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COATINGS SPRAY GUIDE

Polyurea 550

This guide covers handling and plural component airless spray application of [AWS PURE POLYUREA 550](#) elastomeric coating systems. This system is two component, 1:1 ratio by volume, liquid applied coatings which polymerize through chemical reaction of the mixed components. The cured product is a tough, waterproof and weatherproof elastomeric membrane suitable for a variety of applications.

[AWS POLYUREA 550](#) is a fast set coating systems that has a 40-second or less cure time. Cure time can vary depending on substrate temperature and product being sprayed. Coating can be walked on in a matter of seconds depending on cure time. Cross linking cure is achieved in 24-hours. These features make plural component airless spray the only practical application method.

Personnel using this product must familiarize themselves with procedures for personal safety, workplace precautions and equipment operation. Refer to [Product Data Sheet](#) and [Material Safety Data Sheet](#) for product information. Refer to equipment manufacturer's instructions for equipment operation, maintenance and safety.

SAFETY EQUIPMENT AND VENTILATION

[AWS POLYUREA 550](#) is a one to one ratio by volume two component systems in which separate components are mixed together to form the finished product. One component is identified as ISO (isocyanate) component and the other as POLY (tertiary amines) component. Heated spray application of the mixed components creates finely atomized particles and vapor which requires specific procedures to minimize both health and safety risks.

Protective Equipment

1. Use supplied air-breathing apparatus with full-face mask or hood during any spray application unless monitoring demonstrates MDI exposure below OSHA permissible limits.
2. Fabric coverall.
3. Impervious gloves.

Indoor Spraying Precautions

1. Isolate the areas to be sprayed from the rest of the building.
2. Spray only in well ventilated areas. Air exhaust from the spray area must be directed in a manner that prevents return through windows, doors or intake vents.
3. Keep spectators and other non-essential personnel away from spray area.
4. Be sure to take proper precautions to not spray over unprotected energized lighting or electrical outlets. Doing so could be a fire hazard. Electrical wiring and conduit can be sprayed on as long as open energized circuits are protected.



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Outdoor Spraying Precautions

1. Rope off the area within 150 feet of spray area depending on wind and weather conditions.
2. Seal off ventilation intakes within the affected area.
3. Use windbreaks, where necessary to confine spray mist and avoid damage to nearby surfaces due to overspray or drift.
4. Keep spectators and other non-essential personnel away from spray area.
5. Be sure to take proper precautions to not spray over unprotected energized lighting or electrical outlets. Doing so could be a fire hazard. Electrical wiring and conduit can be sprayed on as long as open energized circuits are protected.

STORAGE AND HANDLING

Storage

1. Keep containers closed. Store in a dry place away from heat sparks open flame and moisture.
2. Store material above 40°F and below 100°F.

Handling

1. The ISO component will freeze if exposed to temperatures below 40°F during shipping and storage. Graininess or cloudiness in the ISO indicates frozen material that must be thawed before use.
2. Mix poly component separately before use to suspend any settled pigment and assure uniform consistency.



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EQUIPMENT

Plural component airless spray equipment must be capable of metering components within +/- 2% of 1:1 ratio by volume. [AWS POLYUREA 550](#) is a 100% solids fast cure Pure Polyurea which requires high material spray pressure over 2000 PSI and a max pressure of 2500 PSI therefore components may have to be heated (in cold weather) to lower viscosity, which allows for the impingement mixing action needed by most plural component spray guns. The following equipment parameters have been proven effective. These equipment systems allow for the material pressures, temperatures and flow rates to generate intensive and thorough mixing of the components for optimum physical properties of the applied product.

Airless spray equipment generates very high fluid pressure. Spray equipment must be properly maintained and operated. Any misuse of spray equipment (such as over-pressurizing, modified parts, or worn or damaged parts) can result in serious bodily injury, explosion, or property damage. Read and follow equipment manufacturer's instructions and recommendations.

