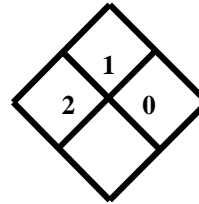


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Asia Pacific Emergency Phone: (65) 6336-6011

**Effective Date:** 2/24/09**Material Safety Data Sheet**

MSDS No: 11243

**1. PRODUCT IDENTIFICATION****Trade Name:** Araldite LY 8601 US**Chemical Family:** Epoxy

NFPA RATING

<b>Health:</b>	<b>2</b>
<b>Flammability:</b>	<b>1</b>
<b>Reactivity:</b>	<b>0</b>
<b>Personal Protection:</b>	

HMIS RATING

**Synonyms:**

RenInfusion 8601  
Resinfusion 8601 Resin  
TDT 177-151 RESIN

**Intended Use or Product Type:** Low viscosity resin blend for RTM**2. COMPOSITION / INFORMATION ON INGREDIENTS**

O S H A	CAS No.	CHEMICAL IDENTITY	EXPOSURE LIMITS				CARCINOGEN STATUS			
			ACGIH		OSHA		MFR.	IARC	NTP	OSHA
			TWA	STEL	PEL	STEL				
*	25068-38-6	Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane Bisphenol A diglycidyl ether polymer Concentration: 60.00 - 100.00 % by wt	NE	NE	NE	NE	NE	NR	NR	NR
*	3101-60-8	Oxirane, [[4-(1,1-dimethylethyl)phenoxy]methyl]-Butylphenyl glycidyl ether Concentration: 5.00 - 10.00 % by wt	NE	NE	NE	NE	NE	NR	NR	NR
*	6846-50-0	Propanoic Acid, 2-Methyl-, 2,2-Dimethyl-1-(1-Methylethyl)-1,3-Propanediyl Ester Trimethyl pentanediol diisobutyrate Concentration: 5.00 - 10.00 % by wt	NE	NE	NE	NE	NE	NR	NR	NR
*	68609-97-2	Oxirane, mono[(C12-14-alkyloxy)methyl] derivs. C12 and C14 Alkyl Glycidyl Ethers Concentration: 10.00 - 30.00 % by wt	NE	NE	NE	NE	NE	NR	NR	NR

NE = Not Established NR = Not Reviewed \* = OSHA Hazardous Ingredient

### 3. HAZARDS IDENTIFICATION

**Emergency Overview:** Causes skin and eye irritation. May cause allergic skin reaction.

**Primary Route(s) of Entry:** Dermal; heated product may produce inhalable vapors.

### 4. FIRST AID MEASURES

**Ingestion:** Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Seek immediate medical attention.

**Skin:** Immediately wash with soap and water. Remove contaminated clothing and launder before reuse. Destroy contaminated shoes. Seek immediate medical attention.

**Inhalation:** Remove to fresh air. Seek immediate medical attention.

**Eyes:** Immediately flush eyes with water for at least 15 minutes. Seek immediate medical attention.

**Overexposure Effects:** Causes skin and eye irritation. May cause allergic skin reaction.

**Medical Conditions Aggravated by Exposure:** Skin and eye conditions.

**Additional Information:** Referral to a physician is recommended if there is any question about the seriousness of any injury.

### 5. FIRE FIGHTING MEASURES

<b>Flash Point:</b>	> 200°F (> 93 °C)
<b>Flash Point Method Used:</b>	Estimated
<b>Flammable Limits in Air (Lower - % by volume):</b>	Not established
<b>Flammable Limits in Air (Upper - % by volume):</b>	Not established

**Fire Fighting Extinguishing Media:** Carbon dioxide, dry chemical, foam, water.

**Fire Fighting Equipment:** Use self-contained breathing apparatus.

**Fire and Explosion Hazards:** Decomposition and combustion products may be toxic.

### 6. ACCIDENTAL RELEASE MEASURES

**Accidental Release Measures:** Remove spillage by absorbing in absorbent material.

### 7. HANDLING AND STORAGE

Effective Date: 2/24/09

**Signal Word:** Warning!**Precautions:** Can cause skin irritation, eye irritation, and allergic skin reaction. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling.**Other Handling Information:** Nuisance dust may be generated when sanding or sawing cured material.

