

# Material Product Data Sheet

## Metcoseal LP-20 Sealer for Thermal Spray Coatings

### Sealer Products: Metcoseal™ LP-20

#### 1 Introduction

Metcoseal LP-20 is an impregnating solvent based 2-component resin solution for sealing of internal porosity in thermal spray coatings. Metcoseal LP-20 is optimized for maximum impregnation depth in low-porosity coatings and high chemical resistance. Open porosity is effectively sealed throughout the coating.

#### 1.1 Typical Uses and Applications

- Petrochemical components, such as:
- Gate Valves
- Ball Valves
- Mud Motor Rotors
- Pump seals, shafts, plungers and housings
- Pulp & Paper mill components
- Hydraulic pistons

#### 1.2 Physical Properties

#### Quick Facts

Classification	Auxiliary, Sealers
Purpose	Seal porosity within low-porosity thermal spray coatings
Process	Especially for HVOF coatings



Property	Metcoseal LP-20	
Base Composition	Furfuryl Alcohol Resin (2-component)	
Appearance	Clear amber liquid Dark green-brown when cured	
Coverage	120 g / m <sup>2</sup>	0.4 oz / ft <sup>2</sup>
Cure Method	Polymerization	
Viscosity	12 to 14 s (DIN #4)	
Density	0.97 g/cm <sup>3</sup>	0.124 lb / in
FlashPoint	65 °C TCC	150 °F TCC
Max. Prolonged Service Temperature	230 °C	445 °F
Max. Short Duration Temperature	300 °C	570 °F
Shelf Life	12 months See section 4.2	
Volatile Organic Compounds (VOC)	18 wt. %	

## 2 Material Information

### 2.1 Quick Selector

Sealer	Application Examples	Service Conditions		Curing	Mixing Ratio
		pH	Solvents		
Metcoseal LP-20	Ball / Gate valves in O&G, mud motor rotors, pump seals, shafts, plungers & housings Alkaline environments	2 to 14	Most industrial solvents	24h @ 20 °C 30 min @ 50 °C	Base : Curing agent 100:20 By weight

## 3 Key Processing Information

### 3.1 Metcoseal LP-20 Sealing Work Preparations

Always read the Material Safety Data sheet (SDS) and adhere to all safety measures and use correct Personal Protective Equipment (PPE) before starting to work with Metcoseal LP-20. Full-face shield is highly recommended in addition to other PPE mentioned in the SDS.

As a general rule, apply sealer always after spraying and prior to finishing. Metcoseal LP-20 achieves maximum performance when coating surface is clean, dry and free of oil, grease, dirt, cor rosives, paint and any other foreign matter.

Prepare all tools and materials ready for the sealing work. Use suitable plastic (PP, PE) or glass containers and mixers.

### 3.2 Surface Preparation

After completing the thermal spray coating do not touch the coated surfaces. If the coating is contaminated it must be cleaned before applying the sealer. Remove dust by air blasting. Organic solvents such as acetone or isopropanol can be used for grease and dirt removal. Let dry completely before applying the sealer.

### 3.3 Metcoseal LP-20 Mixing

Metcoseal LP-20 is recommended to be applied manually by brush, paint roller or suitable spray equipment.

As some settling may occur, contents of the containers should be stirred or mixed thoroughly prior to use.

Mix part BASE with part CURING AGENT always by weight on an accurate scale

**Mixing Ratio: 100:20 by weight**

NOTE: The amounts of the components should be followed accurately. Maximum allowed deviation is  $\pm 0.5\%$  by weight

Larger batches than 200 grams are not recommended due to the exothermic nature of the mixture! Hazard of overheating and spills!

Example for a sealer batch of 120 grams:

Add BASE (100  $\pm$  0.5 g) into the mixing pot on a scale  
Add CURING AGENT (20  $\pm$  0.5 g) into the same mixing pot

Mix the components properly at room temperature, at least for 1 min before using.

Ready mixture should not be heated. Mixed product pot life is maximum 30 minutes depending on the temperature.

### 3.4 Metcoseal LP-20 Manual Application

When starting the sealing work the workpiece temperature must be above the dew point and at least 20 °C (70 °F). The workpiece temperature must not exceed 75 °C (170 °F). Too high temperature causes premature evaporation and prevents sealer penetration.

Apply the first layer using a paintbrush or small paint roller with generous amount of sealer (thick wet film), as wet as possible to ensure the proper penetration. If possible, apply some pressure to the surface. Continue brushing the surface for a couple of times until air bubbles do not appear anymore. In case dry spots appear, reapply sealer after 5 minutes. After 15 minutes wipe the excess sealer from the surface by a non-linting cloth, squeegee or dry paint roller. This helps to prevent clogging of grinding wheels/belts in the finishing step.

CAUTION! Applying of the mixture should be done within 30 minutes after the addition of the curing agent. Leaving the mixture in the container for prolonged time might cause a risk of uncontrolled exothermic reaction.

### 3.5 Curing of Metcoseal LP-20

Curing is based on chemical reaction and it requires certain time dependent on the component / surrounding temperature, see table below. Recommended temperature for curing is 20-30 °C. Temperature should always be well above dew point to avoid condensation.

<b>Curing Schedules</b>	<b>Time After Application (at room temperature unless otherwise noted)</b>	
Touch / gel time	180 min at 20 °C	70 °F
	150 min at 30 °C	86 °F
	30 min at 40 °C	104 °F
	10 min at 50 °C	122 °F
Complete Cure	24 hours at 20 °C	70 °F
	18 hours at 30 °C	86 °F
	2 hours at 40 °C	104 °F
	0.5 hours at 50 °C	122 °F

Possible grinding of the coating should not be performed before complete curing of the sealer. Grinding un cured sealer may clog grinding wheels.

## 4 Commercial Information

### 4.1 Ordering Information and Availability

	<b>Order No.</b>	<b>Container Size</b>	<b>Availability</b>	<b>Distribution</b>
Metcoseal LP-20	2370952	1 kg + 0.2 kg (Base + Curing Agent))	Special Order	Global

### 4.2 Storage and Disposal Recommendations

- Both components of Metcoseal LP-20 have to be stored separately in dry, well-ventilated place in room temperature. Containers should be held tightly closed and prevent possibility of accidental mixing. See SDS for details.
- Sealer components that are once opened, but properly stored in well-closed containers can be used until the expiry date.
- Hardened excess can be disposed with normal municipal waste. Liquid sealer or components must be treated as hazardous waste. See SDS for details.

Sometimes it is possible that grinding opens porosity or creates cracks that are not any longer properly sealed. In these cases or if in doubt a second sealing can be performed. Follow the instructions given for surface cleaning and after application, make sure all excess is removed very thoroughly.

After the work is complete remove all spillage or excess sealer with xylene or methylethylketone (MEK). Dispose the used tooling or rinse with xylene or MEK.

Let the excess sealer cure in the mixing container at room temperature for over 24 hours. Do not leave a large batch unattended because of the risk for exothermic reaction!

### 4.3 Safety Recommendations

See the SDS (Safety Data Sheet) for the applicable product. SDS are available from the Oerlikon web site at [www.oerlikon.com/metco](http://www.oerlikon.com/metco) (Resources – Safety Data Sheets).

<b>Product</b>	<b>SDS No.</b>
Metcoseal LP-20 Part A	50-2757
Metcoseal LP-20 Part B	50-2758