




SAFETY DATA SHEET

1. Product Identification

Product Name	WR-LPU Paint Base(s)
SDS Number	1800A00
Product Type	Polyurethane Dispersion Mixture
Recommended Use Of The Chemical And Restrictions On Use	Marine top coat paint
Restrictions	None known
Manufacturer/Supplier Information	
Company Name	SYSTEM THREE RESINS, INC.
Address	3500 W. Valley Hwy, Suite Suite 105 Auburn, WA 98991-2436 United States
Telephone	1-253-333-8118
Website	www.systemthree.com
Email	support-08@systemthree.com
Emergency Contact	CHEMTREC (U.S. and CANADA) 1-800-424-9300 CHEMTREC (Outside the U.S.) 1-703-527-0585

2. Hazard(s) Identification

<u>Signal Word</u>	Danger
<u>Classification of the substance or mixture</u>	: Toxic to reproduction Category 1B
<u>GHS Label Elements</u> Hazard Pictograms	
<u>Hazard Statements</u>	: H360 May damage fertility or the unborn child.

<u>Precautionary Statements</u>	
Prevention	: P202 Do not handle until all safety precautions have been read and understood. : P281 Use personal protective equipment as required.
Response	: P308 + P313 If exposed or concerned: Get medical attention.
Storage	: P401 Store above 32 °F / 0 °C
Disposal	: P501 Dispose of contents / container in accordance with all local, regional, national and international regulations.
Supplemental Label Elements	: Do not taste or swallow. Avoid contact with skin or clothing. Wash thoroughly after handling.

Hazards not otherwise classified : Causes digestive tract burns. Prolonged or repeated contact may dry skin and cause irritation.

3. Composition/Information On Ingredients

Chemical Name	CAS Number	Content (% By Weight)
1-methyl, 2-Pyrrolidinone	872-50-4	5-10 %
2,2,4-Trimethyl-1,3-pentanediol Monoisobutyrate	25265-77-4	1-5%
1,2-propanediol	57-55-6	1-5%
Triethylamine	121-44-8	1-5%

Any concentration shown as a range is to protect confidentiality.

4. First-Aid Measures

Description of first aid measures

Eye contact	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contacts lenses. Continue to rinse for at least 10 minutes. Get medical attention.
Inhalation	If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Skin Contact	Wash skin thoroughly with soap and water or use recognized skin cleaner. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention if irritation persists. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute effects

Eye contact	: No known significant effects or critical hazards.
Inhalation	: May cause respiratory irritation. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Skin contact	: Causes skin irritation.

Ingestion : Corrosive to the digestive tract. Causes burns.

Over-exposure signs/symptoms

Eye contact : No specific data

Inhalation : Adverse symptoms may include the following:
Reduced fetal weight
Increased fetal deaths
Skeletal malformations

Skin contact : Adverse symptoms may include the following:
Irritation
Dryness
Cracking
Reduced fetal weight
Increased fetal deaths
Skeletal malformations

Ingestion : Adverse symptoms may include the following:
Stomach pains
Reduced fetal weight
Increase in fetal deaths
Skeletal malformations

Indications of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatment : No specific treatment

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear a properly fitted NIOSH certified respirator, or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

5. Fire-Fighting Measures

Suitable extinguishing media : All extinguishing media are suitable.

Unsuitable extinguishing media : None known

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
Carbon dioxide
Carbon monoxide
Nitrogen oxides
Aldehydes
Organic acids

Special protective actions for fire-fighters : Promptly evacuate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Remarks This material will not support combustion unless the water has evaporated.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personal : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear properly fitted NIOSH certified respirator when ventilation is inadequate. Wear the appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in section 8 on suitable and unsuitable materials. See also information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil)

Methods and materials for containment and clean up

Small spill : Stop leak if without risk. Ventilate area. Move containers from spill area. Dilute with water and mop up. Alternatively, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak without risk. Ventilate area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: See section 1 for emergency contact information and section 13 for waste disposal.