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

**Skin Protection:** Impermeable gloves and protective clothing.**Respiratory Protection:** Use NIOSH approved organic vapor cartridge respirator when vapor/mist exposure is likely.**Eye Protection:** Wear splash-proof chemical goggles.**Engineering Controls:** General mechanical and local exhaust in accordance with ACGIH recommendations.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Color:</b>	Light Blue
<b>Odor:</b>	Epoxy
<b>Physical State:</b>	Liquid
<b>Solubility in Water:</b>	Insoluble
<b>Vapor Pressure:</b>	Not Determined
<b>Specific Gravity:</b>	1.1 (water = 1)
<b>Boiling Point:</b>	> 626°F (> 330 °C)
<b>Evaporation Rate:</b>	Not Determined
<b>Vapor Density:</b>	Not Determined
<b>pH:</b>	Not Determined
<b>Coefficient of water/oil:</b>	Not Determined

## **10. STABILITY AND REACTIVITY**

**Conditions to Avoid:** Excessive heat for prolonged periods of time.**Stability:** Stable.**Incompatibility:** Strong oxidizers, acids and bases.**Hazardous Decomposition Products:** Combustion may form toxic materials, such as carbon dioxide, carbon monoxide.**Hazardous Polymerization:** Will not occur.

## **11. TOXICOLOGICAL INFORMATION**

**Sensitization:** Possible in susceptible individuals.**Skin Irritation:** Irritant.**Eye Irritation:** Irritant.

Effective Date: 2/24/09

**12. ECOLOGICAL INFORMATION****13. DISPOSAL CONSIDERATIONS**

**Waste Disposal Method:** Consult qualified local or corporate personnel for method that will comply with local, state and federal health and environmental regulations.

**14. TRANSPORT INFORMATION****DOT: Non-Bulk**

**Proper Shipping Name:** Resin compounds, N.O.I.

**IATA: Non-Bulk**

**Proper Shipping Name:** Resin compounds, N.O.I.

**IMDG: Non-Bulk**

**Proper Shipping Name:** Resin compounds, N.O.I.

**TDG: Non-Bulk**

**Proper Shipping Name:** Resin compounds, N.O.I.

**Department of Transportation:** Not regulated as a hazardous material by the U.S. Dept. of Transportation (DOT) 49 CFR 172.101 hazardous materials table.

**15. REGULATORY INFORMATION****US Federal Regulations:**

**Occupational Safety and Health Act (OSHA):** This Material Safety Data Sheet (MSDS) has been prepared in compliance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200. This product is considered to be a hazardous chemical under that standard.

**Resource Conservation and Recovery Act (RCRA):** Not a hazardous waste under RCRA (40 CFR 261).

**SARA Title III: Section 313 Toxic Chemical List (TCL):** This product does not contain any chemicals for routine annual toxic chemical release reporting under Section 313 (40 CFR 372).

**TSCA Section 8(b) - Inventory Status:** All chemical components of this product are in compliance with TSCA inventory requirements.

**TSCA Section 12(b) - Export Notification:** This product does not contain any chemical(s) that are subject to a Section 12(b) export notification.

**International Regulations:**

**Australian Inventory Status:** This product contains only chemicals which are currently listed on the Australian Inventory of Chemical Substances.

**Canadian Inventory Status:** This product contains components which are included on the Domestic Substances List (DSL) and the Non-Domestic Substances List (NDSL).

Effective Date: 2/24/09

**Canadian WHMIS:** This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations. D2B

**European Inventory Status (EINECS):** This product contains only chemicals that are currently listed on the European Inventory of Existing Commercial Chemical Substances (EINECS).

**Japanese Inventory Status:** This product contains one or more chemicals currently not on the Japanese Ministry of International Trade and Industry List of Existing and New Chemical Substances.

### State Regulations:

**California Proposition 65:** This product does not contain any chemicals currently on the California list of Known Carcinogens and Reproductive Toxins.

**Pennsylvania Right-to-Know:** The following is required composition information:

Chemical Name: Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane

Common Name: Bisphenol A diglycidyl ether polymer

CAS Number: 25068-38-6

Comment: Not on Pennsylvania Hazardous Substance List

Chemical Name: Oxirane, mono[(C12-14-alkyloxy)methyl] derivs.

