



MSDS Name: **DEVCON® Aluminum Liquid (F-2)**  
Manufacturer Name: ITW Devcon  
Stock No.: 10710

<b>Components:</b>	
	ALUMINUM LIQUID (F-2) RESIN
	LIQUID HARDENER 0202
ITW Performance Polymers (Finished Goods) Product Code : 10710	

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## SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: **ALUMINUM LIQUID (F-2) RESIN**  
Manufacturer Name: ITW Devcon  
Address: 30 Endicott Street  
Danvers, MA 01923  
MSDS Revision Date: 10/10/2006  
Emergency telephone number (800) 424-9300

### HMIS

Health Hazard	2*
Fire Hazard	1
REACTIVITY	1
Personal Protection	X

\* Chronic Health Effects:

**In the US, call CHEMTREC: (800) 424-9300**

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## SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	
Fillers	Not applicable	60 - 100 by Weight
Bisphenol A diglycidyl ether resin	25068-38-6	10 - 30 by Weight
Alkyl Glycidyl Ether	68609-97-2	1 - 5 by Weight
Crystalline silica	14808-60-7	0.1 - 1 by Weight

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## SECTION 3: HAZARDS IDENTIFICATION

**Emergency Overview:** WARNING! Potential Sensitizer. Irritant.

**Primary Routes of Exposure:** Eyes. Skin. Inhalation. Ingestion.

**Potential Health Effects:**

**Eye Contact:** Can cause moderate irritation, burning sensation, tearing, redness, and swelling. Overexposure may cause lacrimation, conjunctivitis, corneal damage and permanent injury..

**Skin Contact:** Can cause skin irritation; itching, redness, rashes, hives, burning, and swelling. Allergic reactions are possible. May cause skin sensitization, an allergic reaction, which becomes evident on reexposure to this material.

**Inhalation:** Respiratory tract irritant. High concentration may cause dizziness, headache, and anesthetic effects. May cause respiratory sensitization with asthma-like

<b>Ingestion:</b>	symptoms in susceptible individuals. Causes irritation, a burning sensation of the mouth, throat and gastrointestinal tract and abdominal pain.
<b>Chronic Health Effects:</b>	Prolonged skin contact may lead to burning associated with severe reddening, swelling, and possible tissue destruction
<b>Signs/Symptoms:</b>	Overexposure can cause headaches, dizziness, nausea, and vomiting.
<b>Target Organs:</b>	Eyes. Skin. Respiratory system. Digestive system. Central nervous system.
<b>Aggravation of Pre-Existing Conditions:</b>	Individuals with pre-existing skin disorders, asthma, allergies or known sensitization may be more susceptible to the effects of this product.
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## SECTION 4: FIRST AID MEASURES

<b>Eye Contact:</b>	Immediately flush eyes with plenty of water for at least 15 to 20 minutes. Ensure adequate flushing of the eyes by separating the eyelids with fingers. Get immediate medical attention.
<b>Skin Contact:</b>	Immediately wash skin with plenty of soap and water for 15 to 20 minutes, while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.
<b>Inhalation:</b>	If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.
<b>Ingestion:</b>	If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.
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## SECTION 5: FIRE FIGHTING MEASURES

<b>Flammable Properties :</b>	Class III B, combustible liquid.
<b>Auto Ignition Temp :</b>	Not determined.
<b>Flash Point:</b>	>200°F (93.3°C)
<b>Flash Point Method:</b>	Estimated.
<b>Lower Explosive Limit (LEL)</b>	Not determined.
<b>Upper Explosive Limit (UEL)</b>	Not determined.
<b>Extinguishing Media:</b>	Use carbon dioxide (CO <sub>2</sub> ) or dry chemical when fighting fires involving this material.
<b>Protective Equipment:</b>	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
<b>Fire Fighting Instructions:</b>	Evacuate area of unprotected personnel. Use cold water spray to cool fire exposed containers to minimize risk of rupture. Do not enter confined fire space without full protective gear. If possible, contain fire run-off water.
<b>Unsuitable Media:</b>	Water or foam may cause frothing.
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## SECTION 6: ACCIDENTAL RELEASE MEASURES

