CHEMSPRAY™ 790

Hybrid Polyurea, Spray Elastomer System

Product Description

Two-part, fast-curing, hybrid polyurea, spray applied elastomeric coating. It provides a premium quality, high build, long-life protective coating to concrete and metal substrates on major civil, infrastructure and commercial construction projects. Formulated using the latest polyurea technology, it forms an impenetrable barrier that is resistant to water, many chemicals and wear, while fully- resistant to water, CHEMSPRAY™ 790 is not recommended for potable water contact. We recommend our CHEMSPRAY™ 690 pure polyurea system for applications requiring full potable water certification to AS/NZS 4020:2005.

Product Advantages

- Simple application – fast-cure
- Abrasion and chemical-resistant
- Long-life – permanently flexible
- Resists reflection cracking in concrete
- Suitable for continuous immersion in fresh and salt waters plus desalination permeate

Uses

CHEMSPRAY™ 790 elastomer system is ideally suited for most areas of protective coating, lining and waterproofing in civil and commercial applications.

Used as a tough, flexible, waterproof membrane and coating, particularly over concrete substrates on water treatment plants, roof-decks, podium slabs, water tanks and bridge-decks. It provides lasting protection to plant room floors, manhole linings and secondary containment areas.

CHEMSPRAY™ 790 has also been used as a GCP designed sealant system in underground tunnels. It has provided a negative (or positive) air-pressure-resistant, water-resistant sealant to tunnel smoke ducts that is 400% faster to install than previously used sealants.

CHEMSPRAY™ 790 is compatible with most stable, suitably prepared rigid substrates, including concrete, steel, aluminium, shotcrete, brick, block, render, fibre cement sheet, plywood and timber.

Features

CHEMSPRAY™ 790 contains no TDI, MOCA, bitumen or tar based compounds.

Being polyurea-based, it has good resistance to humidity during application and forms a tough, bubble-free, impermeable coating.

CHEMSPRAY™ 790 is a simple 100:100 by volume mix ratio system that applies with good flow out and rapid-cure, resulting in a smooth, even coating finish that can be walked on in seconds.

The cured elastomer has high substrate adhesion plus excellent resistance to tear, puncture, chemicals, water and abrasion.

Unlike rigid coating materials such as epoxies, vinyl ester etc, CHEMSPRAY™ 790 resists post application reflection cracking in concrete.

Surface Preparation

See project specific Application Method Statement for detailed requirements.

Generally, for concrete substrates use wet, wet-abrasive or dry- abrasive blasting to remove laitance etc.

Patch defects using suitable fairing compound. Fill all joints, cracks, gaps and form angle fillets in internal corners or penetrations with SILCOR®LM PU Sealant.

Blast or mechanically clean steel substrates to a 70 to 90 µm surface profile or Class 2 1/2 to Class 3 white metal finish using Speed Blast Garnet, steel shot or similar media.

Prime prepared substrates with CHEMSPRAY™ 117 Clear. Primer at minimum 0.3 kg/m^2 (0.3 litres/m^2). Allow to cure to a just tack free condition (0.5 to 2 hours). Alternatively, prime with EPOCOTE™ F100W Clear at 0.3kg/m^2 (0.3 llitres/m^2). Commence CHEMSPRAY™ application within a maximum 6 hours of primer application.

Typical Properties

APPEARANCE	COLOURED HIGH BUILD COATING	
Mix Ratio - Polyamine : Iso (by volume)	100 : 100	
Polyamine Viscosity (@ 25°C) - ASTM D2196	400 - 800	mPa.s
Polyamine Specific Gravity (@ 25°C) - ASTM D1475	1.03	g/ml
Isocyanate Viscosity (@ 25°C) - ASTM D2196	400 - 800	mPa.s
Isocyanate Specific Gravity (@ 25°C) - ASTM D1475	1.11	g/ml
Gel Time (@ 25°C)	6	seconds
Tack Free Time (@ 25°C)	20	seconds
% Solids (v/v)	100	%
TVOC Content	8.56	%
Recommended Applied Thickness	1.5 TO 3.0	mm

Return to Service		
- Foot Traffic	30	minutes
- Full Service	6	hours
Hardness (minimum) - ASTM D2240	90	Shore °A
Tensile Strength (minimum) - ASTM D412	11.8	MPa
Elongation (minimum) - ASTM D412	350	%
Tear Strength (minimum) - ASTM D412	44.0	N/mm
Taber Abrasion Resistance (maximum) - ASTM D4060 (CS17 wheel, 1000 cycles, 1kg load)	200	mg
Water Absorption - (maximum, 23°C, 24 hours) - ASTM D471	0.50	%
Water Vapour Transmission - (maximum, 24 hours) - ASTM E96	5.0	g/m^2
Crack Bridging - ASTM C836	Pass	
Pull-Off Strength (minimum) – ASTM D4541		
- Inter-coat Adhesion	1.47	MPa
- Concrete (Dry) (Substrate Failure Occurred)	1.00	MPa
- Concrete (Primed) (Substrate Failure Occurred)	2.45	MPa
- Steel (90µm blast profile)	3.43	MPa
Lineal Shrinkage	Negligible	
Flexibility – ASTM D1737	Passes 1/8" mandrel bend testing.	
Resistance to Weathering - ASTM G-23 (Type DH Weatherometer – 2000 hour exposure)	No chalking, blistering, cracking or flaking. Slight darkening of surface colouration and down glossing occurred. Fully protect against UV-exposure using ULTRAURETM A-80 Non-Slip Top Coat.	
Potable Water Certification - AS/NZS 4020-2005 (Certified by AWQC - Australian Water Quality Centre)	Not approved for potable water contact.	

