

Product Description

Lockwell UP-18X is a fast set, rapid curing and solvent free spray applied hybrid polyurea ideal for concrete or steel or other substrates in acid and base environments. It has high chemical resistance in most applications. Please contact your Lockwell representative for full chemical resistant chart up to date.

Lockwell UP-18X is 100% solids, flexible, two component coating system. It may be applied in single or multiple applications without appreciable sagging and is relatively insensitive to moisture and temperature allowing application in most temperatures.

Features

- 100% Solids with zero VOC
- Fast reactivity and cure time resulting in almost immediate return-to-service time
- Perform in constant temperatures from -20°C to +80°C
- Moderate elongation properties
- Seamless, resilient, flexible and tough
- Excellent acid & base resistance (Consult Lockwell Systems)
- Good corrosion protection
- Impact, tear and abrasion resistant
- Low permeability waterproofing membrane

Application Area

- Fertilizer Plants
- Refineries
- Chemical processing plants
- Mining
- Oil & Gas, Petroleum Industries
- Coal Fire Power Plant
- Primary & Secondary Containment
- Paper & Pulp Mills
- Power and Desalination plants
- Pharmaceuticals
- Water, Waste water
- Industrial Effluent Treatment Plants

Colors

Standard dark grey color.

Typical Wet Properties

Material Property	Component A (Isocyanate)	Component B (Resin)
Density (kg/L)	1.16 (±0.02)	1.10 (±0.02)
Viscosity (cps @ 21°C)	1000 - 1600	350 - 800
Mix ratio (by volume)	1 : 1	
Solids (mixed) by volume	100%	
Flash Point Martin	>180°C	
Theoretical Coverage	1L = 1mm thick over 1m ²	

Technical/ Performance Data

Hardness, ASTM D-2240	69-74 Shore D
Mix Ratio by Volume	1A : 1B
Spray Temperature	60 - 75°C
Gel/Set Time	7-8 seconds
Tack-free Time	30 – 45 seconds
Post Cure Time	24 hours
Specific gravity of mixed materials (kg/liter)	1.08
Viscosity at 25°C in cps	907 cps
Flexibility (2 mm Mandrel)	Pass
Taber Abrasion Resistance, TABER ISO 9352	0.0052 g
Tensile Strength, DIN 52455	22.8 MPa
Elongation, ISO 527	70 – 100 %
Tear Strength, DIN 52455	70 N/mm
Impact Resistance, ASTM G14	20J
Service Temperature (Dry)	90°C
Service Temperature (Wet)	70°C
Water Vapor Permeability, g/[s.MN], ASTM E 96	0.007
Shelf life @ 25°C [from the date of delivery in unopened container]	6-9 months

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.

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

The elastomer should, however, be left for a minimum of 24 hours before being placed under load. Physical properties and adhesion are normally strong enough after a 24 hours cure for light duty applications, but for heavy-duty applications we recommend a 3-7 days cure.

LOCKWELL UP-18X

System Specification

Primer

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

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

Recommended Thickness

The coating thickness will depend on the application. Typically, 2-6mm is adequate for most applications and this can be achieved in one continuous build-up.

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 the 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 4 mm thickness, pause for at least 4-5 minutes every 3 mm (approximately) to avoid exothermic glass crack effect.

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.

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

Handling Precautions

The Part A should be treated as diisocyanate and the usual precautions should be exercised when handling this family of chemicals.

Protective clothing should be worn and contact with the body avoided. Inhalation of fumes must be strictly avoided and a protective mask, preferably with a remote clean air supply should be worn while spraying.

The Part B contains aromatic amines. Keep away from foodstuffs. Protective clothing should be worn and contact with the eyes and skin avoided.

The safety procedures applicable to the handling of urethane raw materials should be read, understood and rigidly adhered to. These are available on request from Lockwell Systems.

Storage

The Part A is a diphenylmethane diisocyanate prepolymer and will react with moisture generating carbon dioxide. The containers should be stored with the seals intact and opened containers used first. The reaction with moisture / water can lead to dangerous build-up of pressure in the drums. Therefore, partially used containers must be tightly re-sealed after use to prevent ingress of moisture.

It is recommended that these drums are purged with dry air or nitrogen. Empty drums should not be closed and for safety reasons a hole should be made in the container. The Part A has a storage life of 6-9 months from date of delivery in unopened containers when stored at normal in-door ambient temperatures (20-25°C).

The Part B is hygroscopic and must be stored with seals intact. Partially used containers must be tightly resealed and used before opening fresh containers. Any material decanted for processing should be used immediately and not be allowed to stand open and exposed to air.

Foaming, when mixed with Part A, is an effective indicator that moisture has been absorbed. The storage life of Part B is 6 months from date of delivery in unopened containers when stored at normal in-door ambient temperatures (20-25°C). The material should be thoroughly mixed before decanting.

Both components will crystallize when stored at temperature below 20°C. Liquidity can be restored by melting out the components in an oven at 50-70°C. The material should be checked to ensure that it is fully melted out and no crystals/lumps are present.

Packaging

Standard 400L kits, 2x200L 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.

Hydrochloric Acid (15%)	R	Sodium Hydroxide (50%)	R
Sulphuric Acid (50%)	R	Ammonium Hydroxide (20%)	R
Phosphoric Acid (10%)	R	Potassium Hydroxide (20%)	R
Acetic Acid (10%)	R	Sodium Bicarbonate (30%)	R
Nitric Acid (25%), HF (10%)	R	Sodium Hypochlorite (14%)	R
Water @ 80°C	R	Calcium Hydroxide (30%)	R
Diesel	R	Hydrogen Sulphide (Gas)	R
Hydrochloric Acid (15%)	R	Sodium Hydroxide (50%)	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.