<b>Personal Precautions:</b>	Evacuate area and keep unnecessary and unprotected personnel from entering the spill area.
<b>Spill Cleanup Measures:</b>	Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Provide ventilation. Clean up spills immediately observing precautions in the protective equipment section. After removal, flush spill area with soap and water to remove trace residue. Avoid personal contact and breathing vapors or mists. Ventilate area. Use proper personal protective equipment as listed in section 8.
<b>Environmental Precautions:</b>	Avoid runoff into storm sewers, ditches, and waterways.
<b>Other Precautions:</b>	Pump or shovel to storage/salvage vessels.
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## SECTION 7: HANDLING AND STORAGE

<b>Handling:</b>	Use with adequate ventilation. Avoid breathing vapor, aerosol or mist.
<b>Storage:</b>	Store in a cool, dry, well ventilated area away from sources of heat and incompatible materials. Keep container tightly closed when not in use.
<b>Hygiene Practices:</b>	Wash thoroughly after handling.
<b>Special Handling Procedures:</b>	Provide appropriate ventilation/respiratory protection against decomposition products (see Section 10) during welding/flame cutting operations and to protect against dust during sanding/grinding of cured product.
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## SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering Controls:	Use appropriate engineering control such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Good general ventilation should be sufficient to control airborne levels. Where such systems are not effective wear suitable personal protective equipment, which performs satisfactorily and meets OSHA or other recognized standards. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.
Skin Protection Description:	Wear appropriate protective gloves and other protective apparel to prevent skin contact. Consult manufacturer's data for permeability data.
Eye/Face Protection:	Wear appropriate protective glasses or splash goggles as described by 29 CFR 1910.133, OSHA eye and face protection regulation, or the European standard EN 166.
Respiratory Protection:	A NIOSH approved air-purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.
Other Protective:	Facilities storing or utilizing this material should be equipped with an eyewash and a deluge shower safety station.
<b>Fillers:</b>	
Guideline ACGIH :	ACGIH TLV-TWA 10 mg/m3 as total dust
Guideline OSHA :	OSHA PEL-TWA 15 mg/m3 as total nuisance dust
<b>Crystalline silica:</b>	
Guideline ACGIH :	ACGIH TLV-TWA 0.025 mg/m3
Guideline OSHA :	OSHA PEL-TWA [10 mg/m3]/[% SiO <sub>2</sub> ] + 2]
Notes :	Only established PEL and TLV values for the ingredients are listed below.

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## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State/Appearance:	Paste.
Color:	dark grey.
Odor:	slight odor
Boiling Point:	>400°F (204.4°C)
Melting / Freezing Point :	Not determined.
Solubility:	negligible
Specific Gravity:	1.92
pH:	Neutral.
Vapor Density:	>1 (air = 1)
Vapor Pressure:	Not determined.
Molecular Formula:	Mixture
Molecular Weight:	Mixture
Percent Volatile:	0
VOC Data :	0 g/L
Percent Solids by Weight	100

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## SECTION 10: STABILITY AND REACTIVITY

Chemical Stability:	Stable under normal temperatures and pressures.
Conditions to Avoid:	Extreme heat, sparks, and open flame. Incompatible materials, oxidizers and oxidizing conditions. Heating resin above 300 F in the presence of air may cause slow oxidative decomposition.
Incompatibilities with Other Materials:	Strong Lewis or mineral acids, strong oxidizing agents, strong mineral and organic bases (especially primary and secondary aliphatic amines).
Hazardous Polymerization:	Not reported.

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## SECTION 11: TOXICOLOGICAL INFORMATION

### **Bisphenol A diglycidyl ether resin:**

Skin Effects:	Skin - rat LD: >2 gm/kg - [Nutritional and Gross Metabolic - other changes] (RTECS)
Ingestion Effects:	Oral - Rat LD: >5 gm/kg - [Nutritional and Gross Metabolic - other changes] (RTECS)

