

**Physical Properties of Cured Foam**

<b>-Core Density</b> ASTM D1622, lbs/ft <sup>3</sup>	0.5 lbs	<b>-Surface Burning Characteristics</b> ASTM E84 Flame Spread Index	<15 @ 5.5 inches
		Smoke Development Index	<300 @ 5.5 inches
<b>-Thermal Resistance</b> ASTM C518 R-value @ 75°F (24°C) mean temp.	3.7/in @ 1.0 inch 3.7/in @ 3.5 inch	<b>-Open Cell Content</b> ASTM D6226, %	>92
<b>-Tensile Strength</b> ASTM D1623, lbf/in <sup>2</sup>	4.6	<b>-Sound Transmission</b> ASTM E90-04	39
<b>-Air Permeance</b> ASTM E283, ft <sup>3</sup> /s.ft <sup>2</sup>	0.00022	ASTM C423	75
<b>-Water Vapour Transmission - perms</b> ASTM E96A – desiccant, 2" thick	11.5	<b>-Dimensional Stability</b> ASTM D2126, %	
<b>-Specific Gravity</b> Component A @ 70°F	1.24	158°F Dry	-0.20
Component B @ 70°F	1.22	158°F 100% R.H	-0.40
		-20°F	-0.10
		<b>-Viscosity</b> Component A - CPS	200
		Component B - CPS	300± 50
		<b>-Mixing Ratio by Volume</b> Component A to Component B	1:1

**Approvals & Compliance Standards**

- ICC ESR-3161
- ICC ES AC377
- ASTM E84 Class 1

**AC377 Appendix X Ignition Barriers**

- Flame Control®, 50-50A Foam Kote
- Int'l Fireproof Technology, Inc., DC 315

**Description**

**PERMAX 0.5** is a 2-component open-cell spray polyurethane insulating foam consisting of Part A and B components, which when sprayed through plural component equipment, will produce a monolithic polyurethane foam insulation suitable for residential and commercial applications. Typical applications include wood or metal stud wall cavities, open wall cavities, cathedral and garage ceilings, crawl spaces and non-vented attic spaces. Air sealing properties of cured foam offer greater wall performance than traditional fiberglass batten applications.

**System Features**

- Air sealing properties offer greater thermal performance by reducing conditioned air loss
- Vapor permeability allows breathing of moisture vapor while stopping air movement
- Thermal resistance – R Value – equivalent to properly installed fiberglass
- Suitable for attics and crawl spaces with Flame Control® 50-50A Foam Kote intumescent paint as an ignition barrier
- Excellent sound control in properly constructed wall cavities

**Usage**

This 2-part system is job-site mixed and spray applied with proportioner type of spray equipment to insulate a variety of interior wall, subfloor and roof cavity conditions including: residential & commercial stud walls, ceilings, sub-floor cavities, and metal buildings. The spray applied product cures into a seamless, monolithic, and durable insulation system. Savings vary. Find out why in the seller's fact sheet. Higher R-values mean greater insulation power.

## PERMAX 0.5 2-Part Polyurethane Foam System

### Coverage

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Average density: 0.5 pounds per cubic foot

**Yield per kit: 13,000 to 15,000 BF**

### Storage and Shelf Life

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Both components should be stored in their original containers and away from excessive heat and moisture, especially after the seals have been broken or some materials have been used. Drums must be stored indoors and jobsite tanks maintained between 50°F and 85 °F. Containers should be opened carefully to allow any pressure buildup to be vented safely while wearing full safety protection. Materials stored at temperatures below 50°F will increase viscosity and some application equipment may not reach adequate spray temperature set points. Supply pumps and hoses must be sized to provide adequate supply when materials are cold and at a higher viscosity. **Shelf Life:** Excessive low or high temperatures may decrease shelf life. When stored in the original unopened container at 50°F-85°F, the shelf life of the "Part B" component is six months. Temperature above 85°F decreases the shelf life. The "Part A" component has a shelf life of 6 months in unopened containers when stored at 65°- 85°F.

