

# POLYUREA ONE SPRAY



## Hybrid polyurethane-polyurea coating for surface protection

### DESCRIPTION

**POLYUREA ONE** is a hybrid polyurethane-polyurea system, composed of aspartic acid derivatives, which brings a moderate and adjustable reactivity, in contrast to usual polyfunctional amine based polyurea system. The high reactivity of traditional polyurea causes an extremely short gelling time and insufficient self-leveling properties. This affected to the final surface appearance.



POLYUREA ONE offers the desired properties form industrial marine or construction applications along with a longer curing time. Additional benefits are a good curing time even a low temperatures, good adhesion properties and high corrosion resistance, which are important factors for a time and cost-saving process.



- Hard and resistant coating is achieved in only one coat.
- Two component, spraying machine applied.
- Aliphatic polyurethane. Non yellowing
- Good colour and gloss retention
- Nonflammable. No solvents
- Short and convenient curing time, even at low temperatures.
- Anticorrosive properties
- Good weathering resistance.
- Thick layer possible in a single application
- Ideal for new construction and refurbishment.

### TECHNICAL DATA

#### INFORMATION ON THE PRODUCT BEFORE APPLICATION

	Component A	Component B
<b>Chemical description</b>	Aspartic acid derivative polyamine	Aliphatic polyisocyanate
<b>Physical state</b>	Liquid	Liquid
<b>Packaging</b>	Metal container 186 kg / 24.3 kg	Metal container 192 kg / 25 kg
<b>Non-volatile content (%)</b>	97%	100%
<b>Flash point</b>	>100°C	230°C
<b>Colour</b>	light yellow	Colourless

#### Density

Temp (°C)	Density (g/cm3)	Temp (°C)	Density (g/cm3)
20	1.08	20	1.17
60	1.02	60	1.06

#### Viscosity

approximate Brookfield

Temp (°C)	Viscosity (mPa.s)	Temp (°C)	Viscosity (mPa.s)
10	1000	10	10000
20	330	20	4000
30	150	30	1700
50	60	60	400

**VOC content**

**VOC class**

35 g/L, 3%  
A<sub>j</sub>

0  
A<sub>j</sub>

**A/B mixing ratio at recommended application temperature**

A=100, B=100 by volume

**Mixture properties**

Fast polymerization (see pot life data)

**Mixture colour**

Component A is pigmented prior to application by addition of Pigment Spray for POLYUREA ONE, delivered separately.

Note: spraying of unpigmented POLYUREA ONE gives a translucent, non-transparent material.

<b>Pot life</b>	Gelling time A+B mixture (20 g) 3 minutes at 25°C 2 minutes at 60°C
<b>Storage</b>	Keep at temperatures between 10° and 30°C.
<b>Use before</b>	12 months after manufacture date.

#### INFORMATION ON THE FINAL PRODUCT

<b>Final state</b>	Solid membrane
<b>Colour</b>	Depends on the chosen pigmentation
<b>Hardness (shore)</b>	75D
<b>Mechanical properties</b>	Maximum elongation: 5% Tensile strength: 36 MPa
<b>Solid density</b>	1,15 g/cm3
<b>Chemical resistance</b>	Surface contact, 24 hours, room temperature (5=ok, 0=not recommended)

Chemical	Result
Water	5
Sulphuric acid 10%	5
Sulphuric acid 30%	5
Sulphuric acid 50%	3
Isopropyl alcohol	3
Diesel	5
Sodium hydroxide (40g/L)	5
Engine oil	5
Hydrogen peroxide 33%	5
Ammonia 3%	5
Methoxypropyl acetate	2
Xylene	0
Bleach	5
Skydrol	4

<b>UV resistance</b>	Aliphatic product. Method 1 according to EN ISO 11341, 2000 hour cycle Colour change: $\Delta L^* = -1,89 / \Delta a^* = 0,41 / \Delta b^* = 2,09$ Total: $\Delta E^* = 2,84$
<b>Abrasion resistance</b>	Taber: CS10, 1000g, 1000 cycles: 21 mg
<b>Corrosion resistance</b>	Categories C2H and C3H as per EN 12944-6
<b>Adhesion</b>	Steel: > 5 MPa (N/mm <sup>2</sup> ) ISO 4624 Breaking type: Y/Z 100% (support-adhesive failure).
	Concrete: >1,5 MPa
<b>Gloss 60°</b>	85%

#### SURFACE REQUIREMENTS

In order to achieve a good penetration and bonding, support must be:

1. Flat and leveled (product is self-leveling)
2. Compact and cohesive (pull off test must show a minimum resistance of 1,4 N/mm<sup>2</sup>).
3. Even and regular surface
4. Free from cracks and fissures. If any, they must be previously repaired.
5. Clean and dry, free of dust, loose particles, oils, organic residues or laitance.