### **Alkyl Glycidyl Ether:**

Skin Effects:	Skin - Rat Standard Draize Test: 500 uL/24H - [Moderate](RTECS)
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Ingestion Effects:	Oral - Rat LD50: 17100 mg/kg - [Details of toxic effects not reported other than lethal dose value] (RTECS)
<b>Crystalline silica:</b>	
Inhalation Effects:	Inhalation - Rat TCLo - Lowest published toxic concentration: 1 mg/kg - [Lungs, Thorax, or Respiration - other changes Biochemical - Metabolism (Intermediary) - effect on inflammation or mediation of inflammation ] (RTECS)
Ingestion Effects:	Oral - Rat TDLo - Lowest published toxic dose: 120 gm/kg - [Gastrointestinal - hypermotility, diarrhea Gastrointestinal - other changes ] (RTECS)
Carcinogenicity:	IARC: Group 1: Carcinogenic to humans NTP: Reasonably anticipated to be a human carcinogen

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## SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity:	No ecotoxicity data was found for the product.
Environmental Fate:	No environmental information found for this product.

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## SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal:	Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal. Furthermore, consult with your state and local waste requirements or guidelines, if applicable, to ensure compliance. Arrange disposal in accordance to the EPA and/or state and local guidelines.
RCRA Number :	None

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## SECTION 14: TRANSPORT INFORMATION

DOT Shipping Name:	Non regulated.
DOT UN Number:	N/A
DOT Hazard Class:	Not applicable.
DOT Packing Group:	Not applicable.

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## SECTION 15: REGULATORY INFORMATION

<b>Crystalline silica:</b>	
State:	Listed in the State of Massachusetts Hazardous Substance List. Listed in the Pennsylvania State Hazardous Substances List.
Canadian Regulations.	WHMIS Hazard Class(es): D2B; D2A All components of this product are on the Canadian Domestic Substances List.

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## SECTION 16: ADDITIONAL INFORMATION

HMIS Health Hazard:	2*
HMIS Fire Hazard:	1
HMIS Reactivity:	1
HMIS Personal Protection:	x
MSDS Revision Date:	10/10/2006
Disclaimer:	"This Health and Safety Information is correct to the best of our knowledge and belief at the date of its publication but we cannot accept liability for any loss, injury or damage which may result from its use. The information given in the Data Sheet is designed only as a guidance for safe handling, storage and the use of the substance. It is not a specification nor does it guarantee any specific properties. All chemicals should be handled only by competent personnel, within a controlled environment."

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## SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: **LIQUID HARDENER 0202**  
Manufacturer Name: ITW Devcon  
Address: 30 Endicott Street  
Danvers, MA 01923  
MSDS Revision Date: 10/10/2006  
Emergency telephone number (800) 424-9300

## HMIS

Health Hazard	3*
Fire Hazard	1
REACTIVITY	0
Personal Protection	X

\* Chronic Health Effects:

In the US, call **CHEMTREC: (800) 424-9300**

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## SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	
Nonylphenol	25154-52-3	10 - 30 by Weight
Aminoethylpiperazine	140-31-8	5 - 10 by Weight
Dimer/TOFA, reaction products with TETA	68082-29-1	30 - 60 by Weight
Triethylenetetramine	112-24-3	30 - 60 by Weight

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## SECTION 3: HAZARDS IDENTIFICATION

Emergency Overview:	WARNING! Harmful. Potential Sensitizer. Irritant.
Primary Routes of Exposure:	Eyes. Skin. Inhalation. Ingestion.
Potential Health Effects:	
Eye Contact:	Can cause severe eye irritation and burns. Eye contact may cause permanent damage or blindness.
Skin Contact:	Causes severe skin irritation. May cause permanent skin damage. Allergic reactions are possible. May cause skin sensitization, an allergic reaction, which becomes evident on reexposure to this material.
Inhalation:	Vapor or mist may cause severe respiratory system irritation. May cause respiratory sensitization with asthma-like symptoms in susceptible individuals.
Ingestion:	Causes irritation, a burning sensation of the mouth, throat and gastrointestinal tract and abdominal pain.
Chronic Health Effects:	Prolonged skin contact may lead to burning associated with severe reddening, swelling, and possible tissue destruction
Signs/Symptoms:	Overexposure may cause eye watering or discomfort, redness and swelling.
Target Organs:	Eyes. Skin. Respiratory system. Digestive system.
Aggravation of Pre-Existing Conditions:	Individuals with pre-existing skin disorders, asthma, allergies or known sensitization may be more susceptible to the effects of this product.

