



## Engineered Polymers International, LLC

2842 Progress Road Madison, WI 53716 USA (608) 661-2800 Fax: (608) 661-2817 [engineeredpolymers.net](http://engineeredpolymers.net)

# REACTAMINE<sup>®</sup> ALIPHATIC POLYUREA (RAP-45)

**CODE: RAP-45 (ReactAmine<sup>®</sup> Aliphatic Polyurea 45)**

### PRODUCT DESCRIPTION:

**ReactAmine Aliphatic Polyurea 45 (RAP-45)** is a two component 100% solids, no VOC's, aliphatic polyurea that was developed for UV stable (colorfast) polyurea flooring applications. This new generation polyurea displays fast cure times and excellent adhesion characteristics. **RAP-45** was designed to be quick gelling (15 minutes) in order to optimize leveling and wetting properties. **RAP-45** can be spray applied at temperatures ranging from 20°F to 120°F. This 100% polyurea elastomer displays excellent chemical resistance, water insensitivity and UV resistance (in any color) at a wide range of temperatures. **RAP-45** will provide a smooth glossy finish when fully cured. An aggregate can be broadcast into this self-leveling material to provide a non-skid surface. **RAP-45** emits virtually no odors and can be applied indoors without high VOC levels contributed to most epoxies and polyurethanes. **RAP-45** meets to USDA and FDA specifications.

### PRIMARY APPLICATIONS:

- AIRCRAFT HANGAR FLOORS
- LOW TEMPERATURE EQUIPMENT
- MAINTENANCE FACILITIES
- FLOORS REQUIRING UV STABILITY
- UV-STABLE TOP COAT
- INDUSTRIAL SHOP FLOORS
- NON-CONDUCTIVE FLOORING

### TYPICAL PHYSICAL PROPERTIES:

Tensile Strength (PSI)	ASTM D412	3610
Elongation (%)	ASTM D412	290
Tear Strength (PLI)	ASTM2240	480
Hardness, Shore D	ASTMD2240	40
Flexibility, 1/8" Mandrel	ASTMD1737	Pass
Flashpoint (°F)	ASTM Pensky-Martin	>200
Taber Abrasion (mg loss)	ASTM D4060	40
CS17 – Wheel	1 kg per 1000 revs	
Viscosity B-side (75°F)	CPS	575
Viscosity A-side (75°F)	CPS	750

### Typical Processing Properties:

Pot Life (75°F)	minutes	30
Tack Free Time (75°F)	minutes	60
Open to Foot Traffic	minutes	120
Volume Ratio A / B	PBV	1:1
Ratio for White Only (A:B)	PBV	1:1

### AVAILABLE COLORS:

- All primary colors
- Custom tints



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**INSTALLATION RECOMMENDATIONS:**

*RAP-45* adheres well to many substrates when properly primed including concrete, steel and wood. Substrate surfaces should be free of loose particles, rusts, voids and spills. It is recommended that this product be applied in a multi-directional (north, south, east and west) motion to help ensure the proper coating thickness. Chloride, moisture and pH levels should be checked prior to application. Always agitate the resin side before using.

**CONCRETE:**

**Old Concrete** – Sandblasting, shot blasting or water blasting is highly recommended to remove surface contaminants. Any oils or fats must be removed prior to product application. Acid etching may be required (followed by a thorough rinsing) to open the pores of the concrete to accept a primer coat. Do not apply *RAP-45* to wet substrates. Contact the manufacturer for primer recommendations in wet applications. **In almost every application, a primer is recommended prior to use of the *RAP-45* polyurea.** This will help prevent pin holing, and in some cases, help fill voids and create a smoother surface. A 10-mil coating of *RAP-45* is generally recommended for chemical resistance and abrasion issues.

**New Concrete** – The concrete should be allowed to cure for a minimum of 30 days. Shot blasting, sandblasting or acid etching (15% muriatic acid / 85% H<sub>2</sub>O) is required to remove the surface lattice that appeared during the curing process. A primer should be applied to reduce outgassing. Contact the manufacturer for specific recommendations. A 10-40 mil coat is generally recommended depending on chemical resistance and abrasion issues.

**CARBON STEEL:**

The steel must be prepared to a “near white metal,” equivalent to SSPC 10 or NACE 2. For immersion service, a 3-mil blast profile is recommended. A 2-mil blast profile is generally accepted. A 10 – 40 mil coat of *RAP-45* is generally recommended based on chemical resistance issues.

**SUBSTRATE REPAIRS:**

All spalls and cracks should be repaired to ICRI standards. Expansion joints should be honored. Horizontal control joints can be filled with *ReactAmine*<sup>®</sup> **Joint Seal (RJS)** prior to the application of *RAP-45*.