Common Name: C12 and C14 Alkyl Glycidyl Ethers

CAS Number: 68609-97-2

Comment: Not on Pennsylvania Hazardous Substance List

Chemical Name: Oxirane, [[4-(1,1-dimethylethyl)phenoxy]methyl]-

Common Name: Butylphenyl glycidyl ether

CAS Number: 3101-60-8

Comment: Not on Pennsylvania Hazardous Substance List

Chemical Name: Propanoic Acid, 2-Methyl-, 2,2-Dimethyl-1-(1-Methylethyl)-1,3-Propanediyl Ester

Common Name: Trimethyl pentanediol diisobutyrate

CAS Number: 6846-50-0

Comment: Not on Pennsylvania Hazardous Substance List

## 16. OTHER INFORMATION

**MSDS No:** 11243

**Reason Issued:** update + WHMIS 2/09

**Other Information:** D10020030 (D24)

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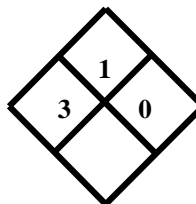


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**Effective Date:** 2/19/09**Material Safety Data Sheet**

MSDS No: 11241

**1. PRODUCT IDENTIFICATION****Trade Name:** Aradur 8601 US**Chemical Family:** Amine

NFPA RATING

<b>Health:</b>	<b>3*</b>
<b>Flammability:</b>	<b>1</b>
<b>Reactivity:</b>	<b>0</b>
<b>Personal Protection:</b>	

HMIS RATING

**Synonyms:**

Ren 8601  
Resinfusion (TM) 8601 Hardener  
TDT 177-151 Hardener

**Intended Use or Product Type:** Low viscosity, high elongation, room temperature use epoxy infusion system**2. COMPOSITION / INFORMATION ON INGREDIENTS**

O S H A	CAS No.	CHEMICAL IDENTITY	EXPOSURE LIMITS				CARCINOGEN STATUS			
			ACGIH		OSHA		MFR.	IARC	NTP	OSHA
			TWA	STEL	PEL	STEL				
*	111-40-0 Common Name: Concentration	1,2-Ethanediamine, N-(2-aminoethyl)- Diethylenetriamine 10.00 - 30.00 % by wt	1 ppm	NE	NE	NE	NE	NR	NR	NR
*	25154-52-3 Common Name: Concentration	Phenol, Nonyl- Nonyl Phenol 5.00 - 10.00 % by wt	NE	NE	NE	NE	NE	NR	NR	NR
*	27136-73-8 Common Name: Concentration	1H-Imidazole-1-ethanol, 2-(heptadecenyl)-4,5-dihydro- Substituted imidazole 10.00 - 30.00 % by wt	NE	NE	NE	NE	NE	NR	NR	NR
*	9046-10-0 Common Name: Concentration	Poly[Oxy(Methyl-1,2-Ethanediy)], .alpha.-(2-Aminomethylethyl)- .omega.-(2-Aminomethylethoxy)- Polyoxypropylenediamine 30.00 - 60.00 % by wt	NE	NE	NE	NE	NE	NR	NR	NR

NE = Not Established NR = Not Reviewed \* = OSHA Hazardous Ingredient

### 3. HAZARDS IDENTIFICATION

**Emergency Overview:** Corrosive - causes skin and eye burns. Can cause allergic respiratory reaction and allergic skin reaction. Can be harmful if absorbed through skin and may be harmful if swallowed.

**Primary Route(s) of Entry:** Dermal; heated product may produce inhalable vapors.

**Acute Exposure:** Corrosive. Causes skin and eye burns.

### 4. FIRST AID MEASURES

**Ingestion:** Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Seek immediate medical attention.

**Skin:** Immediately wash with soap and water. Remove contaminated clothing and launder before reuse. Destroy contaminated shoes. Seek immediate medical attention.

**Inhalation:** Remove to fresh air. Seek immediate medical attention.

**Eyes:** Immediately flush eyes with water for at least 15 minutes. Seek immediate medical attention.

**Overexposure Effects:** Corrosive - causes skin and eye burns. Can cause allergic respiratory reaction and allergic skin reaction. Can be harmful if absorbed through skin and may be harmful if swallowed.

