

MATERIAL SAFETY DATA SHEET

Alfa International Corp. E10-101 Catalyst

MSDS Number 661
MSDS DATE: 6/21/06

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: E10-101 Catalyst
MANUFACTURER: Alfa International Corp.
ADDRESS: 32 Mechanic Ave., Unit 99, Woonsocket, RI 02895
EMERGENCY PHONE: 866-353-2532
CHEMTREC PHONE: 800-424-9300
OTHER CALLS: 401-765-0503
FAX PHONE: 401-765-0508
CHEMICAL NAME: Triethylenetetramine
CHEMICAL FAMILY: Aliphatic Amines
PRODUCT USE: Curing Agent (Hardener)
PREPARED BY: Alfa International

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT	CAS NO.	% WT	% VOL
Triethylenetetramine	112-24-3	>90 %	>90 %

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Toxic in contact with skin.
Corrosive.
Moderate respiratory irritant.
Severe skin irritant.
Severe eye irritant.
May cause sensitization by skin contact.

POTENTIAL HEALTH EFFECTS

Eyes: Causes eye burns. May cause blindness. Severe eye irritation.
Skin: Toxic in contact with skin. Causes skin burns.
Ingestion: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.
Inhalation: Can cause severe eye, skin and respiratory tract burns. May cause nose, throat, and lung irritation. Inhalation of vapors and/or aerosols in high concentration may cause irritation of respiratory system.

CHRONIC HEALTH HAZARDS:

This product contains no listed carcinogens according to IARC, ACGIH, NTP and/or OSHA in concentrations of 0.1 percent or greater. Prolonged contact may result in chemical burns and permanent damage. Repeated or prolonged contact causes sensitization, asthma and eczemas.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:

Eye disease Skin disorders and Allergies. Adverse skin effects (such as rash, irritation or corrosion). Adverse eye effects (such as conjunctivitis or corneal damage). Adverse respiratory effects (such as cough, tightness of chest or shortness of breath). Asthma.

SECTION 4: FIRST AID MEASURES

GENERAL ADVICE: Seek medical advice. If breathing has stopped or is labored, give assisted respirations. Supplemental oxygen may be indicated. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately.
EYES: Rinse immediately with plenty of water also under the eyelids for at least 20 minutes. Remove contact lenses.
SKIN: Immediately remove contaminated clothing, and any extraneous chemical, if possible to do so without delay. Wash off immediately with plenty of water for at least 20 minutes. Cover wound with sterile dressing. Take off contaminated clothing and shoes immediately.
INGESTION: Do not induce vomiting without medical advice. Drink 1 or 2 glasses of water. If a person vomits when lying on his back, place him in the recovery position. Prevent aspiration of vomit. Turn victim's head to the side.

**ALFA INTERNATIONAL CORPORATION**

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**E10-101
 RESIN**

**MATERIAL
 SAFETY DATA
 SHEET**
 MSDS 9006 - 7/99

PRODUCT INFORMATION

PRODUCT NAME:	E10-101 Resin	CHEMICAL NAME:
HMIS HAZARD RATING:	Health Hazard: 2 Fire Hazard: 0 Reactivity: 0	Epoxy Resin 24-HOUR EMERGENCY ASSISTANCE Chemtrec: (800) 424-9300

COMPOSITION

Chemical	CASRN	Weight	Exposure Limits		VP
SILVER	7440-22-4	> 75%	ACGH/TLV 1 mg/m ³	OSHA PEL 0.01 mg/m ³	0

HAZARD IDENTIFICATIONEmergency Overview

- May be harmful if swallowed.
- May cause skin and/or eye irritation.
- May cause irritation of respiratory tract.
- Read MSDS completely before using product.

Eye Contact:

Strongly irritating to the eyes. Corrosive.

Skin Contact:

Redness, Burning. Can lead to skin sensitization with repeated exposure.

Inhalation:

Repeated exposure may cause irritation to the upper respiratory tract, and liver or kidney damage.

Oral Ingestion:

Do not take internally. Harmful if swallowed. Corrosive Liquid.

