LOCKWELL

TECHNICAL DATA SHEET

LOCKWELL P-590

High Gloss Finishing Pure Polyurea Membrane & Injection System

Product Description

Lockwell P-590 is a 100% pure polyurea specialty system for self-levelling, injection or filling to smooth finishing. P-590 (90-120 seconds gel time) pure polyurea specially designed for high gloss finishing with little to no orange peel or dry spray typical with fast cure polymers. P- 590 has wide range of applications like embedded glass, rubber, quartz sand, or most desired broadcasting i.e. topping / anti-slip systems. It also allows for trowel work to be able to manually force material into bug holes and or flow into cavities. Lockwell P-590 can be used as the top 500 microns + for finishing P-515 and P-505 to allow a glass like flat finish with minimal to no overspray or stipple evident. Lockwell P-590 is excellent for long top coat application allowing a long cross link window of up to 24 hours (weather dependent) when used in conjunction with other Lockwell thermoset plastics and polyaspartic systems.

Lockwell P-590 is a highly flexible, 100% solid, aromatic, and two components pure polyurea with non-slip (when combined with a broadcast material), excellent workability and finishing performance. Other applications include injection to sand rings and flanges affected by racing in mining. For poor concrete with cracking, it allows more time to flow into voids and completely fill voids.

Features

- High Elongation & High gloss finishing
- Excellent thermal stability
- Zero VOC
- No toxic vapors
- Odorless
- 100%Solids
- Seamless
- Low water vapor permeability
- Flexible at low temperatures
- Non-reactive
- Good chemical resistance
- Can be used without primer in some applications (particularly steel)
- Excellent abrasion resistance and carry back
- Used with or without reinforcement in transitional areas.

Application Area

- Airport
- Warehouse Floors
- Aesthetic Waterproofing
- Flooring systems
- Flood Grade Processing Plants
- Partial self-leveling (better flow)
- Low surface resistance
- Impact resistant
- Marine Environments
- Secondary Containment
- Geotextile Composites
- Parking Garage Decks
- Walkways and Balconies
- Waste Water Treatment
- Hospital flooring

Colors

Standard colors are grey/black and natural/cream. Custom colors can be produced on request, but may require additional lead time and price premium. Contact your local distributor for availability.

Due to its aromatic composition, Lockwell P505 will tend to yellow or darken in color, and will become matt after exposure to UV light however no chalking or major loss of physical properties after exposure for over 25 years. It can be top coated with an aliphatic polyurethane coating for a color-fast finish to maintain aesthetics.

Technical/ Performance Data

Hardness, ASTM D-2240	38 - 48 Shore D
Mix Ratio by Volume	1A : 1B
Spray Temperature	60 - 75°C
Gel/Set Time	90 - 120 seconds
Tack-free Time	150 - 210 seconds
Maximum Recoat Window	8 - 24 Hours
Taber Abrasion Resistance; C-17,1000cycles, 1kg	18 mg
Tensile Strength ASTMD412-C	12 – 16 MPa
Elongation, ASTM D412-C	450 - 550%
Tear, ASTM D624-86	70 - 75 kN/m
Service Temperature	-40°C to 120°C
Water Vapor Permeability	0.00036 perm-inch
Fire resistance (spread of flame, Class rating, etc.)	Class 2, Class A for Roof coverings

Typical Wet Properties

Material Property	Component A (Isocyanate)	Component B (Resin)
Density (kg/L)	1.11	1.00
Viscosity (cps @ 21°C)	900	700
Mix ratio (by volume)	1 : 1	
Solids (mixed) by volume	100%	
Flash Point (Pensky Martens Closed Cup)	>145°C	
Theoretical Coverage	1L = 1mm thick over 1m²	

Application Guideline

Introduction

This coating is designed for application through heated, plural component, high pressure reactor spray equipment capable of supplying material at the spray gun at a minimum of 2000 psi spray pressure and material temperature of 60-80°C (depending on geographical location). Graco plural component reactors using impingement mix tips in plural component air and mechanical purge guns (air purge recommended) are typically used.

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If there is any change in color or consistency of the material, the sprayer should stop immediately and troubleshoot the equipment.

Filters should be checked periodically for any build-up of material.