1. Drum transfer pumps are required to adequately supply the metering pumps. Drum transfer pumps must be 2:1 fluid to air ratio pumps with a minimum 200 psi delivery pressure.
2. Primary material heaters must be capable of heating each component 170°F to 185°F at the flow rate generated by the proportioning system.
3. Heated Airless spray hoses must be employed to maintain temperature developed by the primary heaters and deliver adequately heated material to the spray gun. Follow the equipment manufacturer's recommendations on maximum hose length possible while supplying adequate operating pressure at the gun. Increasing the hose length and/or raising the spray gun high above the proportioning pump, i.e., spraying on a high building with the unit at ground level will reduce the operating pressure at the gun.
4. Satisfactory results have been achieved with Graco's Fusion Air Purge gun using an AF4242 flat mix chamber and FT0838 flat fan tip or a Graco GAP gun with a 01 or 02 mixing chamber. Product results may vary with different gun set ups and pressures, the bigger the mix module and fan tip the more pressure required.
5. Mix chamber and spray tip will determine the volume and spray pattern of the applied material. Choose a tip appropriate for the nature of the project.
6. Proportioning systems are available from several manufacturers. In addition, hybrid systems are offered by various equipment distributors. The following recommendations are examples of appropriate equipment systems.



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Equipment System Examples

Name	Model	Maximum Rated Pressure	Heat Rating	Maximum Hose Length	GPM
Graco Reactor	EXP 2	3500	15,300 watts	310	2
Graco Reactor	HXP2	3500	15,300 watts	310	1.5
Graco Reactor	HXP3	3500	15,300 watts	310	3
Graco Reactor	20-35	3500	15,300 watts	410	2-5

EQUIPMENT OPERATION

After the equipment system is assembled and its proper operation verified, fill the system with product.

Note: If using a system that has had other chemical products in it, verify component compatibility with [AWS POLYUREA 550](#) components before using equipment. Many chemical systems have poly and iso components and it is necessary for plural component application systems to have a dedicated and identified iso side and a dedicated and identified poly side. Do not cross contaminate equipment supply. Always identify components with proper supply feed and do not rely solely on letters or numbers since they may be misleading. In some cases it may be necessary to pass solvent through the system to assure effective results.

- A. Equipment heat - Application temperature is nominally 160°F to 185°F for both components. Set primary material heaters and hose heat controls accordingly. Preheating the material to 100°F, in cold temperatures may be necessary for application depending on ambient air, material and substrate temperatures.
- B. Static pressure - Static or stall pressure must be set to a minimum of 2500 psi. Long hose lengths or spraying at elevations considerably above equipment level may require higher stall pressure.
- C. Spray pressure - Spray pressure is the dynamic pressure as measured while the spray trigger is open and material is being applied. Spray pressure registered at the proportioning pumps must be a minimum of 2000 to 2300 psi. Due to variables in component chemistry and equipment operation it is possible that there will be a difference in pressure readings between iso and poly components. A difference of up to 200 psi is allowable and is not a sign of equipment malfunction. In the event that the pressure difference is greater than 200 psi, check and clean all gun filters and low pressure filters. If the pressure difference is still above 200 psi, please call American WeatherStar or your equipment supplier for assistance.



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- D. Spray gun - Satisfactory results have been achieved with Graco's Fusion Air Purge gun using an AF4242 flat mix chamber and FT0838 flat fan tip or a Graco GAP gun with a 01 or 02 mixing chamber. Product results may vary with different gun set ups and pressures, the bigger the mix module and fan tip the more pressure required.
- E. Inline filters - Plural component spray systems commonly have one or more filters for both iso and poly components. Filters may be low pressure on the feed side or high pressure on the spray side of the system or a combination of both. Check and clean filters daily. Filter screens should be 30 or 40 mesh.
- F. Dry air or nitrogen purge - If the contents of a container are not to be used within one day's time, it is advised that dry air or nitrogen gas be used to blanket the iso and poly components to eliminate product skinning.

APPLICATION TECHNIQUE

[AWS POLYUREA 550](#) is applied by the above mentioned plural component machines to desired thickness using more than one pass and preferably using a cross hatch method thereby applying one pass in one direction and the second pass crossing the first pass at 90 degrees . The fast cure and zero VOC features of these products allow unlimited application thickness on smooth, flat surfaces. On vertical or rough surfaces, apply two or more passes allowing no more than three to ten minutes between passes. For additional information refer to the product data sheet.