

**EPS COATING SYSTEM** 

PRODUCT BULLETIN

## EPS FOAM COATING SYSTEM WITHOUT MESH

For exterior moldings, decoration and prefabricated thermal insulation facade claddings



www.ProcoatXP.com

## **Innovative Coating for Polystyrene**

# Exceptional flexibility & adhesion Stunning results

ProcoatXP is a group of high-end EPS (Polystyrene) coatings specially developed for prefabrication of moldings, bands, jambs, sills, columns and external thermal insulating facade claddings.

ProcoatXP EPS Coating system is durable, is very practical and allows the flexibility to produce the most demanding designs, whether flat or curved, concave or convex, stone like, white and after paint becomes vibrantly colored.

By specifying ProcoatXP EPS Coating System, you avoid the problems associated with products coated with conventional cementitious or other synthetic renders, such as fragility, cracking, detaching and color fading.

ProcoatXP features great durability, flexibility, impact resistance without the usage of glass fiber mesh reinforcements as in all other coating systems. The coating features great adhesion to EPS - 4 times over the standard minimum. The coating is UV resistant and the white through-colored composition reduces on-site installation and painting issues. Due to acrylic base of the coating, the acrylic primers and paints permeate well and increase the service life of the paints.





## The benefits of ProcoatXP

### Better than any conventional cement or synthetic render based EPS coating with mesh reinforcement

Since 2000 ProcoatXP technology for top coating without mesh has been used for professional and commercial use in prefabricated exterior decoration and design facade claddings.

Using acrylic as a base, graded with specially formulated additives, aggregates and clean water, ProcoatXP EPS Coating System is the thin (minimum 2mm), flexible, durable, UV-resistant and weatherproof coating used now in over than 40 countries Worldwide.

Ready made EPS products coated with ProcoatXP are designed to handle a wide range of situations, from ideal building conditions to highly problematic substrates.

### Key features & benefits

- Flexible
- Strong and hard more durable than any render based coatings with mesh
- Resistant to impact and mechanical stress
- Resistant to extreme weather conditions
- Low water absorption
- Excellent adhesion to the polystyrene
- Incredible resistance to temperature and humidity variations
- Very good CO2 and water vapor permeability, increasing the rate of moisture transfer and evaporation for a breathable wall.
- Easy and fast application on EPS claddings and architectural shapes
- Does not require reinforcement mesh
- Does not require an equalization coat
- Primer and paint topcoat is applied directly on surface
- Perfect permeation with exterior construction paints
- The whiteness of coating allows easy application of bright, vibrant colors
- Perfect for all kinds of architectural shapes
- According to climatic zones the formulation is adjusted



## **Comparative analysis**

The comparative analysis of the test results for ProcoatXP EPS Coating System with the traditional external thermal insulation system with conventional cement or synthetic based render coating systems reinforcement with fiber glass mesh.

Water permeability of ProcoatXP = 0,04 kg/m2h0,5 EN 1062-3:1999 standard value max: 0,5 kg/m2h0,5 Determination of liquid water permeability.

Vapor transmission of ProcoatXP = 62,4 gr/m2day EN 1062-4:1999 standard value min: 20 gr/m2day Determination and classification of the water vapor transmission rate / permeability. Tensile bond strength of ProcoatXP = 313,15kPa EN 13494:2004 standard value = 80kPa Determination of the tensile bond strength of the base coat.

Impact resistance of ProcoatXP = 10J/no damage TS EN 13497:2005 standard value = 10J Determination of the resistance to impact of the base coat.

### System specific benefits

#### Crack and impact resistance

The binders in ProcoatXP EPS Coating system are highly flexible, providing much better resistance to surface cracks than traditional cement or synthetic-based renders.

#### Weather resistant

All renders provide a high level of weather protection for buildings. ProcoatXP EPS Coating is a sand & cementfree, is polymeric, thus allowing to repel water far better than traditional thick coat renders.

#### Vapor permeable

ProcoatXP EPS Coating has ben specially formulated to allow the wall surface to breathe.

