



**RANDOLPH AUSTIN COMPANY**

[www.RandolphAustin.com](http://www.RandolphAustin.com)

# Operations Manual

## Pump Series: **250**

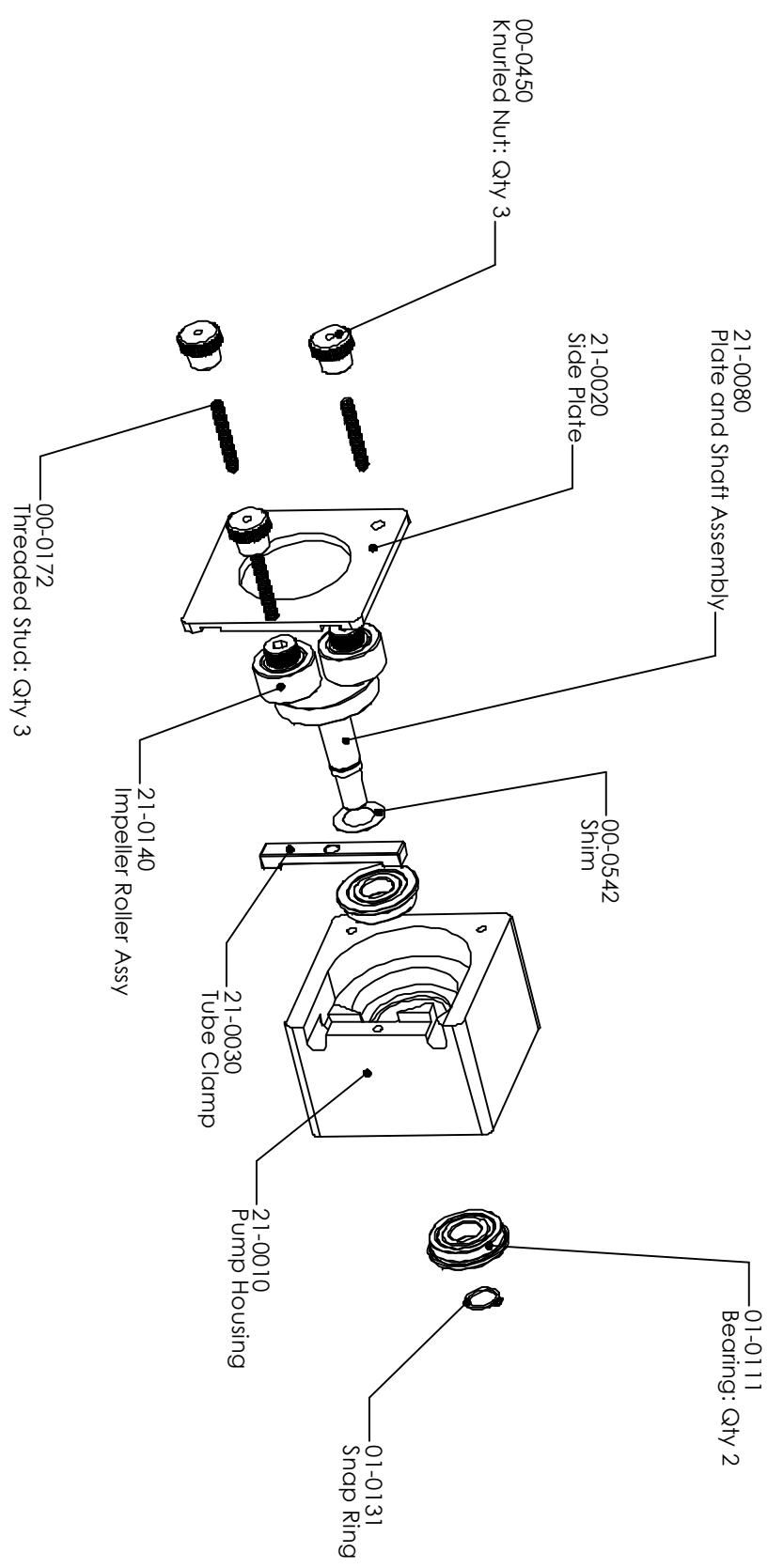
Model #250-110, 250-120,  
250-130, 250-140, 250-150

- 250 Pump Head
  - 115 VAC, 60 Hz, Shaded Pole Motor Assemblies
  - Fixed Speed, Single Direction Motors
- Tubing Sizes:
  - 1/16" ID x 3/16" OD
  - 1/4" ID x 3/8" OD