### Surface Preparation

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Surfaces to receive **PERMAX 0.5** must be clean and dry, free of dirt, oil, solvent, grease, loose particulates, frost, ice and other foreign matter which could inhibit adhesion. Moisture content and surface conditions of substrate are critical to adhesion of **PERMAX 0.5** and need to be verified by installing contractor in small test areas before proceeding with full application.

### Processing Characteristics and Recommendations

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RECOMMENDED PROCESSING TEMPERATURES – Ambient	<b>65-80°F</b>	<b>&gt;80°F</b>	<b>30-50°F</b>
Component A	120°F	118°F	130°F
Component B	120°F	118°F	130°F
Hose	120°F	115°F	120°F

These temperatures are typical of those required to produce acceptable product using conventional Gusmer or Graco equipment. Best practices include mixing the "B" side for a minimum of 10 minutes during startup while the hose is heating up. It is the responsibility of the applicator to determine the specific temperature settings to match the environmental conditions and specific spray equipment.

#### PROCESSING CHARACTERISTICS

Machine Mix at recommended processing temperatures

Cream Time	4 seconds
Tack Free Time	On Rise
Initial Cure Time	<1 Hour**

The nominal physical properties reported were achieved using a Graco H25 Proportioner and Fusion gun with #02 module with a static proportioner pressure setting of 1200 1200 psi. Older equipment may be upgraded with "Arctic Booster Pack" heaters or minimum E-20 proportioners are required to adequately pre-heat the components. Preheating can be achieved using drum band heaters, especially in cold climates. Spray guns such as; D-gun, GAP gun, GX-7, Fusion gun, or Probler guns fitted with smaller output tips (15-18 lbs/min.) for better spray control for stud wall applications at recommended processing temperatures are recommended.

\*\* Complete cure will depend on temperature, humidity and degree of ventilation. Complete cure usually occurs within 24-72 hours

#### RECOMMENDED SUBSTRATE TEMPERATURES

Minimum	32°F
Maximum	120°F

For applications below 32°F, Henry Company technical personnel should be consulted. Flash passes should be avoided.

## PERMAX 0.5 2-Part Polyurethane Foam System

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### CLIMATIC CONDITIONS AND HUMIDITY

Moisture in the form of rain, dew, frost can seriously affect the quality and adhesion of the **PERMAX 0.5** to the substrate or itself. Henry Company does not recommend the spraying of this system when the relative humidity (RH) exceeds 85%. When heating the interior of a building the relative humidity can change dramatically and should be constantly monitored.

### Application

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#### Equipment

The proportioning equipment should be designed for spray application of polyurethane foam and be able to maintain 1:1 metering with a  $\pm 2\%$  variance and adequate main heating capacity to deliver heated and pressurized materials up to 130°F. Heated hose must be able to maintain pre-set temperatures for the full length of the hose. Minimum 2:1 ratio feeder pumps on the A side and 1:1 ratio feed pump on the B side, are required to supply stored materials through minimum ½-inch supply hoses. Pressurized and heated tanks mixing systems may be used if sized appropriately to provide adequate flow at maximum operating capacity and temperatures.

Guns such as **D-gun, Gap Pro, Fusion-gun, Probler** with tip size approximately 16 lbs/min are suitable for most residential applications.

#### Processing Temperatures

Recommended processing temperatures; 'Part A' Main 100-115°F, 'Part B' Main 130-135°F, Hose 110-120°F are critical settings to achieve viscosity to allow balanced pressure during spraying. Balanced chemical output pressures are important to producing good mix. Foam output pressures greater than 200 psi differential indicate either improper chemical temperatures, or worn gun/packing parts. Unequal pressures will cause poor chemical mixing through the module and uneven backpressure. A critical requirement for good spray mixing requires appropriate tip/module sizing to the proportioner and adequate heating capacity. Unequal pressure (>200 psi) can cause excessive pump wear.

Yield and in-place-density is dependent upon the temperature of the substrate, ambient air temperature, pressure, gun tip size, and the output of the proportioning unit.

