

S310 MODERATE OPEN TIME - METAL\PLASTICS BONDER

PRODUCT DESCRIPTION

Extreme S310 is a medium viscosity, **solvent-free** structural adhesive system that provides flexibility, toughness and surface adhesion for bonding plastics and metals in any combination. Cured performance shows excellent adhesion and bond strength to nylons, polystyrenes, fiberglass, reinforced plastics, stone, ceramics and most plain and plated metal components. This material can withstand thermal cycling and shock loading between dissimilar materials.

Although it is always best to clean and prepare most bonded surfaces for improved adhesion, **Extreme S310** will work successfully in many applications **without preparation**.

Extreme S310 is a moderate cure speed, two-component product with an open time of 12-16 minutes at 72° F after thorough mixing. For rapid cure times consider product number **Extreme S300**.

WHY SHOULD YOU SELECT THIS ADHESIVE?

- Toughness And Durability
- Excellent Adhesion To Plastics And Metals
- Impact Resistance
- Peel Strength
- 100% Reactive Solids Formulation For VOC Compliance and Safety
- Moderate Cure Speed And Excellent Gap Cure

Contact an **AE&S, inc.** Adhesive Applications Specialist for further recommendations on adhesive selection.

PHYSICAL PROPERTIES

TYPICAL UNCURED PROPERTIES (LIQUID)

	Part A	Part B	Mixed A+B
Color	Off White	Off White	Amber
Mix Ratio by volume	1	1	
Mix Ratio by weight	1.05	1	
Viscosity	100,000	120,000	
Density, grams/ml	1.02	0.94	0.98
Unit weight, lb/gallon	8.49	7.83	8.17

TYPICAL CURED PROPERTIES (SOLID)

Tensile strength psi (mpa)	2,500-3,300 (27-34)
Maximum Tensile Elongation (%)	>80
Modulus psi (mpa)	70,000-80,000 (965-1172)
Lap Shear strength psi (mpa)	2,800-3,500 (24-27)
Service Temperature, °F (°C)	-67 to 250 (-55 to 121)
Working time (minutes)	12-16
Fixture time (minutes)	>25

INSTRUCTIONS FOR USE

Combine resin and activator in equal volume and mix thoroughly. For convenience and accuracy use pre-measured cartridges with disposable static mixers.

Shelf Life

6 months at 72°F when stored and sealed in original containers, 12 months when refrigerated at 40°F.

EXTREME ADHESIVES[®]

15 Batchelder Road

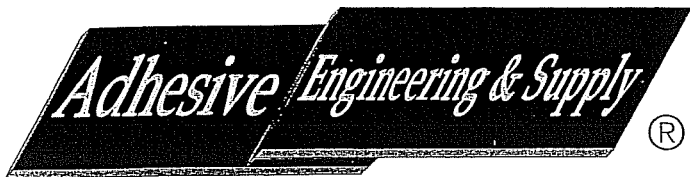
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WWW.EXTREMEADHESIVES.COM

Seabrook, NH 03874

Phone: 603-474-3070

Fax: 603-474-2750



Adhesive Engineering & Supply, Inc.
15 Batchelder Road
P.O. Box 2449
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MATERIAL SAFETY DATA SHEET

24-HOUR EMERGENCY

I. PRODUCT NAME: EXTREME S310 Resin

PHONE NUMBER:

INFOTRAC 1-800-535-5053

II. COMPOSITION/INFORMATION ON INGREDIENTS

None of the ingredients below are listed as carcinogens by IARC, NTP or OSHA

CHEMICAL NAME	CAS #	Approx %	ACGIH-TLV	ACGIH-STEL	OSHA-PEL	OSHA-STEL
Synthetic Polymer Resin	NON/HAZ					
Methyl Methacrylate Monomer, Stabilized	80-62-6	60-80	100 ppm		100 ppm	
Methacrylic Acid	79-41-4	3-14	20 ppm(skin)	N/E	N/E	N/E
Organic Peroxide	80-15-9	0-7	50 ppm		50 ppm	

III. HAZARDOUS INFORMATION

EMERGENCY OVERVIEW:

PHYSICAL STATE: Liquid COLOR: Off White. ODOR: Pungent. Acrylic.