#### Fire resistant

ProcoatXP EPS Coating polystyrene products are resistant to fire as Euroclass C (EN 13501-1) The European classification standard ranks construction materials in: A, B, C, D, E, and F classes with regard to their fire behavior

#### Prevention of algae and fungus growth

The growth of algae and fungus on facades can be an ongoing problem for building owners, causing unattractive staining, increasing maintenance costs and, if left untreated, damaging the fabric of the building.

#### Extrusion of profiles



Extrusion of decorative shapes



#### Extrusion of prefabricated EIFS





## GFRC or Natural stone look finish

ProcoatXP EPS coating is the ideal coating material to realize the breadth of your creativity. With aggregates for a smooth surface or a slightly textured natural stone aesthetic, a balanced formulation and high quality raw materials Baucoat provides outstanding qualities to fabricated building materials and allows production of most complicated individual end-product designs.





### TECHNICAL DATASHEET BAUCOAT EPS COATING SYSTEM

### **Product characteristics**

Technical characteristics are obtained in the laboratories at 23 °C ( $\pm$  2 °C) air temperature and 50 $\pm$ 5% relative humidity.

#### **General characteristics**

Identified uses	Construction and exterior coatings
Color	White
Consistency	Plaster consistency
Curing method	Temperature curing (at 30 – 45 °C) with moisture evaporation
Workability time when open	4 hrs (at 25°C)
General drying time (totally dried)	24 hrs (at 40 °C, 10% relative humidity, 3mm layer) Lower temperature, higher relative humidity, or thicker applications show an increase in drying time
Application ambient temperature	+ 5 °C to + 45 °C
Service Temperature for the cured coating	from -30 ° C to + 80 ° C

### **Chemical composition**

Product composition	20% acrylic copolymer & 80% mineral additives
Not resistant to:	Solvents Exposure to low temperatures or freezing when in raw (wet, non cured) state

### **Physical characteristics**

Appearance	Putty-like
Color	White / off-white
Odor	Sweet
рН	6.0 – 9.0
Solubility	Miscible with water. Slightly soluble in water
Viscosity of styrene acrylic	400 - 3000 cP at 20 °C
Product density	1,7 kg/lt ± 0,2:
UV resistance	Resistant
UV degradation	Non-degrading
Thermal conductivity	0,72 W/m2*K
Water Transmission Rate	0,040 kg / m2*h0,5
(EN 1062-3)	



Water Vapor Permeability (EN ISO 7783-2)	Vapor permeable: min 62,4 g/m2 per day	
Adhesion strength on EPS (EN 13 494)	≥313,15 kPa (rupture in the EPS) at 3 mm thickness and 24 kg/m3 EPS density	
Impact Strength (EN 13 497) for 3 mm thickness base 10J	No damage after impact (laid on EPS layer with density 24kg / m3)	
Resistant to:	Weathering, water, aggressive atmospheres, cracks (15 times more resistant than cement or conventional mineral renders), algae and fungus growth, resistant to extremely low and high temperatures after curing	

#### Reaction to fire of cured product

Flammability	The product is low flammable
Hazardous decomposition products	Fire creates: Carbon dioxide (CO2) Carbon monoxide (CO)
Fire rating of EPS coated with Binacryl	Euroclass C

### Packaging

90 kg plastic drum. 6 plastic drums on 1 pallet.

Notes: Closed plastic bag placed in closed plastic drum. Allowed 2 levels of pallets (with 6 drums) over the existing pallet.

### Storage conditions and terms:

Temperature range:	+10 - +45 °C
Humidity range:	40% - 60%
Mean life of product:	6 months
Useful life of product:	12 months (if storage conditions have been respected)

BAUCOAT EPS COATING SYSTEM

### **RAW MATERIAL / READY PRODUCT TOLERANCES:**

The following tolerances or season variations are allowed:

Color variations	Off -white, yellow, beige, light grey, yellow inserts
End product characteristics - flexibility	Various formulations adjusted to climate zones
- hardness and smoothness	White stone-like appearance (softer, more elastic) or smooth polished like appearance (harder, less elastic)

