom:**
  - 3000 ppm STEL; 5760 mg/m³ STEL
  - 1000 ppm TWA; 1920 mg/m³ TWA

**Methyl alcohol (67-56-1)**

- **ACGIH:**
  - 200 ppm TWA
  - 250 ppm STEL
  - Skin - potential significant contribution to overall exposure by the cutaneous route
  - 15 mg/L Medium: urine Time: end of shift Parameter: Methanol (background, nonspecific)
- **NIOSH:**
  - 200 ppm TWA; 260 mg/m³ TWA
  - 250 ppm STEL; 325 mg/m³ STEL
  - Potential for dermal absorption
  - 6000 ppm IDLH
- **OSHA:**
  - 200 ppm TWA; 260 mg/m³ TWA
  - 250 ppm STEL; 325 mg/m³ STEL
  - Prevent or reduce skin absorption
  - 200 ppm TWA; 260 mg/m³ TWA
- **EEC:**
  - 200 ppm TWA; 260 mg/m³ TWA
  - Possibility of significant uptake through the skin
- **Austria:**
  - 800 ppm STEL (4 X 15 min); 1040 mg/m³ STEL (4 X 15 min)
  - 200 ppm MAK; 260 mg/m³ MAK
  - skin notation
- **Belgium:**
  - 250 ppm STEL; 333 mg/m³ STEL
  - 200 ppm TWA; 266 mg/m³ TWA
  - Skin
- **Denmark:**
  - 200 ppm TWA; 260 mg/m³ TWA
  - Potential for cutaneous absorption
- **Finland:**
  - 250 ppm STEL; 330 mg/m³ STEL
  - 200 ppm TWA; 270 mg/m³ TWA
  - Potential for cutaneous absorption
- **France:**
  - 1000 ppm VLCT; 1300 mg/m³ VLCT
  - 200 ppm VME (restrictive limit); 260 mg/m³ VME (restrictive limit)
Risk of cutaneous absorption
15 mg/L Medium: urine Time: end of shift Parameter: Methanol (Background noise on non-exposed subjects, Non-specific (observed after the exposure to other substances))

Germany: 200 ppm TWA (exposure factor 4); 270 mg/m³ TWA (exposure factor 4)
30 mg/L Medium: urine Time: end of shift Parameter: Methanol; 30 mg/L Medium: urine Time: end of several shifts Parameter: Methanol (for long-term exposures)
200 ppm MAK; 270 mg/m³ MAK
800 ppm Peak; 1080 mg/m³ Peak

Greece: 250 ppm STEL; 325 mg/m³ STEL
200 ppm TWA; 260 mg/m³ TWA
skin - potential for cutaneous absorption

Ireland: 200 ppm TWA; 260 mg/m³ TWA
Potential for cutaneous absorption

Italy: 200 ppm TWA; 260 mg/m³ TWA
skin - potential for cutaneous absorption

Japan: 200 ppm OEL; 260 mg/m³ OEL
May cause substantial skin absorption

Netherlands: 520 mg/m³ STEL
260 mg/m³ TWA
skin notation

Portugal: 200 ppm TWA
250 ppm STEL
skin - potential for cutaneous exposure

Spain: 200 ppm VLA-ED (indicative limit value); 266 mg/m³ VLA-ED (indicative limit value)
skin - potential for cutaneous exposure
15 mg/L urine end of shift Methanol (2)

Sweden: 200 ppm LLV; 250 mg/m³ LLV
250 ppm STV; 350 mg/m³ STV
Skin notation

United Kingdom: 250 ppm STEL; 333 mg/m³ STEL
200 ppm TWA; 266 mg/m³ TWA
Potential for cutaneous absorption

Isopropyl alcohol (67-63-0)
ACGIH: 200 ppm TWA
400 ppm STEL
40 mg/L Medium: urine Time: end of shift at end of workweek Parameter: Acetone (background, nonspecific)

NIOSH: 400 ppm TWA; 980 mg/m³ TWA
500 ppm STEL; 1225 mg/m³ STEL
2000 ppm IDLH (10% LEL)

OSHA: 400 ppm TWA; 980 mg/m³ TWA
500 ppm STEL; 1225 mg/m³ STEL
400 ppm TWA; 980 mg/m³ TWA