WARNING! FLAMMABLE LIQUID AND VAPOR. MAY CAUSE ALLERGIC SKIN REACTION

MAY CAUSE EYE, SKIN, AND RESPIRATORY IRRITATION

POTENTIAL HEALTH EFFECTS:

EYE: Moderate eye irritation. Redness. Excess tearing

SKIN: Allergic skin reaction. Itching Moderate skin irritation. Redness.

INGESTION: Toxicity by ingestion is not likely to occur.

INHALATION: Moderate respiratory tract irritation. Shortness of breath. Coughing.

CHRONIC: Detailed information provided in section XI

CONDITIONS AGGRAVATED BY EXPOSURE: Respiratory disorders. Skin disorders. Eye disorders .

IV. FIRST AID MEASURES

EYE: Immediately flush eyes with water for at least 20 minutes. Get immediate medical attention.

SKIN: Wash thoroughly with soap and water. Discard contaminated clothing. Do not use organic solvents.
If irritation occurs, get medical attention.

INHALATION: Remove person to fresh air or apply artificial respiration if not breathing. Get medical attention if short of breath or if respiratory symptoms develop.

INGESTION: Give 1-2 glasses of milk or water to conscious person. Get medical attention.
DO NOT INDUCE VOMITING

V. FIRE FIGHTING MEASURES

Flashpoint and Method: 51F (TCC)
Autoignition Temperature: NA
Flammable Limits: 2.1 MMA, Upper 12.5 fpr MMA

EXTINGUISHING MEDIA: Flammable liquid, insoluble in water. Use DRY chemical powder.

SPECIAL FIRE FIGHTING INSTRUCTIONS: Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

HAZARDOUS COMBUSTION PRODUCTS: Oxides of carbon and nitrogen. Hydrogen cyanide. Methylene bisphenyl isocyanate. Hydrocarbons. Smoke. Cyclopentanone. Butanediol. Tetrahydrofuran.

VI. ACCIDENTAL RELEASE MEASURES

Remove sources of ignition. Use with ventilation. Dike area to prevent spreading. Absorb on vermiculite, sand or other inert absorbing material. Dispose of as a chemical waste in accordance with current local state, and Federal Regulations. Do not discharge into water. Incineration recommended. Wash spill area with strong detergent. After proper mixing of resin and activator sides, the material will polymerize into a cured solid state, which can be treated as a nonhazardous solid. Applicable CERCLA/RCRS waste code: 0001 (ignitability) U162 (MMA)

VII. STORAGE AND HANDLING

STORAGE: Avoid storage over 100 degrees F, contamination with incompatible materials. Store in cool place. Do not store in direct sunlight Recommended storage in flammable containment area.

HANDLING: Avoid prolonged or repeated breathing of vapor. Avoid contact with skin and eyes. Wash hands before smoking or eating.

VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Use local exhaust ventilation of the potential for airborne exposure exists.

PERSONAL PROTECTION:

RESPIRATORY PROTECTION: Use NIOSH approved respirator if there is potential to exceed any exposure limit(s).

SKIN PROTECTION: Use chemical resistant, impermeable clothing including gloves and either an apron or body suit to prevent skin contact.

EYE PROTECTION: Chemical splash goggles or safety glasses with side shields.

OTHER PROTECTIVE EQUIPMENT: NA

IX. PHYSICAL AND CHEMICAL PROPERTIES

Vapor Pressure: 29mm at 20C Vapor Density: >1 Heavier then air, 3.5 for MMA
 Solubility in Water: Slight Specific Gravity: 09.94-1.0
 Boiling Point: 214F for MMA Freezing Point: NA
 Physical State: Liquid pH: NA
 Odor: Pungent. Acrylic Appearance: Light gel, milky white in color
 VOC: 1.98; 1.92g/l (adhesive & activator mixed)

X. STABILITY AND REACTIVITY

STABILITY: Stable

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID: No known conditions to avoid. Oxidizing agents, Alkalis, Moisture. Strong acids. Strong bases. Reducing agent. Ultraviolet radiation. Amines.

