

# BLUE PROCESS TECHNOLOGIES, Inc.

Head Office: Kalubihan Dos, Umapad, Mandaue City, Cebu

Manila Office: 1427 Pablo Ocampo Sr. Avenue, San Antonio Village, Makati City

Telefax No.: (+632) 8551-1741



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## BPT BIOCOAT

BPT BioCoat - Safe Enough for Food, Strong Enough for Industry. A coating designed to meet the high demand of food grade industry coatings.

### 1. PRODUCT DESCRIPTION

**BioCoat** is a very fast curing, two component, aromatic, flexible, pure polyasphaltic system coating derived from a reaction of an isocyanate prepolymer and an amine terminated resin blend. This product has been approved for potable water & food contact and especially designed waterproofing for potable water tanks and pipes. The material must be applied utilizing high pressure, heated plural component spray proportioning equipment.

### 2. FEATURES

- Approved for potable water & food contact
- Fast reactivity and fast return to service time
- 100% solid, VOC free, no solvents
- Environmentally friendly
- Very good tensile and structural strength
- Excellent chemical resistance
- Excellent impact and abrasion resistance
- Excellent adhesion on concrete, steel, aluminum, plastics, fibers, wood, foam etc.
- Excellent flexibility
- Excellent crack bridging properties
- Temperature and moisture insensitive
- Excellent corrosion protection
- UV, chlorine and saltwater resistant
- Variable application thickness is possible
- Transparent.

### 3. APPLICATION AREAS

- Potable water storage facilities and tanks
- Potable water pipes
- Food production and processing plants
- Food storage tanks
- Rain storage facilities and sedimentation tanks
- Filtration systems
- Swimming pools and aquariums

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## 4. SURFACE PREPARATION & APPLICATION PROCEDURE

**Surface Preparation:** Surface preparation strongly affect coating performance. Concrete substrates must be prepared mechanically using abrasive blast cleaning to remove cement laitance and achieve an open textured surface. Weak concrete must be removed and surface defects such as voids must be fully exposed. Repairs to the substrate, filling of blowholes/voids and surface leveling must be Carried out using appropriate products. All dust, loose and friable material must be completely removed from all surfaces before application of the product, preferably by brush and/or vacuum.

For application pull off strength of the surface should be min. 1.5 N/mm<sup>2</sup> and concrete residual moisture should be max. 4% pbw (with appropriate moisture tolerant primer should be max. 6% pbw). The moisture content should be measured by moisture meter. Be aware of condensation; the substrate must be at least 3 °C above dew point to reduce the risk of condensation of the coating. Relative air humidity for application should be lower than 85%. Prior to application, confirm substrate moisture content, relative air humidity and dew point.

Application conditions/ limitations:

	Surface Temperature	Ambient Temperature	Relative Air Humidity
<b>Optimum</b>	10 °C -30 °C	20 °C -30 °C	25-50%
<b>Minimum</b>	-10 °C	-10 °C	0%
<b>Maximum</b>	50 °C	50 °C	85%

**Priming:** The application surface has to be primed in order to achieve an even surface and good adhesion. Lightly spreading out with quartz sand 0,3-0,8 mm is recommended because this provides higher adhesion values and extends the maximum waiting time of primer prior to the application of BioCoat coating. In order to avoid the formation of blisters do not spread to excess.

**BioCoat Application:** The BioCoat must be applied within 12-24 hours of applying the primer. Isocyanate prepolymer and amine resin must be applied using a two component high pressure and heat spray machine. The machine should be able to spray the components in 1:1 volume ratio. Both components must be heated above 70 °C. In order to achieve good performance, the temperature and pressure should stay same during the application and must be controlled regularly. BioCoat system components might not diluted under any circumstances. Before application, amine component must be stirred at least 30 minutes using a barrel mixer until a homogenous mixture and colour obtained. Aromatic coating systems are UV stable but are not color stable. The cured coating may exhibit discoloration when exposed to sunlight. This does not influence the performance and physical properties of the material. If the color stability required, an aliphatic top coat must be applied within 12 hours of applying base coat.

### Consumption of Coating Components:

Primer: 0,3-05 kg/m<sup>2</sup>

Quartz sand: 1-1,5 kg /m<sup>2</sup>

BioCoat coating: 1,05- 1,1 kg/m<sup>2</sup>/mm (recommended film thickness is minimum 2 mm.)

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## 5. PACKAGING

200 kg barrel (Amine component)

225 kg barrel (Iso component)

## 6. COMPONENTS

BioCoat components are sensitive to moisture. Keep components in closed containers. Store the product in a ventilated place away from direct exposure to sunlight. Keep components between 20 -30 °C for quality reasons. Shelf life of the unopened original packaging is nine months from manufacturing date

## 7. SAFETY

Contains isocyanate MDI. Avoid breathing vapors. Avoid contact with skin and eyes. Take precautions during application. Wear suitable protective clothing, gloves and eye/ face protection. Adequate ventilation of the working area is recommended. Refer to SDS sheet prior to use.

## 8. TECHNICAL FEATURES

### Component Properties

	UNIT	METHOD	ISO COMPONENT (A)	AMINE COMPONENT (B)
<b>Density (25°C)</b>	gr/cm <sup>3</sup>	ASTM D 1217	1,11±0,03	1,02±0,02
<b>Viscosity (25°C)</b>	mPa.s	ASTM D 4878	700-800	300-600
<b>Shelf life</b>	-----	-----	9 months	9 months

### Process Properties

	UNIT	DATAS
<b>Mix Ratio</b>	By volume	A=100 B=100
	By weight	A= 112 B= 100
<b>Process temperature(°C)</b>	°C	A: 70-80 B: 70-80
<b>Process pressure (bar)</b>	Bar	A: 180-200 B: 180-200

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	METHOD	DATAS
<b>Chemical structure</b>		A: MDI Prepolymer B: Amine Resin
<b>VOC content (%)</b>	ASTM D1259	0
<b>Solid content (%)</b>	ASTM D2697	100
<b>Gel time (sec)</b>	--	5-10
<b>Tack free time (sec)</b>	--	15-30
<b>Recoat time (hr)</b>	--	0-12 (without pretreatment)
<b>Post cure time (hr)</b>	--	24
<b>Density (gr/cm<sup>3</sup>)</b>	ASTM D792	0,99-1,03
<b>Tensile strength (MPa)</b>	ASTM D638	≥ 18
<b>Modulus (MPa)</b>	ASTM D638	%100 elongation ≥10 %300 elongation ≥15
<b>Elongation at break (%)</b>	ASTM D638	≥350
<b>Hardness (Shore D)</b>	ASTM D2240	40-45
<b>Hardness (Shore A)</b>	ASTM D2240	90-95
<b>Tear strength (N/mm)</b>	ASTM D 624	≥50
<b>Impact resistance</b>	EN ISO 6272-1	Class III
<b>Thermal Resistance</b>	--	-30 °C-100°C
<b>Pull off strength (N/mm<sup>2</sup>)</b>	ASTM D 4541	Concrete: ≥2,5 Steel: ≥6
<b>Approval to food contact</b>	BS6920-1:2000	WRAS