FIRST AID MEASURESEye Contact:

CALL POISON CENTER IMMEDIATELY.

Skin Contact:

WASH WITH SOAP & WATER. APPLY A MILD SKIN CREAM.

Inhalation:

MOVE TO FRESH AIR.

Note:

Contaminated leather articles cannot be decontaminated and should be destroyed to prevent reuse.

FIRE FIGHTING MEASURES

Flammability Class: III B

Flash Point: 490°F

PMCC LEL: None

Recommended extinguishing media:

CARBON DIOXIDE, DRY CHEMICALS, FOAM, WATER SPRAY OR FOG.

Unusual Fire or Explosion Hazards:

EXPOSURE TO HIGH TEMPERATURE MAY CAUSE INSTABILITY, DECOMPOSITION & COMBUSTION PRODUCTS MAY BE TOXIC.

Special Fire Fighting Procedures:

AVOID BREATHING SMOKE. USE AIR SUPPLIED RESCUE EQUIPMENT FOR ENCLOSED AREA. WATER TENDS TO SPREAD BURNING LIQUID IF LARGE AMOUNTS USED.

ACCIDENTAL RELEASE MEASURESSteps to take if spilled:

WEAR PROTECTIVE EQUIPMENT. SHOVEL INTO CLOSABLE CONTAINERS. FLUSH AREA WITH WATER.

HANDLING & STORAGE

Keep container tightly closed when not in use. Store in a cool, dry location.

EXPOSURE CONTROLS/ PERSONAL PROTECTIONVentilation Requirements:

Sufficient to keep workroom concentration below TLV.

Personal Protection Equipment Recommended for Normal Use Conditions:

Eye Protection:

Safety spectacles or face shield.

Skin Protection:

Chemical resistant gloves. For sensitive skin, use barrier cream.

Respiratory Protection:

If vapors exceed TLV, wear NIOSH approved, self contained organic mask.

PHYSICAL & CHEMICAL PROPERTIES

Boiling Range:

N/A

Vapor Density:

Non Volatile

Evaporation Rate:

N/A

Liquid Density:

Heavier than water.

Weight Lb /Gal.:

30.19

Specific Gravity:

3.62

Volatiles:

Vol. %: 0.2

Wgt. %: 0.1

Appearance:

Silver, Typical Odor

STABILITY & REACTIVITY

Normally Stable:

Yes

Hazardous Polymerization:

None

Incompatibility:

OXIDIZERS, AMINES, AMMONIA, ACIDS, HALOGENS, ANHYDRIDES, STRONG OXIDIZING AGENTS.

Conditions to avoid:

ELEVATING TEMPERATURES. ALIPHATIC POLYAMINES CAN PRODUCE EXOTHERMIC REACTIONS. AVOID BREATHING FUMES. AMINES, ALKALIES, MINERAL ACIDS, METAL SALTS, STRONG ACIDS OR BASES IN BULK.

Hazardous decomposition products:

CARBON MONOXIDE OR DIOXIDE, ALDEHYDES.

DISPOSAL CONSIDERATIONS

Waste Disposal:

Consult state or local officials for proper disposal method.

REGULATORY INFORMATION

SARA TITLE III:

313 This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and of 40 CFR 372:

CAS#	Chemical Name	Percent by Weight
7440-22-4	Silver	>75%

PROP 65 - CARCINOGEN:

Warning: This product contains a chemical known to the state of California to cause cancer.

CAS#	Chemical Name	Percent by Weight
	None	

PROP 65 - TERATOGEN:

Warning: This product contains a chemical known to the state of California to cause birth defects or other reproductive harm.

CAS#	Chemical Name	Percent by Weight
	None	

PROP 65 - CARCINOGEN AND TERATOGEN:

Warning: This product contains a chemical known to the state of California to cause cancer, birth defects or other reproductive harm.