Application Temperatures
Minimum recommended material and substrate temperatures are 24°C and 10°C respectively. Maximum recommended substrate temperature is 50°C. Wider temperature windows can be achieved but please consult your technical representative for specific advice.

Cure Time and Recoat Time
Development of a full cure may take up to 24 hours. Material maybe recoated when tack-free. Old, sound coatings should be lightly abraded to remove any oxidized material and cleaned thoroughly prior to recoat. Consult your technical representative for options regarding treatment of day joints and coating over cured product.

System Specification

Primer

Use Lockwell P-601 Concrete Epoxy Primer as the under layer primer.

Refer to Lockwell Systems technical representatives and distributors to verify specific application recommendations.

Recommended Thickness

Abrasion resistant	: 3 mm min. thickness
Corrosion & Chemical resistant	: 2 mm min. thickness

Note: Contact your local distributor for application specific recommendations.

Number of Coats

This product can be applied in thicknesses from 1mm up to several cm in one monolithic coat. To build to specification, allow just enough cure time for the first coat to become firm, and then spray the next coat. Do not exceed recommended recoat windows. When building to more than 4mm thickness, pause for at least 5 minutes every 3mm (approximately) to allow the coating to exotherm and to cure evenly in the layers.

Sometimes two or more coats are applied using different colors as a visual wear indicator. The additional coats should be applied as soon as possible after the preceding coat has gone tack free, but no longer between coats than the specified recoat window of 2 hours.

Contact your distributor for reactivation requirements for coating over cured product.

Top Coat

An aliphatic system such as Lockwell UP-115 solar resistant PU (or) Polyaspartic polyurea (or) “other LW approved” may be required for some applications, particularly where color stability is required (this product is 100% UV stable, but not color stable). Contact your distributor for a range of options. The top coat shall be applied as soon as possible following the final coat reaching tack-free status, with a maximum time between coats as specified by the recoat window of this product.

Storage and Handling Precautions

The Part A should be kept properly closed and stored indoors in a well-ventilated area under normal factory conditions. Storage at room temperature (20-25°C) also provides a convenient viscosity for handling.

Storage at low temperatures (below10°C) is not recommended because it may lead to some crystallization: this material must be protected from frost. Drum heaters may be used with the heat setting at low.

The material should be agitated to uniformly distribute the heat. In no circumstances should the material be heated above 80°C during preconditioning.

Storage temperatures above 50° C are not recommended since they can accelerate the formation of insoluble solids and also increase the viscosity over extended storage intervals.

Under the recommended storage conditions and in properly sealed containers, the components have nominal storage life of 12 months. If either component is opened and partially used, it should be purged with nitrogen or desiccated air and resealed or refilled into smaller containers to their maximum volume.

Packaging

Standard 400L kits, 2 x 200L Drums per kit. Other sizes may be available on request.

Chemical Resistance

The following technical information and data should be considered representative or typical only and should not be used for specification purposes. Contact Lockwell Systems technical representatives and distributors for specific recommendations for chemical resistance prior to specifying these products in this application type.

Acetic Acid (10%)	R	Phosphoric Acid (10%)	R
Ammonium Hydroxide (20%)	R	Potassium Hydroxide (10%)	R
Ammonium Hydroxide (50%)	RC	Potassium Hydroxide (20%)	RC
Hydraulic Fluid	R	Sodium Hydroxide (10%)	R
Hydrochloric Acid (10%)	R	Sodium Hydroxide (50%)	RC
Gasoline (unleaded)	R	Sulphuric Acid (15%)	R
Hydrogen Sulphide (gas)	R	Waste water	R
Diesel Fuel (Kerr-McGee)	C	Sea Water	R
Motor Oil, Brake Oil	RC	Water (Tap) @ 80°C	R

R - Resistant
RC - Slight surface change, discoloration with no loss of hardness

Additional Information - Disclaimer

The information provided herein, especially recommendations for the usage and the application of our products, is based upon our knowledge and experience. Due to different materials and equipment used, as well as varying working conditions and environments beyond our control we strictly recommend carrying out intensive trials to test the suitability of our products with regard to the required processes and applications. This data sheet is provided free of charge and we do not accept any liability with regard to the above information or with regard to any verbal recommendation, except for cases where we are liable of gross negligence or false intention.

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