



# Rhino Linings®

**PREMIUM PROTECTION**



## Rhino CIPP

Revised Date: 23/10/2020

This TDS Replaces All Previous Versions

**Resin - Part #1310T-Lt Blue Hardeners – Part #3102 Yellow, 3103 Yellow, 3138 Yellow**

### DESCRIPTION

A 100% solids, non-draining, epoxy system for producing Cured In-Place Pipe. Rhino™ 1310T-Lt Blue is a single resin system with multiple choices of either 4:1 (by volume) curing agent hardeners. Rhino™ 1310T-Lt Blue epoxy resin is tinted transparent blue, and the hardeners are transparent yellow. When the Rhino™ 1310T-Lt Blue system is properly mixed, a uniform light blue colour is achieved. Rhino™ 1310T-Lt Blue CIPP systems have a proven track record in conjunction with felt or fiberglass liner materials.

### FEATURES & BENEFITS

- AS/NZS 4020:2018 Potable water certified
- Rehabilitates underground pipes
- Cures very fast with mild 48.8°C (120°F) heat
- Trenchless repair of pipes from 50.8mm to 2590.8mm (2" to 102") in diameter
- Effectively lines pipes and drain lines with a 90-degree bend
- ASTM F-1216 compliant, adding value and assuring quality in the CIPP process
- Tested on a range of chemicals. Please contact Rhino Linings Technical Department.

### TYPICAL USES

- Applications requiring less invasive pipe system replacement procedures
- Municipal / residential / commercial market (manholes and underground pipe systems)
- Trenchless / less invasive sectional point repair systems for structural repair without digging
- Lateral and sectional point repair rehabilitation and re-lining markets (homes, sanitary and storm sewers, sewer pipelines)

### TYPICAL PHYSICAL PROPERTIES

Cured In-Place Pipe (CIPP) applications demand a wide variety of Rhino™ hardeners which are available with the Rhino™ 1310T-Lt Blue CIPP epoxy resin (see chart below).

Rhino 1310T-Lt Blue Resin (CIPP) with:	Hardeners		
	Rhino™ 3102 Yellow	Rhino™ 3103 Yellow	Rhino™ 3138 Yellow
Viscosity, cps	3460	2360	2460
Parts Hardener by Weight	22	22	22
Mix Ratio by Volume	4:1	4:1	4:1
Gel Time Min, 150gr	12-15	30-35	50-60
HDT, °C (°F)	87.7 (190)	87.7 (190)	115.5 (240)
Set Time, Hrs at 25°C (77°F)	3.5	6	6.5
Cure Time, Hrs at 54°C (130°F)	2	3	4
Hardness, Shore D (24 hr room temp cure)	80	78	80
Elongation, %	4.5	4.5	4.0

All listed hardeners cure very rapidly with the addition of heat, via hot water or hot air at a temperature of 48.8°C - 60°C (120°F – 140°F).

### HARDENER RECOMMENDATIONS FOR RHINO™ 1310T-LT BLUE (CIPP)

All hardeners reach sufficient strength for return to service after overnight ambient cure. The fastest Rhino hardener, Rhino™ 3102 Yellow, is useful for winter applications, and in smaller applications requiring a fast return to service time. Rhino™ 3103 Yellow is the standard 30-minute system hardener used for 4:1 volume mixing applications. Rhino™ 3138 Yellow should be used in high temp applications (up to 115.5°C [240°F]) and is 4:1 by volume, which is also useful in hot weather and for long or large diameter pipe runs.

Rhino™ CIPP hardeners, Rhino™ 3102 Yellow, Rhino™ 3103 Yellow and Rhino™ 3138, as well as the Rhino 1310T-Lt Blue Resin are regulated Dangerous Goods (DG) Class 9.

### CURE SCHEDULE OF RHINO™ 1310T-LT BLUE

Allow the composite to cure at the recommended temperature as listed in the physical properties chart (above). In the case of all listed hardeners, allow at least 6 – 8 hours at ambient (>18.3°C [>65°F]) or 2-3 hours at 54.4°C (130°F) before attempting to return the composite to service. In colder weather (less than 18.3°C [65°F]) allow additional time before returning the composite to service. In all cases, an elevated temperature cure of 2 – 4 hours at 48.8°- 60°C (120°F – 140°F) assures the highest quality end product.

### TYPICAL MECHANICAL PROPERTIES:

Rhino™ 1310T-Lt Blue resin post cured at 54.4°C (130°F) for 4 hours with all listed hardeners are compliant to ASTM F-1216. Listed properties are for typical epoxy/felt liner CIPP applications. Certification to ASTM F-1216 adds value and assures quality for firms using the CIPP process.

Hardness (Shore D)	85±5	ASTM D-1475
Tensile Strength	>3,000 psi	ASTM D-638
Modulus of Elasticity	>300,000 psi	ASTM D-790
Flexural Strength	>4,500 psi	ASTM D-790
Flexural Modulus of Elasticity	>250,000 psi	ASTM D-790

### HOW SUPPLIED

Rhino™ 1310T-Lt Blue Epoxy Systems for CIPP (Cured In-Place Pipe) with listed hardeners are available in 20 Litre (5 gallon) pails and 208 Litre (55 gallon) drums. Special order volumes will be considered - Contact Rhino Linings Australasia.

### SAFETY PRECAUTIONS

**Considerations:** Consult the Rhino Linings® Material Safety Data Sheets. This chemical system requires the use of proper safety equipment and procedures. Please follow the Rhino Linings® product MSDS and Safety Manual for detailed information and handling guidelines.

**For Your Protection:** The information and recommendations in this publication are, to the best of our knowledge, reliable. Suggestions made concerning the products and their uses, applications, storage and handling are only the opinion of Rhino Linings® Corporation. Users should conduct their own tests to determine the suitability of these products for their own particular purposes and of the storage and handling methods herein suggested. The toxicity and risk characteristics of products made by Rhino Linings Corporation will necessarily differ from the toxicity and risk characteristics developed when such products are used with other materials during a manufacturing process. The resulting risk characteristics should be determined and made known to ultimate end-users and processors. Because of numerous factors affecting results, **Rhino Linings® Corporation makes no warranty of any kind, express or implied**, other than that the material conforms to its applicable current Standard Specifications. Rhino Linings® Corporation hereby disclaims any and all other warranties, including but not limited to those of merchantability or fitness for a particular purpose. No statements made herein may be construed as a representation or warranty. The liability of Rhino Linings® Corporation for any claims arising from or sounding in breach of warranty, negligence, strict liability, or otherwise shall be limited to the purchase price of the material.