### Precautions

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Read and understand the Material Safety Data Sheet for this product before use. The numerical flame spread and all other data presented is not intended to reflect the hazards presented by this or any other material under actual fire conditions. Polyurethane foam may present a fire hazard if exposed to fire or excessive heat (i.e. cutting torches). The use of polyurethane foam in interior applications on walls or ceiling presents an unreasonable fire risk unless protected by an approved fire resistant thermal barrier with a fire rating of not less than 15 minutes. A UBC or IRC code definition of an approved "thermal barrier" is a material equal in fire resistance to ½" gypsum board. Each firm, person, or corporation engaged in the use, manufacture, or production or application of the polyurethane foams produced from these resins should carefully examine the end use to determine any potential fire hazard associated with such product in a specific use and to utilize appropriate precautionary and safety measures. Consult with local building code officials and insurance agency personnel before application. Do not re-circulate the 'B' component for increased storage temperature as frothing or boil-over may occur at material temperatures above 60°F. Polyurethane foams will burn when exposed to fire. Caution during application must be observed with signs posted for other trades, "**Caution Combustible Insulation, No Welding or Hot Work Allowed**". On a daily basis remove all debris and shavings from the job site leaving a clean work area.

In freezing conditions [below 32°F], jobsite air temperature must be maintained above 50 degrees F. during the cure cycle so extreme temperature drops to the curing [green] foam are not experienced. **When using fuel fired heating units the exhaust must be vented directly outdoors to prevent unsafe carbon monoxide conditions in the work area.** Electric heating units are preferred. All heaters must be turned off before the application of foam begins. Henry Technical Personnel should be consulted in all cases where application conditions are marginal.

**Worker Exposure Hazards** – Both Components A and B can cause severe inhalation and skin sensitization. For interior applications: full body protection required including air supplying respirator such as a self-contained breathing apparatus (SCBA) or a supplied air respirator (SAR) in the positive pressure or continuous flow mode (this includes air supplied hoods). For exterior applications: required either a full face air purifying respirator or half face worn in combination with chemical safety goggles. The recommended APR cartridge is an organic vapor/particulate filter combination cartridge (OV/P100). It is recommended that all applicators and workers obtain recurrent formal training before exposure to or applying this product. More product information and training materials can be found at Henry Company [www.henry.com](http://www.henry.com) – or on SPFA or CPI websites including: [www.spraypolyurethane.com](http://www.spraypolyurethane.com), [www.polyurethane.org](http://www.polyurethane.org), [www.sprayfoam.org](http://www.sprayfoam.org)

## **PERMAX 0.5 2-Part Polyurethane Foam System**

**Warning signs should be posted at all entrances stating, “Warning, Breathing Hazard During the Application of Insulation materials. DO NOT ENTER without Proper Breathing Protection.”**

### **Product Sizes**

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Component A –500lbs drums, 2500 lbs totes (disposable or returnable)

Component B – 465 lbs drums

### **Freight Classification**

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Component A - Resin Compounds Item 46030, Class 55, NOIBN Non-Hazardous

Component B - Resin Compounds Item 46030, Class 55, NOIBN Non-Hazardous

### **Limited Warranty**

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We, the manufacturer, warranty only that this product is free of defects, since many factors which affect the results obtained from this product - such as weather, workmanship, equipment utilized and prior condition of the substrate - are all beyond our control. We will replace at no charge any product proved to be defective within 12 months of purchase, provided it has been applied in accordance with our written directions for uses we recommended as suitable for this product. Proof of purchase must be provided. **DISCLAIMER OF WARRANTIES:** The Limited Warranty is IN LIEU OF any other warranties express or implied including but not limited to any implied warranty of MERCHANTABILITY or fitness for a particular purpose, and we, the manufacturer, shall have no further liability of any kind including liability for consequential or incidental damages resulting from any defects or any delays caused by replacement or otherwise.

### **Commercial Assembly Warranty:**

Assembly warranties are available for job specific applications when applied per Henry published systems guidelines found on [www.henry.com](http://www.henry.com). For application for extended warranties up to 15 years contact Henry Warranty Administration Department at [Warranty@henry.com](mailto:Warranty@henry.com)