Austria: 800 ppm STEL (4 X 15 min); 2000 mg/m³ STEL (4 X 15 min); 800 ppm STEL (STEL for large casting, 4 X 30 min); 2000 mg/m³ STEL (STEL for large casting, 4 X 30 min)
200 ppm MAK; 500 mg/m³ MAK (short time value for large casting)

Belgium: 400 ppm STEL; 1000 mg/m³ STEL
200 ppm TWA; 500 mg/m³ TWA

Denmark: 200 ppm TWA; 490 mg/m³ TWA

Finland: 250 ppm STEL; 620 mg/m³ STEL
200 ppm TWA; 500 mg/m³ TWA

France: 400 ppm VLCT; 980 mg/m³ VLCT

Germany: 200 ppm TWA (exposure factor 2); 500 mg/m³ TWA (exposure factor 2)
50 mg/L Medium: whole blood Time: end of shift Parameter: Acetone; 50 mg/L Medium: urine Time: end of shift Parameter: Acetone
200 ppm MAK; 500 mg/m³ MAK
400 ppm Peak; 1000 mg/m³ Peak

Greece: 500 ppm STEL; 1225 mg/m³ STEL
400 ppm TWA; 980 mg/m³ TWA
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Ireland: 400 ppm STEL  
200 ppm TWA  
Potential for cutaneous absorption  
Japan: 400 ppm Ceiling; 980 mg/m³ Ceiling  
Portugal: 200 ppm TWA  
400 ppm STEL  
Spain: 500 ppm VLA-EC; 1250 mg/m³ VLA-EC  
400 ppm VLA-ED; 998 mg/m³ VLA-ED  
Sweden: 150 ppm LLV; 350 mg/m³ LLV  
250 ppm STV; 600 mg/m³ STV  
United Kingdom: 500 ppm STEL; 1250 mg/m³ STEL  
400 ppm TWA; 999 mg/m³ TWA

HYDROCHLORIC ACID (7647-01-0)

ACGIH: 2 ppm Ceiling  
NIOSH: 5 ppm Ceiling; 7 mg/m³ Ceiling  
50 ppm IDLH  
OSHA: 5 ppm Ceiling; 7 mg/m³ Ceiling  
5 ppm Ceiling; 7 mg/m³ Ceiling  
EEC: 5 ppm TWA; 8 mg/m³ TWA  
10 ppm STEL; 15 mg/m³ STEL  
Austria: 10 ppm STEL (8 X 5 min); 15 mg/m³ STEL (8 X 5 min)  
5 ppm MAK; 8 mg/m³ MAK  
Belgium: 10 ppm STEL; 15 mg/m³ STEL  
5 ppm TWA; 8 mg/m³ TWA  
Denmark: 5 ppm Ceiling; 7 mg/m³ Ceiling  
Finland: 5 ppm STEL; 7.6 mg/m³ STEL (including solution)  
France: 5 ppm VLCT (restrictive limit); 7.6 mg/m³ VLCT (restrictive limit)  
Germany: 2 ppm TWA (exposure factor 2); 3 mg/m³ TWA (exposure factor 2)  
2 ppm MAK; 3.0 mg/m³ MAK  
4 ppm Peak; 6 mg/m³ Peak  
Greece: 5 ppm STEL; 7 mg/m³ STEL  
5 ppm TWA; 7 mg/m³ TWA  
Ireland: 10 ppm STEL; 15 mg/m³ STEL  
5 ppm TWA; 8 mg/m³ TWA  
Italy: 5 ppm TWA; 8 mg/m³ TWA  
10 ppm STEL; 15 mg/m³ STEL  
Japan: 5 ppm Ceiling; 7.5 mg/m³ Ceiling  
Netherlands: 15 mg/m³ STEL  
8 mg/m³ TWA  
Portugal: 2 ppm Ceiling  
Spain: 10 ppm VLA-EC; 15 mg/m³ VLA-EC  
5 ppm VLA-ED (indicative limit value); 7.6 mg/m³ VLA-ED (indicative limit value)  
Sweden: 5 ppm CLV; 8 mg/m³ CLV  
United Kingdom: 5 ppm STEL (aerosol mist and gas); 8 mg/m³ STEL (aerosol mist and gas)  
1 ppm TWA (aerosol mist and gas); 2 mg/m³ TWA (aerosol mist and gas)

Ventilation
Provide adequate ventilation. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Eyes/Face
Safety glasses or goggles are recommended when there is a potential for eye contact. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Protective Clothing
Lab coat or apron.