7. Handling And Storage

Precautions for safe handling : Always wear personal protective equipment when handling (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Avoid exposure – obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear an appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene	: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas.
Conditions for safe storage, including any incompatibilities	: Store between 40 to 90 °F (4-32 °C). Store in accordance with local regulations. Store in a dry, cool and well-ventilated area, out of the reach of children or pets. Keep container tightly closed and sealed until ready for use. Do not store in unlabeled containers. Store in original container, protected from direct sunlight.
Chemical incompatibilities	: None known.

8. Exposure Controls/Personal Protection

Control parameters

Occupational exposure limits

Ingredient	Exposure limit
1-methyl, 2-Pyrrolidinone	AIHA WEEL (United States, 10/2011). Absorbed through skin. TWA: 10 ppm 8 hours.
2,2,4-Trimethyl-1,3-pentanediol Monoisobutyrate	None established
1,2-propanediol	None established
Triethylamine	ACGIH TLV (United States, 4, 2014). Absorbed through skin. TWA: 1 ppm/8 hours. TWA: 4.1 mg/m/8 hours STEL: 3 ppm/15 minutes STEL: 12 mg/m/15 minutes OSHA PEL 1989 (United States, 3/1989). TWA: 10 ppm/8 hours TWA: 40 mg/m/8 hours STEL: 60 mg/m/15 minutes OSHA PEL (United States 2/2013). TWA: 25 ppm/8hours TWA: 100 mg/m/8hours

Appropriate engineering controls : Use only with adequate ventilation. Wear personal protection equipment when handling.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking, and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Splash proof goggles or safety spectacles with side shields are recommended.

Hand protection	: Always wear impervious gloves, neoprene, vinyl or rubber.
Skin protection	: Wear clean, body-covering clothing to avoid skin contact.
Respiratory protection	: Use a properly fitted NIOSH certified respirator, or air-fed respirator complying with an approved standard if risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
General hygiene during/after use	Wear gloves at all times when handling product, avoid direct contact with skin. When finished using product, dispose of gloves properly and wash hands with warm, soapy water.

9. Physical And Chemical Properties

Chemical family	: Aqueous Urethane
Physical State	: Aqueous Solution
Form	: Liquid
Color	: Translucent
Odor	: Mild
Odor threshold	: Not determined
Density (Specific gravity)	: 8.74 lbs. /gal. (1.05)
Viscosity	: 800 cps @ 25°C
pH	: 8-8.5
Melting point/freezing point	: Data not available
Initial boiling point and boiling range	: Approximately 212 °F (100 °C)
Flash point	: >212 °F (100 °C) Closed Cup
Evaporation rate	: Data not available
Flammability (solid, gas)	: Data not available
Upper/lower flammability or explosive limits	: Data not available
Upper flammability limit (by volume)	: N/A
Lower flammability limit (by volume)	: N/A
Material VOC	: = <370 grams/liter
Vapor density	: Heavier than air
Relative density	: Not determined
Solubility	: Data not available
Auto-ignition temperature	: Data not available
Decomposition temperature	: Data not available

10. Stability And Reactivity

Reactivity	: No specific data
Chemical stability	: Stable
Possibility of hazardous reactions	: Hazardous polymerization will not occur
Conditions to avoid	: No specific data
Incompatible materials	: No specific data
Hazardous decomposition products	: No specific data

