

1. Product Identification

Product name	WR-LPU Clear Satin
SDS Number	1802A00
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 N Suite 105 Auburn, WA 98001-2436 United States
Telephone	1-253-333-8118
Website	www.systemthree.com
Email	support@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

Classification of substance or mixture/Signal Word DANGER
Toxic to Reproduction (Unborn Child) – Category 1B

GHS Label Elements
Hazard Pictograms



Hazard Statements/Classification of substance or mixture H360 May damage fertility or the unborn child.

Precautionary statements

Precautionary Statements
Prevention

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P308 + P313 IF exposed or concerned: Get medical advice/attention.
P405 Store locked up.
P501 Dispose of contents in accordance with local/regional/national/international regulations.

Response

Storage

Disposal

Hazards not otherwise classified (HNOC)

Causes digestive tract burns. Prolonged or repeated contact may dry skin and cause irritation.

3. Composition/Information On Ingredients

Chemical Name	CAS Number	Content (%)
2-Pyrrolidinone, 1-methyl-	872-50-4	5 – 10%
Triethylamine	121-44-8	1 – 5%
2,2,4-trimethyl-1,3-pentanediol monoisobutyrate	25265-77-4	1 – 5%
Propylene Glycol	57-55-6	1 – 5%
Silicon dioxide	7631-86-9	<1%

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section. Occupational exposure limits, if available, are listed in Section 8.

4. First-Aid Measures

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.

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.

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.

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.

Indication 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 treatments

No specific treatment.

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

6. Accidental Release Measures

Personal precautions	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.
Emergency procedures	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".
Methods and materials for containment/cleanup	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.
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).

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.
Precautions/Recommendations for safe/proper storage	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.

8. Exposure Controls/Personal Protection

Occupational Exposure Limits

Components	CAS No.	Type	Value
2-Pyrrolidinone, 1-methyl-	872-50-4	AIHA WEEL (United States, 10/2011). Absorbed through skin.	TWA: 10 ppm 8 hours.
Triethylamine	121-44-8	ACGIH TLV (United States, 4/2014). Absorbed through skin.	TWA: 1 ppm 8 hours. TWA: 4.1 mg/m ³ 8 hours. STEL: 3 ppm 15 minutes. STEL 12 mg/m ³ 15 minutes.
		OSHA PEL 1989 (United States, 3/1989).	TWA: 10 ppm 8 hours. TWA: 40 mg/m ³ 8 hours. STEL: 15 ppm 15 minutes. STEL: 60 mg/m ³ 15 minutes.
		OSHA PEL (United States, 2/2013).	TWA: 25 ppm 8 hours. TWA: 100 mg/m ³ 8 hours.
2,2,4-trimethyl-1,3-pentenediol monoisobutyrate	25265-77-4	Not established	Not established
Propylene Glycol	57-55-6	Not established	Not established

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/Personal protective equipment

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.

Special instructions for protection and hygiene

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.

9. Physical and Chemical Properties

Chemical family

Aqueous Urethane

Appearance

Aqueous solution

Physical State	Aqueous solution
Form	Liquid
Color	Translucent
Odor	Mild
Density (Specific Gravity)	8.74 lb/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 limit (by volume)	Data not available
Upper flammability limit (by volume)	Data not available
Lower flammability limit (by volume)	Data not available
Material VOC	≤370 grams/liter
Vapor density	Heavier than air
Relative density	Not determined
Solubility in water	Data not available
Partition coefficient: n-octanol/water	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.
Other hazards	None known.

11. Toxicological Information

Acute Health Hazard (components) No comprehensive data (ingestion, inhalation, dermal) on mixture (product).

Component	Result	Species	Dose	Exposure
2-Pyrrolidinone, 1-methyl-	LC50 Inhalation	Rat	>5.1 mg/l	4 h
	LD50 Dermal	Rabbit	8000 mg/kg	-
	LD50 Dermal	Rat	7000 mg/kg	-

	LD50 Oral	Rat	3600 mg/kg	-
	LD50 Oral	Rat	4150 mg/kg	-
	LC50 Inhalation	Rat	7.1 mg/l	4 h
	vapor	Rabbit	570 mg/kg	-
	LD50 Oral	Rat	460 mg/kg	-
Trimethylamine	LD50 Oral	Rat	460 mg/kg	-
	LD50 Dermal	Rabbit	570 mg/kg	-
2,2,4-trimethyl-1,3-pentanediol monoisobutyrate	LD50 Oral	Rat	>3,200 mg/kg	-
	LD50 Dermal	Rabbit	>15,200 mg/kg	-
	LD50 Dermal	Guinea Pig	>19,000 mg/kg	-
	LCLo Inhalation	Rat	>2.73 mg/l (highest concentration tested)	6 h
	LCLo Inhalation	Rat	>3.55 mg/l	6 h
Propylene Glycol	LC50 Inhalation	Rabbit	>317,042 mg/m3	-

Irritation/Corrosion (components) No information on product itself.

Component	Result	Species	Test	Exposure
Trimethylamine	Skin – mild irritant	Rabbit	-	365 milligrams
	Skin – visible necrosis	Rabbit	-	1 to 15 minutes
	Eyes – cornea opacity	Rabbit	-	-
2,2,4-trimethyl-1,3-pentanediol monoisobutyrate	Skin – slight	Rabbit	-	24 h

Sensitization No information on product itself.

Mutagenicity No information on product itself.

Carcinogenicity No information on product itself.

Reproductive Toxicity No information on product itself.

Teratogenicity No information on product itself.

Specific target organ toxicity (single exposure) No information on product itself.

Component	Category	Route of exposure	Target organs
2-Pyrrolidinone, 1-methyl-	Category 3	Not applicable	Respiratory tract irritation

Specific target organ toxicity (repeated exposure) No information on product itself.