Glove Recommendations
Wear appropriate chemical resistant gloves.

Protective Materials
latex, vinyl, nitrile
**Respiratory Protection**
No respirator is required under normal conditions of use.

***Section 9 - Physical and Chemical Properties***

<table>
<thead>
<tr>
<th>Physical State:</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color:</td>
<td>colorless</td>
</tr>
<tr>
<td>Odor:</td>
<td>alcohol odor</td>
</tr>
<tr>
<td>pH:</td>
<td>2.3</td>
</tr>
<tr>
<td>Boiling Point:</td>
<td>77.8 °C (REAGENT ALCOHOL)</td>
</tr>
<tr>
<td>Flash Point:</td>
<td>14 °C (CC, REAGENT ALCOHOL)</td>
</tr>
<tr>
<td>OSHA Flammability Class:</td>
<td>IB</td>
</tr>
<tr>
<td>LEL:</td>
<td>Not available</td>
</tr>
<tr>
<td>UEL:</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor Density (air = 1):</td>
<td>1.6 (REAGENT ALCOHOL)</td>
</tr>
<tr>
<td>Specific Gravity (water = 1):</td>
<td>Not available</td>
</tr>
<tr>
<td>Log KOW:</td>
<td>Not available</td>
</tr>
<tr>
<td>Auto Ignition:</td>
<td>Not available</td>
</tr>
<tr>
<td>Volatility:</td>
<td>Not available</td>
</tr>
</tbody>
</table>

***Section 10 - Stability and Reactivity***

**Chemical Stability**
Stable at normal temperatures and pressure.

**Conditions to Avoid**
Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat. Keep out of water supplies and sewers.

**Materials to Avoid**
acid anhydrides, acid chlorides, acids, alkali metals, aluminum, ammonia, oxidizing materials, peroxides

**Decomposition Products**
Thermal decomposition or combustion products: oxides of carbon

**Possibility of Hazardous Reactions**
Will not polymerize.

***Section 11 - Toxicological Information***

**Acute and Chronic Toxicity**

**Component Analysis - LD50/LC50**
The components of this material have been reviewed in various sources and the following selected endpoints are published:

- **Ethyl alcohol (64-17-5)**
  Oral LD50 Rat 7060 mg/kg; Inhalation LC50 Rat 124.7 mg/L 4 h

- **Methyl alcohol (67-56-1)**
  Inhalation LC50 Rat 83.2 mg/L 4 h; Inhalation LC50 Rat 64000 ppm 4 h; Oral LD50 Rat 5628 mg/kg; Dermal LD50 Rabbit 15800 mg/kg

- **Isopropyl alcohol (67-63-0)**
  Inhalation LC50 Rat 72.6 mg/L 4 h; Oral LD50 Rat 4396 mg/kg; Dermal LD50 Rat 12800 mg/kg; Dermal LD50 Rabbit 12870 mg/kg

- **HYDROCHLORIC ACID (7647-01-0)**
  Inhalation LC50 Rat 3124 ppm 1 h; Oral LD50 Rat 700 mg/kg; Dermal LD50 Rabbit >5010 mg/kg
RTECS Acute Toxicity (selected)
The components of this material have been reviewed, and RTECS publishes the following endpoints:

**Ethyl alcohol (64-17-5)**
- **Inhalation:** 5900 mg/m3/6 hour Inhalation Rat LC50; 124700 mg/m3/4 hour Inhalation Rat LC50; 20000 ppm/10 hour Inhalation Rat LC50
- **Oral:** 15010 mg/kg Oral Rat LD50; 7060 mg/kg Oral Rat LD50; 7 gm/kg Oral Rat LD50

**Methyl alcohol (67-56-1)**
- **Inhalation:** 145000 ppm/1 hour Inhalation Rat LC50; 64000 ppm/8 hour Inhalation Rat LC50; 64000 ppm/4 hour Inhalation Rat LC50
- **Oral:** 5600 mg/kg Oral Rat LD50
- **Skin:** 15800 mg/kg Skin Rabbit LD50

**Isopropyl alcohol (67-63-0)**
- **Inhalation:** 16000 ppm/8 hour Inhalation Rat LC50; 72600 mg/m3 Inhalation Rat LC50
- **Oral:** 5000 mg/kg Oral Rat LD50; 5045 mg/kg Oral Rat LD50
- **Skin:** 12800 mg/kg Skin Rabbit LD50