**PRIMER REQUIREMENTS:**

Use *REACTAMINE*<sup>®</sup> **PRIMER.**

**MIXING INSTRUCTIONS:**

Thoroughly mix the “B” component using a jiffy mixer and drill for a minimum of 3 minutes to place the pigmentation evenly in solution (not required for clear coats). Pour equal volumes of A: B (not more than 1 gallon of each component) into a disposable container and mix with jiffy mixer for 2 minutes. Immediately apply mixed product to the floor and begin application.

**APPLICATION NOTES:**

When applying a smooth floor, it is recommended to first apply a tight squeegee coat of *RAP-45* to fill voids and bugholes. Contact the product manufacturer for application recommendations. It is also recommended to mix several small batches at a time due to the fast reactivity. The manufacturer recommends no more than two-gallon batches per application. Rollers should be replaced on an hourly basis.

**REPAIRS AND MAINTENANCE:**

Small repairs to cuts in the coating can be made with *RAP-45*. This material can be caulked or brushed on the surface after scuffing. Re-spraying on *RAP-45* (after 1 hours of initial application) generally requires the use of a primer or sanding to achieve optimum adhesion.

**SHELF LIFE AND STORAGE:**

Six months in factory delivered unopened drums. Keep away from extreme heat, cold, and moisture. Maintain at a proper storage temperature of 60°F - 100°F.

**PACKAGING:**

- 5 gal pails
- 55 gal drums

**SHIPPING INFORMATION:**

*RAP-45* can ship via commercial truck lines. The “A” and “B” sides are unregulated.

**SAFETY AND HANDLING:**

See MSDS Sheets

### Adhesion Results:

#### ASTM D-4541 Elcometer

**Concrete** (No primer) >300 psi → Concrete Failure  
**Concrete** (Primer) >300 psi → Concrete Failure  
**Concrete** (Epoxy) >300 psi → Concrete Failure  
**Steel** (No primer) >900 psi → Substrate Failure  
**Steel** (Epoxy primer) >1500 psi → Primer Failure  
**Wood** (No primer) > 250 psi → Delamination

### Chemical Resistance:

<u>Chemical</u>	<u>Result (25°C)</u>
Acetic Acid (100%)	C
Acetone	C
Ammonium Hydroxide (50%)	RC
Benzene	C
Brine-Saturated H <sub>2</sub> O (310g/l)	R
Chlorinated H <sub>2</sub> O	R
Clorox® (10%) H <sub>2</sub> O	R
Diesel Fuel	RC
Gasoline	RC
Gasoline / 5 % MTBE	RC
Gasoline / 5% Methanol	RC
Hydrochloric Acid (20%)	R
Hydrofluoric Acid (10%)	NR
Hydraulic Fluid (oil)	RC
Isopropyl Alcohol	R
Lactic Acid	RC
MEK	RC
Methanol	R
Methylene Chloride	C
Mineral Spirits	RC
Motor Oil	R
MTBE	C
Muriatic Acid (10%)	R
NaCl / H <sub>2</sub> O (10%)	R
Nitric Acid (20%)	NR
Phosphoric Acid (10%)	R
Phosphoric Acid (50%)	NR
Potassium Hydroxide (10%)	R
Potassium Hydroxide (20%)	R, Dis
Propylene Carbonate	RC
Skydrol®	C
Sodium Hydroxide (25%)	R
Sodium Hydroxide (50%)	R, Dis
Sodium Hypochlorite (10%)	R
Sodium Bicarbonate	R
Stearic Acid	R
Sugar / H <sub>2</sub> O	R
Sulfuric Acid (10%)	R
Sulfuric Acid (>50%)	RC
Toluene	R
1,1,1-Trichlorethane	C
Trisodium Phosphate	R
Vinegar / H <sub>2</sub> O (5%)	R
H <sub>2</sub> O	R
H <sub>2</sub> O (14 days @ 82°C)	RC
Xylene	RC

### Chemical Resistance :

#### Chart Key

**R** ⇒ **Recommended** Little or no visible damage  
**RC** ⇒ **Recommended Conditional** Some effect, swelling, discoloration  
**C** ⇒ **Conditional** Crackling-wash down within 1 hour of spillage to avoid effects.  
**NR** ⇒ **Not Recommended**  
**Dis** ⇒ **Discoloration**

### Coverage Calculations:

<u>Coating Thickness</u>	<u>Sq.Ft /gal</u>
20 mils	70
30 mils	48
40 mils	36
50 mils	29
60 mils	24
80 mils	18
100 mils	14
250 mils	5.5

### Warranty:

The technical data and any other printed information furnished by **Engineered Polymers, LLC.** is true and accurate to the best of our knowledge. **RAP-45** conforms to in-house quality control procedures and should be considered free of defects. Due to the wide range of applications of this product, it is impossible to assume responsibility for any errors in regard to application, coverage, workmanship, over-spray or injuries resulting from the use of **RAP-45. Engineered Polymers, LLC.** makes no warranty, expressed or implied, of its products and shall not be liable for indirect or consequential damage in any event.