#### INSPECTION AND PREPARATION BEFORE USAGE:

Verification of quality before preparation for usage:	Viscosity, uniformity and lack of contaminants	Must be checked for lack of contaminants, dried parts of non-uniformity. In case the product cannot be pre-mixed or mixed with water (as described in Re-humidifying) into a uniform mass, the product is no longer suitable for usage	
Pre-mixing:	Must be always performed before usage. Premixing is performed in the delivery container or mixing machine.	Perform at 700-800 rpm with hand drill fitted with mixing bit. Approximate mixing time – 5 sec, from top to bottom to top of container. If water is added into premix, mixing time will be increased, and rpm's decreased to 400. Premixing after adding water is not allowed for more than 1 minute as this can cause rupture in polymer's bonds or integrity.	
Re-humidifying:	Allowed	150 gr to max 200gr of clean room temperature water to a 90 kg container of premix, after pre-mixing, if pre-mixing didn't achieve a uniform liquid mass, or the product lost humidity for various reasons	



#### MIXING DIFFERENT PRODUCTION LOTS

Mixing from different production lots is allowed in case that both production lots are suitable for usage. Necessary records must be kept on the newly obtained pre-mix.

Mixing of a conforming lot with a non-conforming lot is strictly forbidden.

#### **DELIVERING PUMP CHARACTERISTICS**

Standard pump machine

Capacity of pumping:	Depending on production capacity
Machine capacity	300 - 500 kg

#### ALLOWED ADMIXTURES

The following materials can be admixed into the acrylic material for the main coating layer

Admixture	Admissibility	Allowed quantity	Purpose of admixing
EPS granules	Yes	1:1, or 10 kg of	Specific applications for
		EPS granules to 300 kg of premix	thickening of top coating layer
Water	Yes	200 gr to 1 Lt of clean water for a 90 kg container	Re-humidifying
Dried acrylic (separate)	No	-	-
Dried acrylic (machinery	No	-	-
contamination)			
Other products	No	-	-

Other admixtures are considered contaminants and must be removed immediately. Admixture with EPS granules is performed in the plastering pump machine.

### LAYING ON EPS MATERIAL

Application by rolling EPS through machinery

Recommended machinery type Machinery photo	Contact Technica Contact Technica	l Services I Services	
General machine requirements	Contact Technica	I Services	
Coating layer thickness	3 mm	6 mm	10 mm mixed with granules
Usage (kgs/m2)	5,1	10,2	8,7
Number of layers for obtaining the thickness	1 roll	1 roll	1 roll
Final/levelling layer application	Necessary production	only on pro surface flav	ducts with vs

Laying in all thicknesses 3mm, 6mm/7mm, 10mm of coating is performed by the following procedure:

a. For façade claddings the by 1 main layer of the desired thickness. Details with production defects are supposed to an additional roll of levelling layer or are sanded and repaired manually with a pre-mix.

b. For decoration rolled profiles by 1 main layer of the desired thickness. Details with production defects are sanded and repaired manually with a pre-mix.

Application by spraying:

General sprayer requirements	Nozzle diameter : 4-5mm	
Special treatment / preparation of acrylic premix before applying by spray	Dissolved with extra 3-5% water and mixed to a homogeneous	
	mass	
Standard sprayed element coating layer thickness	2 mm	
Usage (kgs/m2)	3,4 kg/m2 (1,7kg/m2 per layer)	
Number of layers for obtaining the thickness	2 layers of 1mm	
Allowance for additional layers	Yes	

Note: After application of 1mm sprayed layer the detail must dry before of the application of the following 1mm layer.



#### SPECIAL LAYING INSTRUCTIONS / SPECIAL CASES:

Not Available. Must be consulted with the producer and tested exhaustively according to material / final product requirements.

#### LAYING/SPRAYING ON OTHER MATERIALS THAN EPS

Must be consulted with the producer and tested exhaustively according to material.

#### DRYING

The drying is the main process of the fabrication of ready products from BINACRYL acrylic. The data in the technological table are approximate and are dependent on oven capacity, construction, air convection pattern and installed power of the peripherals.