**HYDROCHLORIC ACID (7647-01-0)**
- **Toxic:** inhalation.

Acute Toxicity Level

**Ethyl alcohol (64-17-5)**
- **Slightly Toxic:** inhalation, ingestion.

**Methyl alcohol (67-56-1)**
- **Slightly Toxic:** dermal absorption, ingestion.
- **Non Toxic:** inhalation.

**Isopropyl alcohol (67-63-0)**
- **Moderately Toxic:** inhalation, ingestion.
- **Slightly Toxic:** dermal absorption.

Irritation/Corrosivity

RTECS Irritation

The components of this material have been reviewed, and RTECS publishes the following endpoints:

**Ethyl alcohol (64-17-5)**
- 500 mg/24 hour Eyes Rabbit mild; 100 mg/4 second(s) Eyes Rabbit moderate; 100 uL Eyes Rabbit moderate; 500 mg Eyes Rabbit severe; 400 mg/open Skin Rabbit mild; 20 mg/24 hour Skin Rabbit moderate

**Methyl alcohol (67-56-1)**
- 100 mg/24 hour Eyes Rabbit moderate; 40 mg Eyes Rabbit moderate; 20 mg/24 hour Skin Rabbit moderate

**Isopropyl alcohol (67-63-0)**
- 10 mg Eyes Rabbit moderate; 100 mg/24 hour Eyes Rabbit moderate; 100 mg Eyes Rabbit severe; 500 mg Skin Rabbit mild

Local Effects

**Ethyl alcohol (64-17-5)**
- **Irritant:** inhalation, skin, eye.

**Methyl alcohol (67-56-1)**
- **Irritant:** skin, eye.

**Isopropyl alcohol (67-63-0)**
- **Irritant:** inhalation, eye.

**HYDROCHLORIC ACID (7647-01-0)**
- **Corrosive:** inhalation, skin, eye, ingestion.

Target Organs

**Ethyl alcohol (64-17-5)**
- central nervous system, liver.

**Methyl alcohol (67-56-1)**
- nervous system.

**Isopropyl alcohol (67-63-0)**
- central nervous system.
Carcinogenicity

Component Carcinogenicity

Ethyl alcohol (64-17-5)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
OSHA: Present
IARC: Monograph 100E [in preparation] (in alcoholic beverages); Monograph 96 [in preparation] (in alcoholic beverages) (Group 1 (carcinogenic to humans))

Germany: Category 5 (low carcinogenic potency)
Netherlands: Present
Portugal: A4 - Not Classifiable as a Human Carcinogen

Isopropyl alcohol (67-63-0)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: Monograph 71 [1999]; Supplement 7 [1987]; Monograph 15 [1977] (Group 3 (not classifiable))

Portugal: A4 - Not Classifiable as a Human Carcinogen

HYDROCHLORIC ACID (7647-01-0)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: Monograph 54 [1992] (Group 3 (not classifiable))

Portugal: A4 - Not Classifiable as a Human Carcinogen

Mutagenic

No information available for the mixture.

RTECS Mutagenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

Reproductive Effects

No information available for the mixture.

RTECS Reproductive Effects

The components of this material have been reviewed, and RTECS publishes data for one or more components.

Tumorigenic

No information available for the mixture.

RTECS Tumorigenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

Medical Conditions Aggravated by Exposure

central nervous system disorders, eye disorders, kidney disorders, liver disorders, respiratory disorders, skin disorders and allergies

Additional Data

May cross the placenta. May be excreted in breast milk. May cause blindness.
**Section 12 - Ecological Information**

**Component Analysis - Aquatic Toxicity**

**Ethyl alcohol (64-17-5)**

- **Fish:**
  - 96 Hr LC50 Oncorhynchus mykiss: 12.0 - 16.0 mL/L [static]; 96 Hr LC50 Pimephales promelas: >100 mg/L [static]; 96 Hr LC50 Pimephales promelas: 13400 - 15100 mg/L [flow-through]
- **Invertebrate:**
  - 48 Hr LC50 Daphnia magna: 9268 - 14221 mg/L; 24 Hr EC50 Daphnia magna: 10800 mg/L; 48 Hr EC50 Daphnia magna: 2 mg/L [Static]