**Randolph Austin Company**  
**2119 FM 1626**  
**Manchaca, Texas 78652**  
**(512) 282-1590**



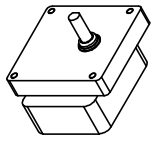
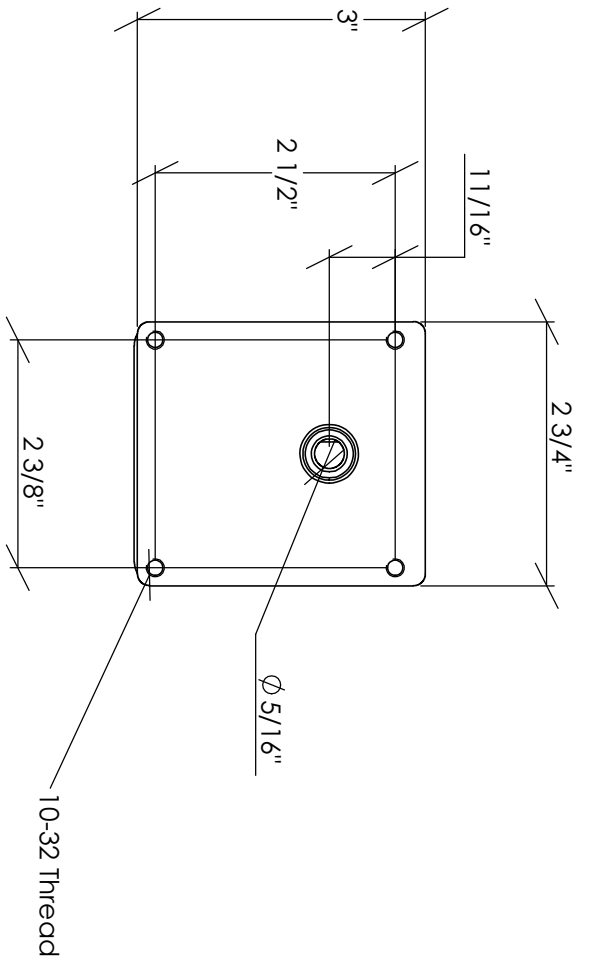
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Rev	Description	By	Date
1	New Print		09-10-02

ITEM NO.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION	QTY
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:				
FRACTIONS DECIMALS ANGLES				
+/- 1/64 .XX +/- .01 + 1				
.XXX +/- .005				
MATERIAL --				
FINISH --				
DO NOT SCALE DRAWING				
QUAL ENG				
MFG ENG				
RES' ENG				
CHECKED				
DATE				
APPROVALS				
DO NOT MANUALLY UPDATE				
CAD GENERATED DRAWING.				
PARTS LIST				
Randolph Austin Company				
Exploded View: 250 Pump				

Rev	Description	By	Date	APPLICATION	USED ON	SCALE	SIZE	DWG. NO.	CAD FILE	SHEET	OF
1	New Print		09-10-02	APPLICATION	USED ON	SCALE	A	250-PHO			