The recommended Oven (drying chamber) parameters are:

- a. Oven type: Drying tunnel / cabinet
- b. Oven capacity and dimensions: Recommended 4 m (W) x 12 m (L) x 3.5 m (H) At this capacity the oven loads: 250 m2 of wall panels (width 600 mm) or 2000 lm of 150 mm wide profiles or 1000 lm of 300 mm wide moldings
- c. Installed power: abt. 3 kW
- d. Exhaust fan type: Snail
- e. Exhaust fan quantity: 1 or 2
- f. Exhaust fan capacity: Adjusted with drying tunnel/cabinet capacity
- g. Ventilation channel/ducting diameter: Adjusted with fan capacity

During drying - there is no shrinkage in the acrylic material.

Coating thickness	3mm / 6mm / 7mm / 10mm		
Average temperature in the oven	30-35 °C		
Humidity in the oven	After 1 hr – 95%		
-	After 6 hrs – 30%		
	After 12 hrs – 10%		
Main drying stage:	For 3mm – 6-24 hrs		
Drying time	For 6/7mm – 36 hrs		
	For 10mm with EPS granules – 36 hrs		
Final drying stage	No final drying stage necessary		

Important advantage: During is possible to be performed outside the premises

For extending production capacity, the products can be exposed to drying outside in the sun, placed on transport cassetes after a 2 hour curing inside the premises.

#### DETERMINING READINESS OF PRODUCT IN THE OVEN

The product is considered ready for taking out from the oven by testing on:

- Vibration / sound: by knocking
- Tactile: the ready product does not deform on push (with finger)

#### MOISTURE EQUILIBRATION AND PACKAGING

Moisture Equilibration is the process that follows the drying stage outside the chamber, where the products is left under normal temperature and humidity conditions for cooling down and equilibration of moisture inside the coating.

This process usually takes from 1 hour depending on production premise's conditions.

Full crystallization of the coating happens after 28 days.

It is recommended to use the product only after 28 days from production if the weather conditions are subject to increased humidity or rain exposure.

#### PRODUCT REPAIRS AND MINOR ADJUSTMENTS

Minor adjustments and repairs of splashes, dents or minor damages that occurred after the laying/spraying stage are repaired with the same acrylic material in the following manner, depending on stage of observation of non conformity:

- a. Before the process of drying with a spatula by adding, removing or levelling
- b. After the process of drying by sandpapering , dusting off and applying of acrylic material for obtaining the desired shape. The product cannot be re-dried, this is why only minor adjustments are allowed for repairs, where the repaired parts are dried outside the oven.

#### **CLEANING MACHINERY AFTER PRODUCTION**

Machinery parts in contact with the acrylic coating must be cleaned after production with spatula (mechanically) and clean water (chemically) to prevent contamination of the succeeding production lot.



#### TRACEABILITY AND KEEPING RECORDS

Raw material shipped lot samples:

For every received product lot, lot samples must be kept, identified and recorded accordingly into a special register or existing register existing at the production area designed for tracing the entry of raw material lots. The samples must be taken from 3 separate random containers by 200 gr each (total sample at 600 gr). The samples must be separated, kept in plastic cans (3 cans) and sealed with tight cover and additional sealant if necessary. All 3 samples must have the same numeration/marking attached (conforming to producer's internal regulations) and specifically and unmistakably to the shipped lot. Samples must be stored for 3 years in a specially designed place, under the storage conditions prescribed for the material.

#### Production samples:

After each production cycle, 2 random samples (size 100mm – 250mm) must be chosen, numerated and stored separately for later use. If the lot for the raw material is changed during the production cycle, other supplementary random samples have to be taken and identified accordingly. The samples can refer to the general producer's batch/lot reference number or have their own identification for traceability in case the traceability procedure is not established by the producer or is unused.

The samples must be stored for 3 year in a specially designed place, under the storage conditions prescribed for the ready/ finished product.

#### **TEST SPECIMENS**

The following tests must be performed on the randomly chosen test specimens from a production lot:

Primarily / mandatory (each lot):

- a. Coating thickness
- b. Coating evenness
- c. Dimensional stability under allowed tolerances
- d. Flexural strength
- e. Bending strength
- f. Coating adhesion test

Supplementary / Occasionally (each raw material shipment lot):

- g. Water permeability test
- h. Freeze/thaw test
- i. Fire test

All results obtained at the internal laboratory must be recorded and identified.