**Medical Conditions Aggravated by Exposure:** Skin, eye and pulmonary conditions.

**Additional Information:** Referral to a physician is recommended if there is any question about the seriousness of any injury.

### 5. FIRE FIGHTING MEASURES

**Flash Point:** > 200°F (> 93 °C)

**Flash Point Method Used:** Estimated

**Flammable Limits in Air (Lower - % by volume):** Not established

**Flammable Limits in Air (Upper - % by volume):** Not established

**Fire Fighting Extinguishing Media:** Carbon dioxide, dry chemical, foam, water.

**Fire Fighting Equipment:** Use self-contained breathing apparatus.

**Fire and Explosion Hazards:** Decomposition and combustion products may be toxic.

### 6. ACCIDENTAL RELEASE MEASURES

**Accidental Release Measures:** Remove spillage by absorbing in absorbent material.



Effective Date: 2/19/09

## 7. HANDLING AND STORAGE

**Signal Word:** Danger!

**Precautions:** Corrosive - causes skin and eye burns. Can cause allergic respiratory reaction and allergic skin reaction. Can be harmful if absorbed through skin and may be harmful if swallowed. Do not get in eyes, on skin, or on clothing. Avoid breathing vapor or mist. Avoid tasting or swallowing. Keep container closed when not in use. Use with adequate ventilation. Wash thoroughly after handling. Notice! Overexposure may have effects on developing fetus.

**Other Handling Information:** Nuisance dust may be generated when sanding or sawing cured material.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Skin Protection:** Wear impermeable gloves.

**Respiratory Protection:** Use NIOSH approved organic vapor cartridge respirator when vapor/mist exposure is likely.

**Eye Protection:** Wear splash-proof chemical goggles.

**Engineering Controls:** General mechanical and local exhaust in accordance with ACGIH recommendations.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Color:</b>	Amber
<b>Odor:</b>	Amine
<b>Physical State:</b>	Liquid
<b>Solubility in Water:</b>	Moderate
<b>Vapor Pressure:</b>	Not Determined
<b>Specific Gravity:</b>	0.96 (water = 1)
<b>Boiling Point:</b>	Not Determined
<b>Evaporation Rate:</b>	Not Determined
<b>Vapor Density:</b>	Not Determined
<b>pH:</b>	Not Determined
<b>Coefficient of water/oil:</b>	Not Determined

**Percent Volatile:** Negligible.

## 10. STABILITY AND REACTIVITY

**Conditions to Avoid:** Excessive heat for prolonged periods of time.

**Stability:** Stable.

**Incompatibility:** Strong oxidizers, acids and bases.

**Hazardous Decomposition Products:** Combustion may form toxic materials, such as carbon dioxide, carbon monoxide.

**Hazardous Polymerization:** Will not occur.

Effective Date: 2/19/09

**11. TOXICOLOGICAL INFORMATION**

**Acute Oral Effects (LD50):** Component(s) are slightly toxic, 500 - 5000 mg/kg (rat).  
Diethylenetriamine= 1080 - 2330 mg/kg (rat)

**Acute Dermal Toxicity (LD50):** Component(s) are toxic, 200 - 1000 mg/kg (rabbit).  
Diethylenetriamine= 672 - 1240 mg/kg (rabbit)

**Sensitization:** May cause allergic skin reaction and respiratory sensitivity in some people.

**Skin Irritation:** Corrosive. Causes burns.

**Eye Irritation:** Corrosive. Causes burns.

**12. ECOLOGICAL INFORMATION****13. DISPOSAL CONSIDERATIONS**

**Waste Disposal Method:** Consult qualified local or corporate personnel for method that will comply with local, state and federal health and environmental regulations.