#### AMBIENTAL CONDITIONS

Support temperature must be between 10°C and 40°C. If higher, specific measures must be taken. Moisture support should be below 4%. Air temperature should be between 10°C and 30°C. Air humidity must be between 40% and 80%

#### SURFACE PREPARATION

Concrete supports must be prepared and primed according to standard practice.



**JOFA RESINS**  
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### MIXING

Stir and homogenize both components using suitable stirring equipment. Add Add Pigment Spray to the A component as directed and stir before charging into the A-hood of the spraying machine. Charge B component into the other hood. Recirculate both components until application temperature is achieved.

### APPLICATION

POLYUREA ONE can only be applied using a 2-component- hot applied spraying equipment. Recommended temperatures are:

Component A: 25°C  
Component B: 50-60°C

Approximate pressure 100 bar.  
During application it is advisable to check regularly layer thickness and curing rate.  
Apply POLYUREA ONE at 500 -1000 g/m2.

Wind speeds in excess of 25 km/h may result in excessive loss of exotherm and interfere with the mixing efficiency of the spray gun affecting polyurea surface texture, cure, and physical properties and will cause overspray issues.

Contact JOFA RESINS for more technical details regarding equipment and operating conditions.

### CURING TIME

POLYUREA ONE hardens after a few minutes. However, curing rate drops at lower temperature and lower humidity content. The following data give a rough guide.

Conditions	Touch-Dry (min)
20°C, 40% rh	15
20°C, 15% rh	25
20°C, 60% rh	15
6°C, 50% rh	15
6°C, 20% rh	40
6°C, 70% rh	15
35°C, 20% rh	10
35°C, 40% rh	30

Shore D hardness evolution ( 1 mm, 25°C, 50%hr).

Time	Hardness
2 h	45
4 h	64
6 h	67
24 h	72
3 days	76

### RE-APPLICATION

Under most conditions, required thickness is achieved in a single application. If a recoating is needed, it is strongly recommended to do it immediately afterwards. The longer the time gap between layers, the more likely interlayer adhesion difficulties can appear

### RETURN TO SERVICE

At normal conditions (25°C, 50% hr), membrane is light traffic resistant after one hour. For more demanding uses, waiting time will be slightly longer.

### CLEANING

Solvent use for machine component cleaning is discouraged. A cleaning plasticizer fluid is suitable. Component B must be completely removed from all air-exposed parts and replaced with cleaning fluid. Consult JOFA RESINS for advice on cleaning fluids.

### SAFETY

Component B contains isocyanates. Always follow the safety instructions in the Material Safety Data Sheet. As a general rule, a good ventilation and/or respiratory protection is needed (combined organic vapor filters+particles A2P2) along with protective clothing. This product must be used only for the applications here described. This product is intended for industrial and professional use. It is not suitable for DIY-type applications.

### ENVIRONMENTAL PRECAUTIONS

Empty containers must be handled with the same precautions as if they were full. Treat empty containers as hazardous waste, and transfer them to an authorized waste manager. If the containers still have some material left, do not mix with other product with no knowledge of potential dangerous reactions. Component A and B may be mixed on a 1/1 ratio in order to get an inert material, but never do it in volumes larger than 5 litres in order to prevent a dangerous heat evolution

### OTHER INFORMATION

The information contained in this DATA SHEET, as well as our advice, both written as verbal or provided through testing, are based on our experience, and they do not constitute any product guarantee for the installer, who must consider them as simple information.

We recommend to study deeply all information provided before proceeding to the use or application of any of our products, and strongly advise to conduct tests "on-site" in order to determine their convenience for a specific project.

Our recommendations do not exempt of the obligation of installers to deeply study the right application method for these systems before use, as well as to conduct as many preliminary tests as possible should any doubt arise. The application, use and processing of our products are beyond our control, and therefore under the exclusive responsibility of the installer. In consequence, the installer will be the only responsible of any damage derived from the partial or total in-observation of our indications, and in general, of the inappropriate use or application of these materials.

**This data sheet supersedes previous versions.**