#### **QUALITY INSPECTION AND CONTROL DURING AND AFTER PRODUCTION**

The following table presents the good practices of usage of the BAUCOAT in the production of prefabricated coated external thermal insulated products.



If ISO 9001 standard is implemented and maintained at the User's premises this table has to be adjusted into the system. If the ISO 9001 standard is not implemented or not maintainer, the following table must be used independently in the production practice.

					Filled in I	by producer
Production stage	Control parameters	Control Point	Critical Control Points	Compliance	Corrective actions / Eliminating the non- conformity	Preventive actions
Inspection before usage	Viscosity Uniformity Contaminants		x	Viscous Uniform Free of contaminants	Non-conforming product must be removed/ reprocessed	
Pre-mixing	Homogeneity	X		Homogeneous mass		
Re-humidifying	Uniformity of liquid mass	X				
Admixing	Admixing proportions		x	1:1 EPS granules to Baucoat 0,2 to 1 It of water to 90 kgs	Non-conforming product must be removed/ reprocessed	
Laying on EPS material	Uniform laying on Baucoat on EPS element	x		Variation of +/- 20% in thickness of coating		
Drying	Oven temperature Drying time	x		30 – 35 ºC 3 mm: 6 – 24 hrs 6-10 mm : 36 hrs		
Determining readiness of product	Hardness of coating	x		Non deforming and elastic on applied force		
Moisture equilibration	Crystallization (Maturity)	x		Products must be matured to 28 days when delivered directly to sites with high humidity exposure or direct water/rain risk		
Repairs and minor adjustments	Visual/aesthetics Bond of glued parts	x		Production faults must be repaired. The bond of glued parts must be verified for strength. Adhesion must be performed on all surface		
Final quality inspection	Visual integrity and quality		x	All products must be without defects, fully dried and not damaged.	Non-conforming product must be removed/ reprocessed	
Packaging	Quality Marking		x	Package must protect the products inside during delivery and handling All packages must have proper marking, including CE marking	Non-conforming product must be removed/ reprocessed	
Traceability	Records and marking	X		All production lots must be recorded accordingly		
Test specimens	Records and marking	x		All production lots must be recorder, test specimens marked and stored for performing laboratory tests		

## TERMS UNDER WHICH THE PRODUCER RECEIVES AND PROCESSES COMPLAINTS

For processing the complaints related to product quality, the BAUCOAT Producer's commercial or technical representative will request the following:

- a. Shipped raw material samples (wet samples)
- b. Product lot samples (dry samples) if applicable to matter
- c. Internal laboratory tests of the User (in case of the present laboratory of the User)
- External laboratory tests provided by the User from a local certified laboratory (in case if the User does not have a laboratory in the facility or the results are ambiguous)
- e. Non-conformity (Non-compliance) report issued for the invocated complaint (in case of a ISO 9001 certified producer)
- f. CAR-file issued for the invocated complaint (in case of a ISO 9001 certified producer)
- g. Comprehensive Images, photos or videos showing the scope and evidence of the complaint matter

The User must provide proof of keeping the records of the above mentioned files and traceability.

In case that none or insufficient requested data is provided by the User for the BAUCOAT commercial or technical representative, the complaint will be considered null.

In case if the following specimens are not provided, the BAUCOAT Producer's tracing production lot samples according to BAUCOAT Producer's registry will be considered as the main samples for reference under which additional tests may be performed for determining the qualities of the fabricated/shipped product lot.

### DESIGNED LIFE SPAN OF FINAL PRODUCT

For the top coated products protected with a layer of primer, a preliminary layer and a final coating, all of high quality and designed for the specific climate, the nominal designed lifespan is:

Normal climate: 30 years

Harsh climate: 20 years

To ensure durability bigger than the nominal designed lifespan, product must be regularly (once in 10 years) checked, maintained, repaired and if necessary renewed with protective coatings.





#### For More Information:

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