**14. TRANSPORT INFORMATION****DOT: Non-Bulk**

<b>Proper Shipping Name:</b>	Polyamines, liquid, corrosive, N.O.S.
<b>Technical Shipping Name (If n.o.s.):</b>	Polyoxypropylenediamine, Diethylene triamine
<b>Hazard Class:</b>	8
<b>ID Number:</b>	UN 2735
<b>Packing Group:</b>	PG II
<b>Label:</b>	Corrosive

**IATA: Non-Bulk**

<b>Proper Shipping Name:</b>	Polyamines, liquid, corrosive, N.O.S.
<b>Technical Shipping Name (If n.o.s.):</b>	Polyoxypropylenediamine, Diethylene triamine
<b>Hazard Class:</b>	8
<b>ID Number:</b>	UN 2735
<b>Packing Group:</b>	PG II
<b>Label:</b>	Corrosive

**IMDG: Non-Bulk**

<b>Proper Shipping Name:</b>	Polyamines, liquid, corrosive, N.O.S.
<b>Technical Shipping Name (If n.o.s.):</b>	Polyoxypropylenediamine, Diethylene triamine
<b>Hazard Class:</b>	8
<b>ID Number:</b>	UN 2735
<b>Packing Group:</b>	PG II
<b>Label:</b>	Corrosive

**TDG: Non-Bulk**

<b>Proper Shipping Name:</b>	Polyamines, liquid, corrosive, N.O.S.
<b>Technical Shipping Name (If n.o.s.):</b>	Polyoxypropylenediamine, Diethylene triamine
<b>Hazard Class:</b>	8
<b>ID Number:</b>	UN 2735
<b>Packing Group:</b>	PG II

Effective Date: 2/19/09

Label: Corrosive

**15. REGULATORY INFORMATION****US Federal Regulations:**

**Occupational Safety and Health Act (OSHA):** This Material Safety Data Sheet (MSDS) has been prepared in compliance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200. This product is considered to be a hazardous chemical under that standard.

**Resource Conservation and Recovery Act (RCRA):** Not a hazardous waste under RCRA (40 CFR 261) but handle with care due to corrosive effect on skin and eyes.

**SARA Title III: Section 313 Toxic Chemical List (TCL):** This product does not contain any chemicals for routine annual toxic chemical release reporting under Section 313 (40 CFR 372).

**TSCA Section 8(b) - Inventory Status:** All chemical components of this product are in compliance with TSCA inventory requirements.

**TSCA Section 12(b) - Export Notification:** This product does not contain any chemical(s) that are subject to a Section 12(b) export notification.

**International Regulations:**

**Australian Inventory Status:** This product contains one or more chemicals currently not on the Australian Inventory of Chemical Substances.

**Canadian Inventory Status:** This product contains one or more chemicals currently not on the Canadian Domestic Substance List.

**Canadian WHMIS:** This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations. D2B, E

**European Inventory Status (EINECS):** This product contains one or more chemicals currently not on the European Inventory of Existing Commercial Chemical Substances (EINECS) or Pre-market notified.

**Japanese Inventory Status:** This product contains one or more chemicals currently not on the Japanese Ministry of International Trade and Industry List of Existing and New Chemical Substances.

**State Regulations:**

**California Proposition 65:** This product does not contain any chemicals currently on the California list of Known Carcinogens and Reproductive Toxins.

**Pennsylvania Right-to-Know:** The following is required composition information:

Chemical Name: Poly[Oxy(Methyl-1,2-Ethanediy)], .alpha.-(2-Aminomethylethyl)-.omega.-(2-Aminomethylethoxy)-

Common Name: Polyoxypropylenediamine

CAS Number: 9046-10-0

Comment: Not on Pennsylvania Hazardous Substance List

**Effective Date:** 2/19/09

Chemical Name: 1,2-Ethanediamine, N-(2-aminoethyl)-  
Common Name: Diethylenetriamine  
CAS Number: 111-40-0  
Comment: Hazardous Substance

Chemical Name: 1H-Imidazole-1-ethanol, 2-(heptadecenyl)-4,5-dihydro-  
Common Name: Substituted imidazole  
CAS Number: 27136-73-8  
Comment: Not on Pennsylvania Hazardous Substance List

Chemical Name: Phenol, Nonyl-  
Common Name: Nonyl Phenol  
CAS Number: 25154-52-3  
Comment: Hazardous Substance

**16. OTHER INFORMATION**

<b>MSDS No:</b>	11241
<b>Reason Issued:</b>	Update 2/09
<b>Approved By:</b>	Dianne Blessing
<b>Title:</b>	EH&S Specialist

**Other Information:** B10020030 (B03)

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