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## SECTION 4: FIRST AID MEASURES

Eye Contact:	Immediately flush eyes with plenty of water for at least 15 to 20 minutes. Ensure adequate flushing of the eyes by separating the eyelids with fingers. Get immediate medical attention.
Skin Contact:	Immediately wash skin with plenty of soap and water for 15 to 20 minutes, while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.
Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.
Ingestion:	If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

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## SECTION 5: FIRE FIGHTING MEASURES

Flammable Properties :	Class III B.
Auto Ignition Temp :	Not determined.
Flash Point:	>200°F (93.3°C)
Flash Point Method:	Tag Closed Cup (TCC)
Lower Explosive Limit (LEL)	Not determined.
Upper Explosive Limit (UEL)	Not determined.
Extinguishing Media:	Use carbon dioxide (CO <sub>2</sub> ) or dry chemical when fighting fires involving this material.
Protective Equipment:	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
Fire Fighting Instructions:	Evacuate area of unprotected personnel. Use cold water spray to cool fire exposed containers to minimize risk of rupture. Do not enter confined fire space without full protective gear. If possible, contain fire run-off water.
Unsuitable Media:	Water or foam may cause frothing.

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## SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Evacuate area and keep unnecessary and unprotected personnel from entering the spill area.
Spill Cleanup Measures:	Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Provide ventilation. Clean up spills immediately observing precautions in the protective equipment section. After removal, flush spill area with soap and water to remove trace residue. Avoid personal contact and breathing vapors or mists. Ventilate area. Use proper personal protective equipment as listed in section 8.
Environmental Precautions:	Avoid runoff into storm sewers, ditches, and waterways.
Other Precautions:	Pump or shovel to storage/salvage vessels.

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## SECTION 7: HANDLING AND STORAGE

Handling:	Use with adequate ventilation. Avoid breathing vapor, aerosol or mist.
Storage:	Store in a cool, dry, well ventilated area away from sources of heat and incompatible materials. Keep container tightly closed when not in use. Do not store in reactive metal containers. Keep away from acids, oxidizers.
Hygiene Practices:	Wash thoroughly after handling.
Special Handling Procedures:	Provide appropriate ventilation/respiratory protection against decomposition products (see Section 10) during welding/flame cutting operations and to protect against dust during sanding/grinding of cured product.

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## SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering Controls:	Use appropriate engineering control such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Good general ventilation should be sufficient to control airborne levels. Where such systems are not effective wear suitable personal protective equipment, which performs satisfactorily and meets OSHA or other recognized standards. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.
Skin Protection Description:	Wear appropriate protective gloves and other protective apparel to prevent skin contact. Consult manufacturer's data for permeability data.
Eye/Face Protection:	Wear appropriate protective glasses or splash goggles as described by 29 CFR 1910.133, OSHA eye and face protection regulation, or the European standard EN 166.
Respiratory Protection:	A NIOSH approved air-purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.
Other Protective:	Facilities storing or utilizing this material should be equipped with an eyewash and a deluge shower safety station.
Notes :	Only established PEL and TLV values for the ingredients are listed below.

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## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State/Appearance:	Liquid.
Color:	amber.
Boiling Point:	>392°F (200°C)
Melting / Freezing Point :	Not determined.
Solubility:	Slightly soluble
Specific Gravity:	0.96
pH:	10-11 @ 5 Percent Solution
Vapor Density:	>1 (air = 1)
Vapor Pressure:	<10 mmHg @70°F
Molecular Formula:	Mixture
Molecular Weight:	Mixture
Percent Volatile:	0
VOC Data :	0 g/L
Percent Solids by Weight	100

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## SECTION 10: STABILITY AND REACTIVITY

Chemical Stability:	Stable under normal temperatures and pressures.
Conditions to Avoid:	Extreme heat, sparks, and open flame. Incompatible materials, oxidizers and oxidizing conditions.
Incompatibilities with Other Materials:	Oxidizers, acids, and chlorinated organic compounds. Reactive metals (e.g. sodium, calcium, zinc). Sodium/calcium hypochlorite. Nitrous acid/ oxide, nitrites. Peroxides. Materials reactive with hydroxyl compounds.
Hazardous Polymerization:	Not reported.