11. Toxicological Information

<u>Information on toxicological effects</u>					
<u>Acute toxicity</u>					
Ingredient	Result	Species	Dose	Exposure	Hazard Statement Code(s)
1-methyl, 2-Pyrrolidinone	LC50 Inhalation LD50 Dermal LD50 Dermal LD50 Oral LD50 Oral LC50 Inhalation vapor LD50 Oral	Rat Rabbit Rat Rat Rat Rabbit Rat	>5.1 mg/l 8000 mg/kg 7000 mg/kg 3600 mg/kg 4150 mg/kg 7.1 mg/l 570 mg/kg 460 mg/kg	4 hours - - - - 4 hours -	H315, H319, H335, H360D, H370
2,2,4-Trimethyl-1,3-pentanediol Monoisobutyrate	LD50 Oral LD50 Dermal LD50 Dermal LCLo LCLo	Rat Rabbit Guinea Pig Rat Rat	>3,200 mg/kg >15,200 mg/kg >19,000 mg/kg >2.73 mg/l >3.55 mg/l	- - - 6 hours 6 hours	H315, H319, H335, H412
1,2-propanediol	LD50 Oral LC50 Inhalation LD50 Dermal	Rat Rabbit Rabbit	>5,000 mg/kg >20mg/l >2,000 mg/kg	- 4 hours -	H302, H315, H317, H319, H335, H336, H412
Triethylamine	LD50 Oral LD50 Dermal	Rat Rabbit	460 mg/kg 570 mg/kg	- -	H302, H312, H314, H332
<u>Irritation / Corrosion</u>					
Ingredient	Result	Species	Dose	Exposure	Hazard Statement Code(s)
1-methyl, 2-Pyrrolidinone	Skin irritant	-	-	-	H315
2,2,4-Trimethyl-1,3-pentanediol Monoisobutyrate	Slight irritation	Rabbit	-	24 hours	H315
1,2-propanediol	May cause slight transient skin irritation.	-	-	-	H315
Triethylamine	Hazardous to skin	-	-	-	H314
<u>Mutagenicity</u>					
Ingredient	Test	Experiment			Hazard Statement Code(s)
1-methyl, 2-Pyrrolidinone	Ames	In vitro: Subject: Bacteria / negative			-
2,2,4-Trimethyl-1,3-pentanediol Monoisobutyrate	Ames	In vitro: Subject: Bacteria / negative In vitro: Subject: Chromosomal aberration/ negative In vitro: Subject: Mammalian / negative			- - -
Triethylamine	-	In vitro: Subject: Bacteria / negative			-

		In vitro Subject: Mammalian-animal	
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Carcinogenicity No data available.

Reproductive toxicity No data available.

Teratogenicity No data available.

Sensitization Not sensitizing

Specific target organ toxicity (single exposure)

Ingredient	Category	Route of Exposure	Hazard Statement Code(s)
1-methyl, 2-Pyrrolidinone	Cat. 3	Respiratory tract irritation.	-

Specific target organ toxicity (repeated exposure)

No data available

Aspiration hazard

No data available

Potential acute health effects

Eye contact : No know significant effects or critical hazards.

Inhalation : May cause respiratory irritation. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Skin contact : Causes skin irritation.

Ingestion : Corrosive to the digestive tract. Causes burns.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : Adverse symptoms may include the following:
reduced fetal weight, increase in fetal deaths, skeletal malformations

Skin contact : Adverse symptoms may include the following:
Irritation, dryness, cracking, reduced fetal weight, increase in fetal deaths, skeletal malformation.

Ingestion : Adverse symptoms may include the following:
Stomach pains, reduced fetal weight, increase in fetal deaths, skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available

Potential delayed effects : Not available

Long term exposure

Potential immediate effects : Not available

Potential delayed effects : Not available

Potential chronic health effects				
Ingredient	Result	Species	Dose	Exposure
Triethylamine	Sub-chronic NOAEC inhalation vapor	Rat	247	28 weeks; 6 hours per day

General : Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : May damage the unborn child.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	15889.9 mg/kg
Dermal	31585.9 mg/kg
Inhalation (gases)	249362.2 ppm
Inhalation (vapors)	393.4 mg/l
Inhalation (dust and mists)	83.12 mg/l