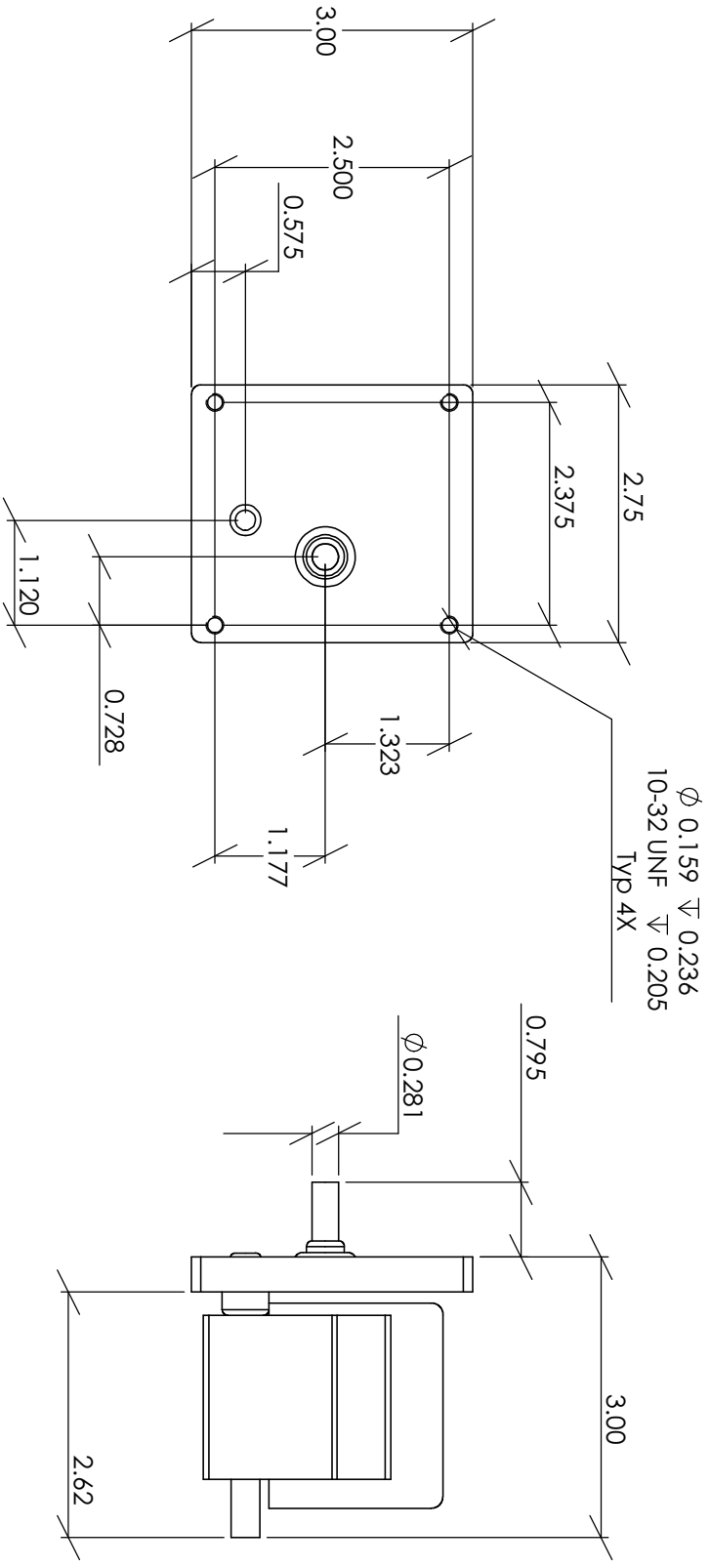


Catalog Number	Description	RPM	Power	CSA Certified	Lubrication
03-0033	Shaded Pole Motor, Geared	18	115 VAC, 60 Hz, 1 Ph	31462	Grease Filled
03-0034	Shaded Pole Motor, Geared	25	115 VAC, 60 Hz, 1 Ph	31462	Grease Filled
03-0035	Shaded Pole Motor, Geared	50	115 VAC, 60 Hz, 1 Ph	31462	Grease Filled

<p style="text-align: center;"><b>PROPRIETARY AND CONFIDENTIAL</b></p> <p>THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF Randolph Austin Company. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF Randolph Austin Company IS PROHIBITED.</p>		<p style="text-align: center;">DIMENSIONS ARE IN INCHES</p> <p>TOLERANCES:            FRACTIONAL: ± 1/64            ANGULAR: MACH ± 1°            TWO PLACE DECIMAL ± .010            THREE PLACE DECIMAL ± .005</p>		<p>DRAWN</p> <p>CHECKED</p> <p>ENG APPR.</p> <p>MFG APPR.</p> <p>Q.A.</p> <p>COMMENTS:</p>	<p>NAME</p> <p>DATE</p>
		<p>FINISH</p> <p>---</p>	<p>APPLICATION</p>	<p>DO NOT SCALE DRAWING</p>	<p>SIZE: <b>A</b></p> <p>DWG. NO.: <b>03-003X</b></p> <p>SCALE: 1:2</p> <p>WEIGHT:</p> <p>SHEET 1 OF 2</p>

**Randolph Austin Company**

Motor - Shaded Pole Motor  
250 Pump  
Centered Motors



Cat No	Description	RPM	Power	CSA Certification	Lubrication
03-0031	Shaded Pole, Gear Motor	1.1	1/100 HP, 60 Hz, 115 VAC, 1 Ph	31462	Grease Filled
03-0032	Shaded Pole, Gear Motor	6.9	1/100 HP, 60 Hz, 115 VAC, 1 Ph	31462	Grease Filled

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APPLICATION	USED ON	FINISH	DO NOT SCALE DRAWING
		---	

DIMENSIONS ARE IN INCHES  
 TOLERANCES:  
 FRACTIONAL: ± 1/64  
 ANGULAR: MACH ± 1°  
 TWO PLACE DECIMAL ± .010  
 THREE PLACE DECIMAL ± .005

DRAWN	NAME	DATE
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		
COMMENTS:		

**Motor - Shaded Pole Motor  
 250 Pump  
 Off-Centered Motors**

Randolph Austin Company

SIZE: **A** DWG. NO.: 03-003X REV.  
 SCALE: 1:2 WEIGHT: SHEET 2 OF 2

# Randolph Austin Company

## Tubing Chemical Resistance Chart

Code indicates the percentage weight gain or loss after 24 hours immersion in the fluid.