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## SECTION 11: TOXICOLOGICAL INFORMATION

### **Nonylphenol:**

Skin Effects:	Skin - Rat Open irritation test -: 500 mg - [Moderate](RTECS) Skin - Rat LD50: 2140 uL/kg - [Details of toxic effects not reported other than lethal dose value](RTECS) Skin - Rat LD50: 2140 mg/kg - [Details of toxic effects not reported other than lethal dose value](RTECS)
Ingestion Effects:	Oral - Rat LD50: 580 mg/kg - [Details of toxic effects not reported other than lethal dose value] (RTECS) Oral - Mouse LD50: 1231 mg/kg - [Details of toxic effects not reported other than lethal dose value] (RTECS)

### **Aminoethylpiperazine:**

Eye Effect:	Eye - Rabbit Standard Draize Test: 20 mg/24H - [Moderate](RTECS)
Skin Effects:	Skin - Rat Standard Draize Test: 5 mg/24H - [severe](RTECS) Skin - Rat LD50: 880 uL/kg - [Details of toxic effects not reported other than lethal dose value](RTECS)
Ingestion Effects:	Oral - Rat LD50: 2140 uL/kg - [Details of toxic effects not reported other than lethal dose value] (RTECS)

### **Triethylenetetramine:**

Eye Effect:	Eye - Rabbit Standard Draize Test : 20 mg/24H - [Moderate](RTECS)
Skin Effects:	Skin - Rat Standard Draize Test : 5 mg/24H - [severe](RTECS) Skin - Rat LD50: 805 mg/kg - [Details of toxic effects not reported other than lethal dose value ](RTECS)
Ingestion Effects:	Oral - Rat LD50: 2500 mg/kg - [Details of toxic effects not reported other than lethal dose value ] (RTECS) Oral - Mouse LD50: 38.5 mg/kg - [Details of toxic effects not reported other than lethal dose value ] (RTECS)

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## SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity:	No ecotoxicity data was found for the product.
Environmental Fate:	No environmental information found for this product.

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## SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal:	Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal. Furthermore, consult with your state and local waste requirements or guidelines, if applicable, to ensure compliance. Arrange disposal in accordance to the EPA and/or state and local guidelines.
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**SECTION 14: TRANSPORT INFORMATION**

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DOT Shipping Name: Non regulated.  
DOT UN Number: N/A  
DOT Hazard Class: Not applicable.  
DOT Packing Group: Not applicable.  
IATA Shipping Name: Non regulated.

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**SECTION 15: REGULATORY INFORMATION**

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**Nonylphenol:**

TSCA Inventory Status Listed  
State: Listed in the State of Massachusetts Hazardous Substance List.  
Listed in the Pennsylvania State Hazardous Substances List.

**Aminoethylpiperazine:**

TSCA Inventory Status Listed  
State: Listed in the State of Massachusetts Hazardous Substance List.  
Listed in the Pennsylvania State Hazardous Substances List.

EC Num : 612-105-00-4

**Triethylenetetramine:**

TSCA Inventory Status Listed  
State: Listed in the State of Massachusetts Hazardous Substance List.  
Listed in the Pennsylvania State Hazardous Substances List.  
EC Num : 612-059-00-5  
Canadian Regulations. WHMIS Hazard Class(es): D2B  
All components of this product are on the Canadian Domestic Substances List.

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**SECTION 16: ADDITIONAL INFORMATION**

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HMIS Health Hazard: 3\*  
HMIS Fire Hazard: 1  
HMIS Reactivity: 0  
HMIS Personal Protection: x  
MSDS Revision Date: 10/10/2006  
Disclaimer: "This Health and Safety Information is correct to the best of our knowledge and belief at the date of its publication but we cannot accept liability for any loss, injury or damage which may result from its use. The information given in the Data Sheet is designed only as a guidance for safe handling, storage and the use of the substance. It is not a specification nor does it guarantee any specific properties. All chemicals should be handled only by competent personnel, within a controlled environment."