HAZARDOUS POLYMERIZATION: Non known

XI: TOXICOLOGICAL INFORMATION

PRODUCT TOXICOLOGY DATA: None available

Ingredients	Carcinogen			Target organ
	NTP	IARC	OSHA	
Methyl methacrylate	No	N/A	No	Allergen.Irritant.Nervous System.Respiratory.Kidney.Liver
Cumene hydroperoxide	No	No	No	Allergen. Central Nervous System.Corrosive.Irritant.Mutagen
Methacrylic acid	No	No	No	Allergen. Corrosive. Irritant

XII. ECOLOGICAL INFORMATION Not available

XIII: DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Dispose according t EPA and local government regulations. EPE Hazardous waste #0001;U162;D003

XIV: TRANSPORT INFORMATION

DOT(49 CFR 172)

PROPER SHIPPING NAME: Adhesives / Consumer Commodity

IDENTIFICATION NUMBER: Un1133

HAZARD CLASS: 3

PACKING GROUP: II

EXCEPTIONS: Single unit less than or equal to 1 liter

CLASS/DIVISION: ORM-D - 3

INTERNATIONAL AIR TRANSPORTATION (IATA)

EXCEPTIONS: Consumer Commodity, class 9, ID 8000, less than 500ml

XV: REGULATORY INFORMATION

TCA (Toxic Substance Control Act): All components are listed on or exempt from listing on the Toxic Substances Control Act Inventory.

CERLA (Comprehensive emergency Response, Compensation, and Liability Act): NA

SARA TITLE III (Superfund amendments and Reauthorization Act): 313 Reportable Ingredients: Methyl Methacrylate, Cumene Hydroperoxide.

CANADIAN INVENTORY STATUS: All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

CALIFORNIA PROPOSITION 65: This product contains chemicals known to the state of California to cause cancer, birth defects, or other reproductive harm.

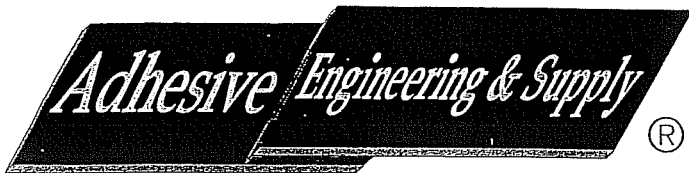
XVI: OTHER INFORMATION

NFPA: Health 2 Fire 3 Reactivity 2 Special None

HAZARDOUS MATERIALS INFORMATION SYSTEM (HMIS) RATINGS:
Health 2 Flammability 3 Reactivity 2 Protective Equipment: see Section VIII

The information in this MSDS was obtained from current and reliable sources. However, the data is provided without warranty, expressed or implied, regarding its correctness or accuracy. Since the conditions for use, handling, storage and disposal of the product are beyond AE&S Inc. Control: it is the user's responsibility both to determine safe conditions for use of this product and to assume liability for loss, damage or expense arising out of the product's improper use. No warranty, expressed or implied regarding the product described herein shall be created by or inferred from any statement or omissions in this MSDS. Various government agencies (e.g. DOT, EPA, FDA) may have specific regulations concerning the transportation, handling, storage use or disposal of the product, which may not be reflected in this MSDS. The user should review those regulations to ensure full compliance.

Issue date: 3/21/06



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Synthetic Polymer Resin			NON/HAZ			
Methyl Methacrylate Monomer, Stabilized			80-62-6	60-80	100 ppm	100
Catalyst/Initiators			NON/HAZ			

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INHALATION: Moderate respiratory tract irritation. Shortness of breath. Coughing.

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