(B) Best = 1-4%, (G) Good = 5-10%, (F) Fair = 11- 15%, (P) Poor = 16%+

The data contained herein are based on tests conducted on representative samples and are considered accurate. The results should indicate liquids that could be used with the tubing. However no guarantee is given or implied regarding the application of this data to the safe use of the tubing. It is suggested that the purchaser conduct tests to determine if this material is suited to this application.

	Cilran™	ED-Plex™	Povinal™	Prothane II™	Vytex™
<b><u>Aqueous Solutions</u></b>					
Water	B	B	P	B	B
Sodium Chloride (Saturated)	B	B	F	B	B
Aluminum Sulfate	B	B	P	B	B
<b><u>Acids &amp; Bases</u></b>					
Sulphuric Acid (66° Be)	B	B	P	G	B
Acetic Acid, Glacial	B	P	P	P	F
Hydrochloric Acid (30° Be)	B	B	P	P	G
Nitric Acid (40° Be)	B	B	P	P	G
Sodium Hydroxide (50% sol.)	B	B	P	B	B
Ammonia Hydroxide	B	B	P	B	B
<b><u>Aliphatic Hydrocarbons</u></b>					
Diesel Fuel	P	P	B	G	G
Naptha	P	P	B	G	G
Mineral Oil	P	P	B	G	B
<b><u>Aromatic Hydrocarbons</u></b>					
Toluene	P	P	B	P	P
Xylene	P	P	B	P	G
<b><u>Chlorinated Solvents</u></b>					
Trichloroethylene	P	P	B	P	P
Carbon Tetrachloride	P	P	B	P	P
Methylene Chloride	P	P	B	P	P
<b><u>Ketones</u></b>					
Acetone	B	B	F	P	P
Methyl Ethyl Ketone (MEK)	G	G	F	P	P
<b><u>Esters</u></b>					
Amyl Acetate	P	B	F	P	P
Butyl Acetate	P	B	F	P	P
Ethyl Acetate	P	F	F	P	P
<b><u>Alcohol</u></b>					
Butyl Alcohol	G	G	P	G	B
Isopropyl Alcohol	G	B	F	B	B
Methyl Alcohol	B	B	F	G	B
Ethyl Alcohol (90%)	B	B	G	G	G
<b><u>Glycol</u></b>					
Ethylene Glycol	B	B	G	B	B
Glycerine	B	B	G	B	B
<b><u>Vegetable Oil</u></b>					
Safflower Oil	B	B	B	B	G

## HOW TUBING IS INSERTED IN THE PUMP

1. Turn power off. Remove side plate and tubing clamp. Remove existing tubing by manually turning rollers while gently tugging on the tubing.
2. Manually move rollers so that they are horizontal in relation to the base of the pump. Carefully insert tubing through the top tubing clamp section and the top of the pump housing. Manually turn the rotor in a counter clockwise direction until the roller begins to compress the tubing and begin feeding the tubing behind the bottom roller.
3. When the pump has moved ½ turn the tubing should be in a compressed state at the 9:00 o'clock position.
4. Return the side plate and tubing clamp to the pump. Tighten the knurled nuts on the side plate and tube clamp.

Tubing sizes and capacities of the Randolph Pump:

Pump Series	Tubing Size
250	.062" (3/16") ID x .187" (3/16") OD
250	.125" (1/8") ID x .250" (1/4") OD
300	.250" ( 1/4") ID x .437" (7/16") OD
400	.250" ( 1/4") ID x .437" (7/16") OD
510	.187" (3/16") ID x .375" (3/8") OD
510	.250" ( 1/4") ID x .437" (7/16") OD
610, 615, 620	.375" (3/8") ID x .625" (5/8") OD
610, 615, 620	.500" ( 1/2") ID x .750" (3/4") OD
750	.625" (5/8") ID x .937" (15/16") OD
750	.750" (3/4") ID x 1.062" (1 1/16") OD
880	.750" (3/4") ID x 1.125" ( 1 1/4") OD
880	1.00" ( 1") ID x 1.500" (1 1/2") OD