**Methyl alcohol (67-56-1)**

- **Fish:**
  - 96 Hr LC50 Pimephales promelas: 28200 mg/L [flow-through]; 96 Hr LC50 Pimephales promelas: >100 mg/L [static]; 96 Hr LC50 Oncorhynchus mykiss: 19500 - 20700 mg/L [flow-through]; 96 Hr LC50 Oncorhynchus mykiss: 18 - 20 mL/L [static]; 96 Hr LC50 Lepomis macrochirus: 13500 - 17600 mg/L [flow-through]
- **Invertebrate:**
  - 48 Hr LC50 Daphnia magna: 9268 - 14221 mg/L; 24 Hr EC50 Daphnia magna: 10800 mg/L; 48 Hr EC50 Daphnia magna: 2 mg/L [Static]

**Isopropyl alcohol (67-63-0)**

- **Fish:**
  - 96 Hr LC50 Pimephales promelas: 9640 mg/L [flow-through]; 96 Hr LC50 Pimephales promelas: 11130 mg/L [static]; 96 Hr LC50 Lepomis macrochirus: >1000 mg/L
- **Algae:**
  - 96 Hr EC50 Desmodesmus subspicatus: >1000 mg/L; 72 Hr EC50 Desmodesmus subspicatus: >1000 mg/L
- **Invertebrate:**
  - 48 Hr EC50 Daphnia magna: 13299 mg/L

**HYDROCHLORIC ACID (7647-01-0)**

- **Fish:**
  - 96 Hr LC50 Gambusia affinis: 282 mg/L [static]

**Mobility**

No information available for the mixture.

**Persistence & Degradation**

No information available for the mixture.

**Bioaccumulative Potential**

No information available for the mixture.

**Section 13 - Disposal Considerations**

**Disposal Methods**

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.

**Component Waste Numbers**

- **Methyl alcohol (67-56-1)**
  - RCRA: waste_number U154 (Ignitable waste)

**Section 14 - Transport Information**

**US DOT Information**

- **Shipping Name:** Flammable liquids, n.o.s. (Contains: Ethyl alcohol, Isopropyl alcohol)
- **UN/NA #:** UN1993 **Hazard Class:** 3 **Packing Group:** II
- **Required Label(s):** 3

**TDG Information**

- **Shipping Name:** Flammable liquid, n.o.s. (Contains: Ethyl alcohol, Isopropyl alcohol)
- **UN #:** UN1993 **Hazard Class:** 3 **Packing Group:** II
- **Required Label(s):** 3

**ADR Information**

- **Shipping Name:** Flammable liquid, n.o.s. (Contains: Ethyl alcohol, Isopropyl alcohol)
- **UN #:** UN1993 **Hazard Class:** 3 **Packing Group:** II
- **Required Label(s):** 3

**RID Information**

- **Shipping Name:** Flammable liquid, n.o.s. (Contains: Ethyl alcohol, Isopropyl alcohol)
- **UN #:** UN1993 **Hazard Class:** 3 **Packing Group:** II
Material Name: Elastic Clarifier

Required Label(s): 3

IATA Information
Shipping Name: Flammable liquid, n.o.s. (Contains: Ethyl alcohol, Isopropyl alcohol)
UN #: UN1993  Hazard Class: 3  Packing Group: II
Required Label(s): 3

ICAO Information
Shipping Name: Flammable liquid, n.o.s. (Contains: Ethyl alcohol, Isopropyl alcohol)
UN #: UN1993  Hazard Class: 3  Packing Group: II
Required Label(s): 3

IMDG Information
Shipping Name: Flammable liquid, n.o.s. (Contains: Ethyl alcohol, Isopropyl alcohol)
UN #: UN1993  Hazard Class: 3  Packing Group: II
Required Label(s): 3

** * Section 15 - Regulatory Information * * **

U.S. Federal Regulations
This material contains one or more of the following chemicals required to be identified under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

Methyl alcohol (67-56-1)
SARA 313: 1.0 % de minimis concentration
CERCLA: 5000 lb final RQ; 2270 kg final RQ

Isopropyl alcohol (67-63-0)
SARA 313: 1.0 % de minimis concentration (only if manufactured by the strong acid process, no supplier notification)

HYDROCHLORIC ACID (7647-01-0)
SARA 302/304: 500 lb TPQ (gas only)
5000 lb EPCRA RQ (gas only)
SARA 313: 1.0 % de minimis concentration (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)
CERCLA: 5000 lb final RQ; 2270 kg final RQ
OSHA (safety): 5000 lb TQ; 5000 lb TQ (anhydrous)