12. Ecological Information

Toxicity

Ingredient	Result	Species	Exposure
1-methyl, 2-Pyrrolidinone	Acute EC50 >9000 mg/l	Bacteria	48 hours
	Acute EC50 >1000 mg/l	Daphnia	24 hours
	Acute EC50 >600 mg/l	Micro-organism	.5 hours
	Acute IC50 >500 mg/l	Algae	72 hours
	Acute LC50 >500 mg/l	Fish	96 hours
	Chronic NOEC 12.5 mg/l	Daphnia	21 days
	2,2,4-Trimethyl-1,3-pentanediol Monoisobutyrate	Acute LC50 33mg/l	Fish
Acute EC50		Daphnia	
Triethylamine	Acute EC50 1.167 mg/l	Algae	96 hours
	Acute EC50 95 mg/l	Bacteria	17 hours
	Acute EC50 17 mg/l	Daphnia	48 hours
	Acute LC50 36 mg/l	Fish	96 hours
	Acute NOAEC 12 mg/l	Daphnia	48 hours
	Acute NOAEC 16 mg/l	Fish	-
	Chronic LC50 137 mg/l	Fish	60 days
	Chronic NOEC 7.1 mg/l	Daphnia	7 days
Chronic NOEC 3.2 mg/l	Fish	60 days	

Persistence and degradability

Ingredient	Test	Results	Dose	Inoculum
1-methyl, 2-Pyrrolidinone	301C Ready Biodegradability	73% - Readily - 28 days	-	-

	Modified MITI Test (I)			
2,2,4-Trimethyl-1,3-pentanediol Monoisobutyrate	Ready Biodegradability-CO2 Evolution Test	77% Readily – 28 days	-	-
1,2-propanediol	Ready Biodegradability-	72-100% - 28 days	-	-
Triethylamine	OECD 301B Ready Biodegradability-CO2 Evolution Test	80% Readily – 21 days	-	-

Bioaccumulative potential			
Ingredient	LogPow	BCF	Potential
1-methyl, 2-Pyrrolidinone	0.46	.2	Low
2,2,4-Trimethyl-1,3-pentanediol Monoisobutyrate	-	-	No data available
1,2-propanediol	-	-	Not expected to bioaccumulate
Triethylamine	1.45	<.5	Low

Mobility in soil	
Soil/water partition coefficient	: Not available
Other adverse effects	: No known significant effects or critical hazards.

13. Disposal Considerations

Waste Disposal Method

The generation of waste should be avoided wherever possible. Disposal of this product should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus product via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

14. Transport Information

	DOT Classification	TDG Classification	Mexico Classification	ADR/RID	IMDG	IATA
UN Number	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-	-	-
Transport hazard class(s)	-	-	-	-	-	-
Packing group	-	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.	No.

15. Regulatory Information

U.S. Federal regulations

: **United States Inventory (TSCA 8b)**: All components are listed or exempted.
 : **Clean Water Act (CWA) 311**: Triethylamine

	Ingredient name	CAS #	%
Clean Air Act Section 112(b) Hazardous Air Pollutants	Triethylamine	121-44-8	1.8

	Product name	CAS number	%
Form R – Reporting requirements	1-methyl, 2-Pyrrolidinone	872-504	8.5
	Triethylamine	121-44-8	1.8
SARA Title III Section 313	1-methyl, 2-Pyrrolidinone	872-504	8.5
	Triethylamine	121-44-8	1.8

State regulations

Massachusetts : The following components are listed: 1-methyl, 2-Pyrrolidinone, Triethylamine

New York : The following components are listed: Triethylamine

New Jersey : The following components are listed: 1-methyl, 2-Pyrrolidinone, Triethylamine

Pennsylvania : The following components are listed: 1-methyl, 2-Pyrrolidinone, Triethylamine

California Prop. 65

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

Ingredient	Cancer	Reproductive	No significant risk	Maximum acceptable dosage level
1-methyl, 2-Pyrrolidinone	No	Yes	No	3200 µg/day (inhalation)

International regulations

Canada inventory : All components are listed or exempt.

Chemical Weapons : Not listed

Convention List Schedule I, II & III Chemicals

16. Other Information, Including Date of Preparation or Last Revision

Hazardous Material Information System : Health 3*
: Flammability 1
: Physical hazards 1
: Personal protection

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks.

Date of Preparation June 1, 2015
More Information 1-253-333-8118
Prepared By R. Wirtz

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