Aspiration hazard No information on product itself.

Potential acute health 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 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 malformations

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

No information on product itself.

Potential chronic health effects

No information on product itself.

Component	Result	Species	Dose	Exposure
Trimethylamine	Sub-chronic NOAEC Inhalation Vapor	Rat	247 ppm	28 weeks, 6 hours per day.

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

Carcinogenicity No significant effects or critical hazards.

Mutagenicity No significant effects or critical hazards.

Teratogenicity May damage the unborn child.

Developmental effects No significant effects or critical hazards.

Fertility effects No significant effects or critical hazards.

Numerical measures of toxicity

Data not available.

Acute toxicity estimates (ATEmix)

Route	ATE value
Oral	N/A
Dermal	N/A
Inhalation (vapors)	N/A

12. Ecological Information

Ecotoxicity

No information on product itself.

Component	Result	Species	Exposure
2-Pyrrolidinone, 1-methyl-	Acute EC50: >9000 mg/l	Bacteria	48 h
	Acute EC50: >1000 mg/l	Daphnia	24 h

	Acute EC50: >600 mg/l	Micro-organism	0.5 h
	Acute IC50: >500 mg/l	Algae	72 h
	Acute LC50: >500 mg/l	Fish	96 h
	Chronic NOEC: 12.5 mg/l	Daphnia	21 days
2,2,4-trimethyl-1,3-pentanediol monoisobutyrate	Acute LC50: 33 mg/l	Fathead Minnow	96 h
	Acute EC50: 147.8 mg/l	Water flea	48 h
	ErC50: >57 mg/l	Algae	72 h
Triethylamine	Acute EC50: 1.167 mg/l	Algae	96 h
	Acute EC50: 95 mg/l	Bacteria	17 h
	Acute EC50: 17 mg/l	Daphnia	48 h
	Acute LC50: 36 mg/l	Fish	96 h
	Acute NOAEC: 12 mg/l	Daphnia	48 h
	Chronic NOEC: 7.1 mg/l	Daphnia	7 days

Persistence and degradability No information on product itself.

Component	Test	Period	Result
2-Pyrrolidinone, 1-methyl-	301C Ready Biodegradability – Modified MITI Test (I)	28 days	73% - Readily
Triethylamine	OECD 301B Ready Biodegradability – CO2 Evolution Test	21 days	80% - Readily
2,2,4-trimethyl-1,3-pentanediol monoisobutyrate	Ready Biodegradability – CO2 Evolution Test	28 days	77% - Readily

Bioaccumulative Potential No information on product itself.

Component	LogPow	BCF	Potential
2-Pyrrolidinone, 1-methyl-	-0.46	0.2	Low
Triethylamine	1.45	<0.5	Low

Mobility in Soil No information on product itself.

Soil/water partition coefficient (KOC) Not available.

Other adverse effects No known significant effects or critical hazards.

13. Disposal Considerations

Waste from residues/ unused products

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.

Contaminated packaging

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

14. Transport Information

The data provided in this section is for information only and may not be specific to your package size or mode of transport. You will need to apply the appropriate regulations to properly classify your shipment for transportation.

International Transport Regulations

Regulatory information	UN/NA number	Proper Shipping Name	Classes/*PG	Additional Information
DOT		Not regulated		
TDG		Not regulated		
IMO/IMDG		Not regulated		
IATA		Not regulated		

*PG: Packing group

Special precautions for user: Transport within user’s premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

15. Regulatory Information

UNITED STATES

U.S. Federal Regulations

United States – TSCA 12(b) – Chemical export notification: None Required.
United States – TSCA 5(a)2 – Final significant new use rules: Not Listed.
United States – TSCA 5(a)2 – Proposed significant new use rules: Not Listed.
United States – TSCA 5(e) – Substance consent order: Not listed.

Clean Air Act – Ozone Depleting Substances (ODS)

None known.

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)

Product Name	Concentration %
Triethylamine	1.8046

Pennsylvania – RTK

2-Pyrrolidinone, 1-methyl-, propylene glycol

California Prop. 65

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

Ingredient Name	Cancer	Reproductive
2-Pyrrolidinone, 1-methyl-	No.	Yes.

EPA SARA 302 Extremely Hazardous Substances

None known.

EPA SARA 302/304/311/312 Hazardous Chemicals

None known.

SARA 313 Form R – Reporting requirements

Product Name	Concentration %
2-Pyrrolidinone, 1-methyl-	8.5
Triethylamine	1.8

CERCLA Hazardous substances

Component	%	Section 304 CERCLA Hazardous Substance	CERCLA Reportable Quantity (Lbs)	Product Reportable Quantity (Lbs)
2-Pyrrolidinone, 1-methyl-				
Triethylamine				

United States inventory (TSCA 8b)

All components are listed or exempted.

CANADA**WHMIS (Canada)**

None.

Canadian NPRI

None required.

CEPA Toxic substances

None required.

INTERNATIONAL REGULATIONS**International Lists****Australia inventory (AICS):** All components are listed or exempted.**Canada inventory:** All components are listed or exempted.**Korea inventory:** All components are listed or exempted.**Japan inventory:** All components are listed or exempted.**China inventory (IECSC):** All components are listed or exempted.**New Zealand inventory (NZIoC):** All components are listed or exempted.**Philippines inventory (PICCS):** All components are listed or exempted.**Taiwan inventory (CSNN):** All components are listed or exempted.**16. Other Information, Including Date of Preparation or Last Revision**

HMIS Rating

Health	2
Flammability	1
Physical Hazard	0

Date of Preparation

March 15, 2019

Date of Last Revision

June 1, 2015

Revision #

2.0

More Information

1-253-333-8118

Prepared by

System Three Resins Inc.

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