CAS#	Chemical Name	Percent by Weight
	None	

OTHER INFORMATION

N/D	=	Not Determined	N/A	=	Not Available
N/AP	=	Not Applicable			

The information herein relates to the product named and is based upon information ALFA INTERNATIONAL CORPORATION considers accurate. No warranty expressed or implied is intended. This information is offered solely for your consideration and interpretation. The Corporate Safety and Environmental Affairs Department is responsible for the preparation of this Material Safety Data Sheet.

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INHALATION: If breathing has stopped or is labored, give assisted respirations. Supplemental oxygen may be indicated. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately. Move to fresh air.

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS:

Application of corticosteroid cream has been effective in treating skin irritation.

SECTION 5: FIRE-FIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA:

Alcohol-resistant foam, carbon dioxide, dry chemical, dry sand, limestone powder.

SPECIFIC HAZARDS:

May generate ammonia gas. May generate toxic nitrogen oxide gases. Use of water may result in the formation of very toxic aqueous solutions. Do not allow run-off from fire fighting to enter drains or water courses. Incomplete combustion may form carbon monoxide. Downwind personnel must be evacuated. Burning produces obnoxious and toxic fumes.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS:

Avoid contact with the skin. A face shield should be worn. Use personal protective equipment. Wear self contained breathing apparatus for fire fighting if necessary.

FURTHER INFORMATION: Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:

Use self-contained breathing apparatus and chemically protective clothing. Wear suitable protective clothing, gloves and eye/face protection. Evacuate personnel to safe areas.

ENVIRONMENTAL PRECAUTIONS:

Construct a dike to prevent spreading.

METHODS FOR CLEANING UP:

Approach suspected leak areas with caution. Place in appropriate chemical waste container.

ADDITIONAL ADVICE:

If possible, stop flow of product.

SECTION 7: HANDLING AND STORAGE

HANDLING:

Do not use sodium nitrite or other nitrosating agents in formulations containing this product. Suspected cancer-causing nitrosamines could be formed. Avoid contact with skin and eyes. Emergency showers and eye wash stations should be readily accessible. Adhere to work practice rules established by government regulations. Avoid breathing vapors and/or aerosols. Avoid contact with eyes. Use only in well-ventilated areas. Use personal protective equipment. When using, do not eat, drink or smoke.

STORAGE:

Store in steel containers preferably located outdoors, above ground, and surrounded by dikes to contain spills or leaks. Do not store near acids. Keep containers tightly closed in a dry, cool and well-ventilated place.

TECHNICAL MEASURES & PRECAUTIONS: Do not store in reactive metal containers.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING MEASURES:

Provide readily accessible eye wash stations and safety showers.
Provide natural or explosion-proof ventilation adequate to ensure concentrations are kept below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Respiratory protection -- Wear appropriate respirator when ventilation is inadequate.
Hand protection -- Neoprene gloves, butyl-rubber, nitrile rubber, impervious gloves. The breakthrough time of the selected glove(s) must be greater than the intended use period.

EYE PROTECTION:

Full face shield with goggles underneath.
Chemical resistant goggles must be worn.

SKIN AND BODY PROTECTION:

Impervious clothing.
Full rubber suit (rain gear).
Rubber or plastic boots.
Long sleeve shirts and trousers without cuffs.
Slicker suit.

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ENVIRONMENTAL EXPOSURE CONTROLS: Construct a dike to prevent spreading.

SPECIAL INSTRUCTIONS FOR PROTECTION AND HYGIENE:

Discard contaminated leather articles. Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Provide readily accessible eye wash stations and safety showers. Wash at the end of each workshift and before eating, smoking or using the toilet.

EXPOSURE LIMIT(S):

Triethylenetetramine	Time Weighted Average (TWA): WEEL	1 ppm	6 mg/m ³
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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

COLOR: Amber

ODOR: Fishy

PHYSICAL STATE: Liquid

pH: Alkaline

BOILING POINT:

F: 531

C: 277

FLASH POINT:

C: >115.56

VAPOR PRESSURE (mmHg): <0.01 mmHG

@ F: 70

C: 21

RELATIVE VAPOR DENSITY: 5.61

DENSITY: 0.98 g/cm³ (61.179 lb/ft³)

@ F: 70

C: 21

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (cont)

SOLUBILITY IN WATER: Completely soluble.