SARA 311/312
Acute Health: Yes  Chronic Health: Yes  Fire: Yes  Pressure: No  Reactive: No

U.S. State Regulations
The following components appear on one or more of the following state hazardous substances lists:

<table>
<thead>
<tr>
<th>Component / EC Number</th>
<th>CAS</th>
<th>CA</th>
<th>MA</th>
<th>MN</th>
<th>NJ</th>
<th>PA</th>
<th>RI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl alcohol</td>
<td>64-17-5</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Methyl alcohol</td>
<td>67-56-1</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Isopropyl alcohol</td>
<td>67-63-0</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>HYDROCHLORIC ACID</td>
<td>7647-01-0</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

California Proposition 65
The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):
WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects.

Canadian Regulations
Canada WHMIS
The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:
Ethyl alcohol (64-17-5)
0.1 %
Methyl alcohol (67-56-1) 1 %
Isopropyl alcohol (67-63-0) 1 %

WHMIS Classification
B2, D2B.

European Regulations
This preparation has been classified for the European Union according to Annex VI Directives 67/548/EEC and 99/45/EC.

Germany Water Classification
Ethyl alcohol (64-17-5)
Number 96, hazard class 1 - low hazard to waters (footnote 10)
Methyl alcohol (67-56-1)
Number 145, hazard class 1 - low hazard to waters
Isopropyl alcohol (67-63-0)
Number 135, hazard class 1 - low hazard to waters
HYDROCHLORIC ACID (7647-01-0)
Number 238, hazard class 1 - low hazard to waters (footnote 8)

EU Marking and Labelling
Symbols
F Highly flammable

Risk Phrases
R11 Highly flammable.

Safety Phrases
S9 Keep container in a well-ventilated place.
S16 Keep away from sources of ignition - No smoking.
S24/25 Avoid contact with skin and eyes.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S27 Take off immediately all contaminated clothing.
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S51 Use only in well ventilated areas.
S60 This material and its container must be disposed of as hazardous waste.

Japanese Regulations
Japan Designated Chemical Substances (PRTR Law)
No components of this material are subject to reporting requirements as specified by the "Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management" nor are they included in the "Pollutant Release and Transfer Register (PRTR)" of designated chemicals.

Japan Poisonous and Deleterious Substances
The following components are specified as poisonous and deleterious substances, and are regulated by Japan under the Poisonous and Deleterious Substances Control Law.
Methyl alcohol (67-56-1)
Deleterious (pure form)
HYDROCHLORIC ACID (7647-01-0)
Deleterious, 10; Deleterious; Deleterious

Industrial Safety and Health Law - Flammable Materials
The following components are identified in Table 6-2 of the Enforcement Order of the Industrial Safety and Health Law which, if used in the workplace, require designation of an Operations Chief during confined space work and periodic machine inspections.
Ethyl alcohol (64-17-5)
Flammable substance
Methyl alcohol (67-56-1)
Flammable substance
**Industrial Safety and Health Law - Label Disclosure**

This list contains those harmful substances present in this product whose names are to be indicated on a container label as specified by Article 18 of the Enforcement Order of the Industrial Safety and Health Law.

- **Methyl alcohol (67-56-1)**
  - 0.3 % weight
- **Isopropyl alcohol (67-63-0)**
  - 1 % weight

**Industrial Safety and Health Law - Organic Solvents**

The following components are identified in Table 6-2 of the Enforcement Order of the Industrial Safety and Health Law which, if used in the workplace, require designation of an Operations Chief during confined space work and periodic machine inspections.

- **Methyl alcohol (67-56-1)**
  - Class 2
- **Isopropyl alcohol (67-63-0)**
  - Class 2

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### **Section 16 - Other Information**

**Key / Legend**

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

**Full text of R phrases in Section 3**

- **R11** Highly flammable.
- **R23/24/25** Toxic by inhalation, in contact with skin and if swallowed.
- **R23** Toxic by inhalation.
- **R35** Causes severe burns.
- **R36** Irritating to eyes.
- **R39/23/24/25** Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.
- **R67** Vapours may cause drowsiness and dizziness.

**Other Information**

Limitations: The information and recommendations set forth in this MSDS are believed to be correct as of this date. Ventana Medical Systems, Inc. makes no warranty with respect to the content of this MSDS and disclaims all liability from reliance thereon.

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