## Summary – Physical Properties of Randolph Austin Extruded Tubing

### Physical Tubing Properties – Cilran™

Specific Gravity	0.90
Tensile Strength(psi)	928
Ultimate Elongation (%)	374
Hardness(Shore 'A' Scale +/- 2)	55
Normal Working Temperature (F)	(-40° to 190°)
Tensile set @ 100%	11.9%
100% Modulus (psi)	20
Compression set(%)	103
Tear Strength(lbs per inch)	386

Cilran™ is made from a thermoplastic elastomer which possesses exceptional chemical resistance to acids and bases. Cilran™ has low gas permeability, good flex fatigue resistance and meets USP Class VI specifications. Ideal for use in many laboratory applications, it may be used in place of silicone for some applications. Cilran™ is translucent white in color and available in lengths up to 500 feet.

### Physical Tubing Properties – Prothane II™

Specific Gravity	1.18
Tensile Strength(psi)	2434
Ultimate Elongation (%)	870
Hardness(Shore 'A' Scale +/- 2)	68 A
Normal Working Temperature (F)	
Tensile set @ 100%	7.2%
100% Modulus (psi)	380
Compression set(%)	19
Tear Strength(lbs per inch)	274
Color	Aqua-Blue

PROTHANE II™ is a transparent, aqua blue, polyester polyurethane tubing that exhibits excellent abrasion resistance, has good low temperature properties and is resistant to ozone and oxidation. PROTHANE II™ exhibits an excellent resilience to continuous flexing and impacting experienced in peristaltic pumps. Along with these exceptional features PROTHANE II™ exhibits good hydrolic stability, good oil and fuel resistance and high tensile and tear strength. PROTHANEII™ is resistant to diesel fuel, kerosene, motor oil, mild solvents, aromatic hydrocarbons, gasoline, and concentrated acid and alkaline solutions. The tubing should be tested with the chosen fluid in all cases



## Summary – Physical Properties of Randolph Austin Extruded Tubing

### Physical Tubing Properties – ED-Plex™

Specific Gravity	0.98
Tensile Strength(psi)	928
Ultimate Elongation (%)	374
Hardness(Shore 'A' Scale +/- 2)	65
Normal Working Temperature (F)	(-40° to 190°)
Tensile set @ 100%	11.9%
100% Modulus (psi)	386
Compression set(%)	20
Tear Strength(lbs per inch)	103

E-D Plex™ is a multi-purpose tubing that is ideally suited for applications which range from transferring paint, ink, acids and bases. Some oil and hydrocarbons will work with E-D Plex™, but should be tested before use. Combining the environmental resistance of EPDM with the chemical resistance of chloroprene, E-D Plex™ possesses similar elastomeric performance found in more expensive vulcanized rubber, while still maintaining high flex fatigue resistance.. E-D Plex™ has been proven very successful in peristaltic pump applications where continuous flexing is required.

### Physical Tubing Properties – Vytex™

Specific Gravity	1.18
Tensile Strength(psi)	1936
Ultimate Elongation (%)	465
Hardness(Shore 'A' Scale +/- 2)	60
Normal Working Temperature (F)	(-34° to 165°)
Tensile set @ 100%	97%
100% Modulus (psi)	484
Compression set(%)	N/A
Tear Strength PPI	115

Vytex™ is a clear flexible polyvinyl tubing ideal for general purpose usage in applications with dilute aqueous solutions (both acids and alkali's) and for food and beverage usage. Strong acid solutions may be used with Vytex™ for short intervals, but should be flushed with water after use. The smooth surface allows for easy flushing and cleanup for food and beverage applications. Vytex™ is a durable, high flex tubing with a Shore "A" durometer of 60 allowing a long life expectancy for continuous flexing where peristaltic pumps are used. Available in lengths up to 500 feet.

## Summary – Physical Properties of Randolph Austin Extruded Tubing

### Physical Properties – Povinal™

Specific Gravity	1.01
Tensile Strength(psi)	928
Ultimate Elongation (%)	374
Hardness(Shore 'A' Scale +/- 2)	65
Normal Working Temperature (F)	(15° to 125°)
Tensile set @ 100%	11.9%
100% Modulus (psi)	386
Compression set(%)	20
Tear Strength(lbs per inch)	103

Povinal™ is a polyvinyl alcohol based tubing which is excellent for use in applications with aliphatic, aromatic and chlorinated hydrocarbon solvents. Povinal™ has good flex fatigue resistance and is suitable for many industrial applications. It may be used as a substitute for fluoroelastomer polymers in some applications. Not recommended for use with water or solutions containing concentrations of water. Available in lengths up to 500 feet. Pump tubing is teal in color. Transfer tubing is amber.

