



# ES6304 Epoxy Adhesive & Repair Material

## DESCRIPTION

WYN-STIK ES6304 (Formerly ES-4) is a reddish-brown, non-sag epoxy paste compound designed for patching holes in damp or dry concrete, transite, vitrified clay products and fiberglass reinforced pipe and structures. It can also be used to bond these products to each other. The smooth mixed consistency of ES6304 makes it easy to fill and smooth rough areas and bug holes on surfaces. The non-sag nature of ES6304 allows the application of heavy sections without excessive slump or run-off. ES6304 is packaged in convenient single-use kits for ease of mixing and application in the field. Three different kits are available to better fit the temperature conditions at application. ES6304A/B has a 40-45 minute working time for larger patching jobs, and for use in hotter weather. ES6304 A/B1 has a 25-30 minute working time, and is suitable for most medium to smaller applications at temperatures above 60°F. ES6304 A/B2 is a fast setting system designed for use primarily in cold weather below 60°F. If ES6304 A/B2 is used above 60°F, it should only be applied in thin layers, and not for filling large holes.

## TYPICAL APPLICATIONS

WYN-STIK ES6304 (Formerly ES-4) has been used extensively for patching and repairing manholes, sewer lines and catch basins, vaults and enclosures and other concrete surfaces and structures. It provides good adhesion and chemical resistance. ES6304 is specified by the Bureau of Engineering, City of Los Angeles for bonding and patching in these types of applications. ES6304 has also been used for many years for field repairs and assembly of vitrified clay pipe and other clay products.

## PRODUCT SPECIFICATIONS

	ES6304-A	ES6304-B	ES6304-B1	ES6304-B2	Test Method
Color	Reddish Brown	Amber	Dark Amber	Amber	Visual
Viscosity, centipoise	Non-Sag Paste	50 cps	50 cps	30,000 cps	ASTM D2393
Specific Gravity	1.74	.979	.98	1.13	ASTM D1475
Mix Ratio w/ES6304A		100:3.7	100:4.2	100:10.8	PTM&W
Pot Life, 1 lb. Mass @77°F		40-45 min.	25-30 min.	5-10 min.	ASTM D2471

## PACKAGING WEIGHTS

WYN-STIK ES6304 is packaged in single-use kits consisting of 1 pound of Part A with the correct amount of the selected Part B.

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## DIRECTIONS FOR USE

**PREPARATION:** All surfaces to be patched or bonded must be free of dirt, oil and grease. Refer to “WYN-STIK Surface Preparation Guidelines” bulletin for specific recommendations for various surfaces.

**MIXING:** Mix ES6304 A and B Parts together thoroughly until all traces of liquid have disappeared. Mix for 1 to 2 minutes, scraping the sides and bottom of container to avoid leaving unmixed material that will cause soft spots in the cured product.

**APPLICATION:** Apply mixed material to the cleaned and roughened area of the parts to be patched or bonded. When patching holes that are over 1 inch deep, we recommend the opening be half filled and allowed to partially cure for 30 minutes, then finish filling the opening, and smooth the surface. When bonding, press surfaces firmly together and let set 2 hours at 75°F. If necessary, place in jig or other holding device, to prevent movement during initial curing time.

**CURING:** Curing time for handling is from 2 to 4 hours, depending upon temperature at the time of application. The material to be bonded may be preheated to accelerate curing time, or, light heat may be applied after the parts have been bonded. Maximum strength will be attained in approximately 24 hours.

## TYPICAL MECHANICAL PROPERTIES

	ES6304-A/B	ES6304-A/B1	ES6304-A/B2	Test Method
Mixed Viscosity	Smooth Thixotropic Paste			ASTM D2393
Gel Time, 1 lb. mass, @77°F	40-45 min.	25-30 min.	5-10 min.	ASTM D2471
Specific Gravity	1.69	1.685	1.645	ASTM D1475
Hardness, Shore D	90D	90D	90D	ASTM D2240
Tensile Strength, psi, cast bar	11,500	11,500	10,000	ASTM D638
Specific Volume, cu.in./lb.	16.4	16.4	16.8	ASTM D792
Water Absorption	<.05 %	<.05 %	<.01 %	
Al to Al Tensile Lap Shear Strength, psi	650 psi	650 psi	400 psi	ASTM D1002
Tensile Elongation	1 %	1 %	1 %	ASTM D638

## SAFETY and HANDLING

PTM&W epoxy products do not contain any regulated or restricted raw materials, and therefore offer the user high performance products with minimum hazard potential when properly used. Generally, the PTM&W epoxy resins and hardeners will present no handling problems if users exercise care to protect the skin and eyes, and if good ventilation is provided in the work areas. However, all epoxy resins and hardeners can be irritating to the skin, and prolonged contact may result in sensitization; and breathing of mist or vapors may cause allergenic respiratory reaction, especially in highly sensitive individuals. As such, avoid contact with eyes and skin, and avoid breathing vapors. Wear protective rubber apron, clothing, gloves, face shield or other items as required to prevent contact with the skin. In case of skin contact, immediately wash with soap and water, followed by a rinse of the area with vinegar, and then a further wash with soap and water. The vinegar will neutralize the hardener and lessen the chances of long term effects. Use goggles, a face shield, safety glasses or other items as required to prevent contact with the eyes. If material gets into the eyes, immediately flush with water for at least 15 minutes and call a physician. Generally, keep the work area as uncluttered and clean as possible, and clean up any minor spills immediately to prevent accidental skin contact at a later time. Keep tools clean and properly stored. Dispose of trash and empty containers properly. Do not use any of these types of products until Material Safety Data Sheets have been read and understood.

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## PTM&W Industries, Inc.

10640 S. Painter Avenue      Santa Fe Springs, CA 90670-4092  
562-946-4511      800-421-1518      FAX: 562-941-4773  
Visit Us At: [www.ptm-w.com](http://www.ptm-w.com)      Send Questions To: [info@ptm-w.com](mailto:info@ptm-w.com)