

Product Description

Lockwell TS 919 is a plural component system composed of ceramics in a polymeric binder, providing excellent performance in corrosive, chemical and abrasive environments, at ambient or elevated temperatures.

Lockwell TS 919 is designed for industrial use at elevated temperatures and will maintain its physical properties under continued exposure at high constant temperature both in exposed as well as immersion conditions.

Lockwell TS 919 is resistant to all petroleum distillates, most solvents, dilute acids, dilute alkalis, Sulphur fumes, acid fumes, distilled water, seawater, and waste water in ambient or elevated temperatures.

Lockwell TS 919 is also suitable in cryogenic applications as well as suitable in applications requiring to handle thermal cycling.

Application Area

- Internal /External coating for flow lines and transmission lines
- Petroleum and chemical tanks
- Petroleum and industrial process equipment
- Petroleum bulk carriers and storage tanks
- Offshore rigs and platforms
- Sour gas pipelines and process equipment
- Concrete stacks / chimneys
- Internal / External pipe coating for abrasive / chemically aggressive fluids
- Petroleum and chemical bulk carriers and storage tanks

Features

- Spray or brush and roller applied
- 100% solids, No VOC content
- High temperature resistance (175°C immersion, 225°C exposed peaks, 200°C constant exposed)
- Self-priming on properly steel substrates.
- Inflammable without carbonization
- Excellent abrasion resistance
- Excellent chemical and hydrocarbon resistance
- Good impact resistance
- Tolerant on damp surface

Technical Properties

| | |
|-----------------------------------|------------------------|
| Mixing Ratio (V:V) | 4A : 1B |
| Pot Life | 45 min (250 grams mix) |
| Gel Time | 45 min |
| Tack Free time | 6-8 hours |
| Maximum recommended recoat window | 24 hours |
| Return to Service time | 24 hours |

Performance Data

| | |
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| Color | Light grey – standard |
| Solids by volume (ASTM D2697) | 100% |
| Specific Gravity (kg/ litre) | A-1.53, B-1.02 |
| VOC's (ASTM D2369) | 0 g/L |
| Theoretical Coverage | 1m ² / lit @1mm |
| Viscosity at 25°C in cps | A:Paste, B-300 |
| Shelf life @ 25°C | 12 to 18 Months |
| Tensile strength (ASTM D 638) | 38 to 40 MPa |
| Adhesive shear strength (ASTM D 1002) | 14-16 MPa |
| Flexural strength (ASTM D 790) | 58-60 MPa |
| Elongation (ASTM D 638) | 7-58% |
| Hardness (ASTM D 2240) | 75 Shore D |
| Water Absorption -24 hrs (ASTM D 471) | < 0.5% |
| Thermal Fatigue (-35°C to 120 °C, 20 cycles) | Pass- No cracking, blisters or delamination. |
| Pinhole Pressure Test @ 100 Kg/cm ² | Pass |
| Service temperature | 175°C constant, Spike-200°C ,Immersion-150°C |
| Abrasion Resistance (ASTM D 4060) | < 45 mg loss Taber CS 10 wheel 1Kg/1000 rev |

Application

Concrete: The surface of the concrete should be dry, smooth, structurally sound and free of depression, scale, or foreign deposits of any kind. Remove all curing compounds (not required for Lockwell CP systems). Abrasive blast, sweep blast or water blast to remove all latent material and expose voids. Use a good quality epoxy filler or mortar for void and spall filling, skim coat or repairs (i.e. Lockwell P601). Prime & fill imperfections in the substrate surface to limit out-gassing. All concrete substrates, on or below grade level should be tested for moisture content and Lockwell CP used to block moisture vapour transmission if necessary (recommended).

On-grade or below-grade concrete floors or slabs should have a moisture barrier installed to protect from ground moisture. The surface preparation of concrete should meet and conform to Joint NACE 6/SSPC-SP 13 standards and achieve a concrete surface profile of minimum CSP 3 as per ICRI Guideline No.03732 for optimum performance.

Steel & other metals: All surfaces should be clean and free from contamination. The surface should be assessed and treated in accordance with ISO 8504. Abrasive blast the surface to minimum NACE-1/SSPC SP-5 or Sa3 as per ISO 8501-1 for surface cleanliness. An anchor profile of 75 -100 micron, measured using Testex tape is recommended. Soluble salts must be removed to an acceptable level (generally <50mg/m²).

Mixing Instruction

Lockwell TS 919 should not be diluted unless consulting a Lockwell representative for guidance. Gently mix the Side A (base) using a heavy duty slow speed drill fitted with a mixing paddle or commercially available paint mixers. Add side B (hardener) to side A and mix it thoroughly until a streak free homogeneous colour is obtained.

2% thinner (consult Lockwell rep) may be added when utilizing airless spray equipment or in cold climates. Mix only the quantity that can be used during the pot life. Discard material when the mixed material starts gelling and do not try to re-use by adding thinner.

Mixing this product manually by hand is not recommended. When environment temperature is below 10°C. The product can be indirectly heated to 20-25 °C. This will make mixing easier and accelerate curing and may have effect on Pot life.

Application

This product can be applied by dedicated airless spray equipment, brush or roller depending on the volume and project size. The Lockwell recommended spray equipment is an airless pump with 45:1 or higher ratio. Trowel grade material is also available for higher DFT metal repair and rebuild applications. Lockwell TS919 is applied over properly repaired substrates in the method most suitable for the application type.

Storage and Handling Precautions

Twelve to eighteen months in factory delivered, unopened drums. Keep away from extreme heat, freezing, and moisture. The use of drum heaters is encouraged to reduce material viscosity at low temperatures.

Do not open until ready to use, and store in a sealed container after opening. Do not leave it on open sun. Not good for applications below 7°C.

Packing

Lockwell TS 919 is available in 15 liters (21.42 kg) shipped in metal/plastic pails of 12 liters of A (18.36kgs) and 3 liters of part B (3.06 kg). Smaller package (5 liters) is available depending on order size. Contact Lockwell technical representative for details.

Chemical Resistance

Each Lockwell product formulation has varying levels of resistance to specific chemicals. Please review the chemical immersion test data included in the Lockwell Test Book for general resistance to specific chemicals at specific concentration levels. Chemical concentrations are complex and when combined with temperatures above ambient levels this complexity increases exponentially. Contact Lockwell Technical Personnel for specific recommendations for chemical resistance prior to specifying these products in this application type. Consult with Lockwell for more details on product and chemical resistance.

The following chart is the results of Lockwell immersed in chemicals and tested as per ASTM D 3912 and may be used as a guide line.

| Chemicals | Resistance |
|---|------------|
| Hydrochloric acid up to 33% at elevated temperature | R |
| Sulphuric Acid 70% | R |
| Sulphuric Acid 50% at elevated temperature | R |
| Nitric Acid 15% | R |
| Acetic Acid 10% | R |
| Ammonium Hydroxide 50% | R |
| Crude Oil, JetFuel, | R |
| Gasoline, Kerosene, Diesel | R |
| Motor Oil, Lubricants | R |
| Methanol, Ethanol | R |
| Xylene, Toluene | R |
| Acetone, MEK | R |
| Hydrogen Peroxide 30% | R |
| Refined Petroleum products | R |
| Sewage, Waste water | R |
| Most Industrial effluents | R |
| Sea water | R |
| Water @ 150 °C | R |

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.