MOLECULAR WEIGHT: 146 g/mol

VISCOSITY: 20 mPa.s

@ F: 77

C: 25

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Stable under normal conditions.

MATERIALS TO AVOID:

Sodium hypochlorite.

Organic acids (i.e. acetic acid, citric acid etc.).

Mineral acids.

Product slowly corrodes copper, aluminum, zinc and galvanized surfaces.

Reaction with peroxides may result in violent decomposition of peroxide possibly creating an explosion.

CAUTION! N-Nitrosamines, many of which are known to be potent carcinogens, may be formed when the product comes in contact with nitrous acid, nitrites or atmospheres with high nitrous oxide concentrations.

Nitrous acid and other nitrosating agents.

Oxidizing agents.

Hazardous decomposition products:

Nitric acid.

Ammonia.

Nitrogen oxides (NOx).

Nitrogen oxide can react with water vapors to form corrosive nitric acid.

Carbon monoxide, Carbon dioxide.

Nitrosamine.

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SECTION 11: TOXICOLOGICAL INFORMATION

ACUTE HEALTH HAZARD:

Ingestion: LD50: 2,500 mg/kg
Species: Rat

Inhalation: No data is available on the product itself.

Skin: LD50: 805 mg/kg
Species: Rabbit

EYE IRRITATION/CORROSION: Severe eye irritation.

ACUTE DERMAL IRRITATION/CORROSION: Severe skin irritation.

SENSITIZATION: May cause sensitization by skin contact. Sensitization has occurred in laboratory animals after repeated exposures.

CHRONIC HEALTH HAZARD: Results from a battery of short-term genotoxicity tests on this material or its components indicate mutagenic activity.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY EFFECTS:

Aquatic toxicity: No data is available on the product itself.
Toxicity to other organisms: No data available.

PERSISTENCE AND DEGRADABILITY:

Mobility: No data available.
Bioaccumulation: No data is available on the product itself.

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE FROM RESIDUES / UNUSED PRODUCTS: Contact supplier if guidance is required.

CONTAMINATED PACKAGING: Dispose of container and unused contents in accordance with federal, state, and local requirements.

SECTION 14: TRANSPORT INFORMATION

CFR

Proper Shipping Name: Triethylenetetramine
Class: 8
UNID No.: UN2259
Packing Group: II

IATA

Proper Shipping Name: Triethylenetetramine
Class: 8
UNID No.: UN2259
Packing Group: II

IMDG

Proper Shipping Name: Triethylenetetramine
Class: 8
UNID No.: UN2259
Packing Group: II

CTC

Proper Shipping Name: Triethylenetetramine
Class: 8
UNID No.: UN2259
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SECTION 15: REGULATORY INFORMATION

Country	Regulatory List	Notification
USA EU	TSCA EINECS	Included on Inventory. Included on EINECS inventory or polymer substance, monomers included on EINECS inventory or no longer polymer.
Canada	DSL	Included on Inventory.
Australia	AICS	Included on Inventory.
Japan	ENCS	Included on Inventory.
South Korea	ECL	Included on Inventory.
China	SEPA	Included on Inventory.
Philippines	PICCS	Included on Inventory.

EPA SARA Title III Section 312 (40 CFR 370) Hazard Classification:
Acute Health Hazard Chronic Health Hazard

EPA SARA Title III Section 313 (40 CFR 372) Component(s) above 'de minimus' level:
None.

US. California Safe Drinking Water & Toxic Enforcement Act (Proposition 65)
This product does not contain any chemicals known to State of California to cause cancer, birth defects or any other harm.

WHMIS Hazard Classification
Toxic Material Causing Immediate and Serious Toxic Effects, Toxic Material Causing Other Toxic Effects, Corrosive Material.

SECTION 16: OTHER INFORMATION

HMIS RATING:
Health: 3
Flammability: 1
Physical hazard: 0
Prepared by: Alfa International Corp.

For additional information, please visit our web site at <http://www.alfaadhesives.com/>