Application Equipment

CHEMSPRAY™ 790 is designed for application through high- pressure, plural component spray equipment capable of processing polyurea coatings.

Suitable equipment includes Graco Reactor E-XP2 or H-XP2 machinery fitted with high output heaters, heated lines and Graco Fusion Air Purge or Fusion CS impingement mix spray guns. Equipment should also be fitted with a drum mounted agitator for the polyamine component, material recirculation and drum mounted desiccant driers on both the polyamine and isocyanate components.

The CHEMSPRAY™ 790 polyamine component must be agitated before and during use. The isocyanate component does not require agitation.

Typical machine spray settings required for GCP CHEMSPRAY™ 790 application are:

Material Temperature	20°C to 25°C
Main Heater Temperature	60°C to 65°C
Line Heater Temperature	60°C to 65°C
Spray Pressure	2500 to 2800 psi

Round pattern spray gun mix chambers will minimise overspray produced considerably.

Application Guidelines Substrate

Substrates must be clean, dry, free-of-curing compounds, oil, grease, solvent or other contaminants. Moisture content of concrete must be below 5%.

Environmental Conditions

The following conditions must be achieved prior to and maintained during Chemspray™ 790 application.

Ambient Temperature	5°C to 45°C
Substrate Temperature	10°C to 60°C
Relative Humidity	85% maximum
Dew Point	3°C below substrate
Approximate Wind Speed	10 knots maximum

Application

CHEMSPRAY™ 790 is typically applied at a minimum Dry Film Thickness (DFT) of 1.5mm in one or more passes. Required application rates for specific projects may be higher or lower, dependent on structural design, area of application, project specification and product warranty required.

Please contact your local GCP representative or the GCP Technical Department for information specific to your project estimating requirements.

Surfacing

Where colour stability is required in sun exposed applications, apply our aliphatic, UV-stable topcoat, ULTRAURE™ A-80 Non-Slip Top Coat where colour-stable protection and a non-slip finish is required.

Clean Up

Clean up liquid leakage or spills before hardening occurs using solvents such as xylene, MEK or acetone.

Fully cured polyurea residues can be removed from metal components and equipment using GCP NMP Hot Cleaner. However, this cleaner will swell or dissolve many polymers such as neoprene, butyl and Viton rubbers, fibre packings, etc. All plastic and rubber components must be removed before immersion in heated GCP NMP Hot Cleaner. Fluorocarbon polymers such as Teflon are impervious and can be immersed if required.

GCP NMP Hot Cleaner cleans most effectively when heated to 80°C. It can be used cold, but will only dissolve residues extremely slowly.

Storage

CHEMSPRAY™ 790 polyamine and isocyanate components should be stored between 15°C and 25°C. Drums must remain tightly sealed against moisture ingress. Under these storage conditions these materials will have a shelf life of 12 months. Storage at temperatures other than detailed can result in degradation and crystallisation in the drum, rendering the materials unusable. Ingress of humidity or water into the drums during storage or use will also make the materials unusable.

Handling

Refer to CHEMSPRAY™ 790 Material Safety Data Sheet (MSDS).

Operators must have full awareness of the material safety requirements before any work is undertaken.

CHEMSPRAY™ 790 polyamine component is a mild irritant. Avoid contact with skin or eyes. CHEMSPRAY™ 790 isocyanate component contains methylenebisphenyl diisocyanate (MDI). It is an irritant and allergic sensitiser to skin and respiratory systems. Avoid contact with skin or eyes. Avoid breathing vapour or spray aerosol.

CHEMSPRAY™ 790 system spray application must occur in areas with adequate ventilation. Suitable organic vapour respirators or air-fed hoods must be worn during spray operations. Other required PPE includes butyl or nitrile gloves, safety goggles or full-face shield, coveralls and chemical-resistant safety boots.

Coverage

1.65 kg (1.5 litre) of CHEMSPRAY™ 790 system provides coverage of 1m2 at 1.5 mm coating thickness. Allow for processing losses, over-spray, etc – typically 10% or greater depending on surface and ambient conditions.

Packaging

CHEMSPRAY™ 790 Polyamine 200kg drums
CHEMSPRAY™ 790 Isocyanate 210kg drums
CHEMSPRAY™ 117 18kg pails
EPOCOTE™ F100W Clear 24kg set

Product Risk

The CHEMSPRAY™ 790 system is not intended for use by other than experienced operators. The data herein requires experience and knowledge to attain correct interpretation and outcome. The user must undertake all relevant tests to determine the suitability for the intended application, as such determination of fitness of purpose for product use, is the sole responsibility of the purchaser.

Health and Safety

In case of spills and accidents, refer to the MSDS of the products or when in doubt contact your local GCP representative. Always wear protective clothing, gloves and protective goggles when handling chemical products.

Limitations

Information contained in this document does not cover all possible application scenarios or imply product suitability for an application. Please contact your local GCP representative or the GCP Technical Department for further information.

Warranties

GCP and contractors recognised by GCP as experienced in the application of GCP products will provide warranties for individual projects. Warranty periods offered are dependent on project details and complexity. Requests for very long warranty periods may necessitate increased membrane thicknesses to ensure longevity. Contact your local GCP representative for further details.

Release Date: 02/11/18. The information contained in this product data sheet supersedes all previous versions.

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