# Material Safety Data Sheet

Date of Preparation: 03-25-2009

Revision: A

## Section 1 - Chemical Product and Company Identification

**Product/Chemical Name:** Tube Lube™ / Lubricant / Chemical Family - oxygenated hydrocarbon

**Manufacturer:** Randolph Austin Company, 2119 FM 1626, Manchaca, TX 78652 **Tel :** 512-282-1590 **Fax:** 512-280-0678

## Section 2 – HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components/Ingredient Name	CAS Number	% wt or % vol
No Hazardous Ingredients	-	-

This product contains the following toxic chemical(s) subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986, and Subpart C-Supplier Notification Requirement of 40 CFR Part 372.

## Section 3 - Physical and Chemical Properties

**Physical State:** Liquid

**Appearance and Odor:** Colorless to Lightly Colored,  
Mild Odor

**Odor Threshold:** N/D

**Vapor Pressure:** N/D

**Vapor Density (Air=1):** N/A

**Specific Gravity (H<sub>2</sub>O=1):** .959 @ 68 Deg F

**Water Solubility:** NIL

**Boiling Point:** > 450 Deg F

**Melting Point:** N/A

**Evaporation Rate (Ethyl Ether = 1) :** < 1.000

**Freezing Point:** 14 Deg F

## Section 4 - First Aid Measures

**Inhalation:** None.

**Eye Contact:** Wear safety goggles upon handling. Flush eyes out for at least 15 minutes while holding eyelids apart.

**Skin Contact:** Immediately flush skin with plenty of water.

**Ingestion:** If swallowed, DO NOT induce vomiting. If vomiting occurs spontaneously, keep head below hips to avoid breathing of vomit into lungs.

**Carcinogen status:** No components, present in excess of 0.1% by weight are listed as carcinogens by IARC, NTP or OSHA  
*After first aid, get appropriate in-plant, paramedic, or community medical support.*

## Section 5 - Fire-Fighting Measures

**Flash Point:** 555 Deg F

**Extinguishing Media:** Dry Chemical / Carbon Dioxide

**Unusual Fire or Explosion Hazards:** Vapors concentrated in a confined or poorly ventilated area can ignite upon contact with spark, flame, or heated surface

**Hazardous Combustion Products:** Carbon Dioxide, Carbon Monoxide, misc. organic compounds, some possibly toxic.

**Fire-Fighting Instructions:** Do not release runoff from fire control methods to sewers or waterways.

**Fire-Fighting Equipment:** Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.



### Section 6 - Stability and Reactivity

**Stability:** Material is stable below temperature of 400°F.

**Polymerization:** Hazardous polymerization cannot occur.

**Chemical Incompatibilities:** inorganic acids and bases, bleaching agents (oxidizers)

**Conditions to Avoid:** Excessive heat, heated surfaces, static electricity, electric arcs, sparks and flames.

**Hazardous Decomposition Products:** Hydrogen Chloride.

### Section 7- Health Hazard Data

#### Toxicity Data:

**Routes of Entry/Inhalation:**

**NTP:** No

**Eye Effects:** No hazard expected in normal use.

**IARC Monographs:** No

**Inhalation:** No hazard expected in normal use.

**OSHA Regulated:** No

**Skin Effects:** No hazard expected in normal use.

**Ingestion:** Ingestion may cause diarrhea

### Section 8 - Handling and Storage

**Handling Precautions:** None

**Storage Requirements:** Store at room temperature. Keep away from lights, fire and sparks.

**Regulatory Requirements:** None

### Section 9 - Accidental Release Measures

**Spill /Leak Procedures:** Wear protective equipment, contain spill. If liquid, soak up spill with sand, earth, or sawdust. Shovel, sweep or vacuum up and place in dry, clean container.

### Section 10 – Control Measures

N/A

### Section 11 - Disposal Considerations

**Disposal:** Material that cannot be used or chemically reprocessed should be disposed of at an approved facility in accordance with State and local regulations

### Section 12 - Other Information

**Date Prepared:** March 25, 2009.

**Revision Notes:**

**Additional Hazard Rating Systems:**

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