PROTAVIC® EM 290 UV

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DEFINITION

Fluid UV resin for FILL application.

PRODUCT DESCRIPTION

Appearance	liquid	
Odour	faint	
Colour	grey	
Guaranteed specifications	**Standards**	**Methods**
Brookfield Viscosity at 23°C Spindle 4 / Speed 5	3 200 ± 200 mPa.s	NFT 51210
Thixotropic index between 25 and 250 tr/min	< 2	NFT 51210
Significant values (for guidance)		
Setting time under exposed to UV radiation	≤ 60"	
Density	1.40 approx.	
% Active matter	100	
Other information		
Stability at 50°C	no	
Stability at 20°C	7 days	
Stability at 5°C	3 months	
Stability at -20°C	6 months	

APPLICATION PROPERTIES

The rheological behaviour of the **PROTAVIC® EM 290 UV** system is adapted for the FILL application. It is strongly recommended to use together the **PROTAVIC® EM 590 UV** (DAM) system and the **PROTAVIC® EM 290 UV** (FILL) system. As both products are very similar in term of composition, they are perfectly compatible and their coefficient of thermal expansion are very close.

After exposure under a UV radiation, the **PROTAVIC® EM 290 UV** system exhibits a good adhesion on most of the substrates, either plastic substrates such as PVC and epoxy glass or mineral substrates such as glass and alumna.

After polymerisation, the **PROTAVIC® EM 290 UV** system gives a good protection against exterior aggression.

2 - Physical properties

Shore D hardness	About 86
Tensile strength	About 400 kg/cm^2
Elongation at break	About 4%
Glass transition temperature	About 90°C
Coefficient of thermal expansion at 20°C	About 50 ppm
Coefficient of thermal expansion at 80°C	About 150 ppm
Volume shrinkage during the polymerization	About 1,80 %

STORAGE

It is strongly recommended to keep away from the light the **PROTAVIC® EM 290 UV** system. Furthermore, it is recommended to store the **PROTAVIC® EM 290 UV** system at temperature below 30°C.

The **PROTAVIC® EM 290 UV** system must be kept away from oxidative materials. The storage stability at 20°C of the **PROTAVIC® EM 290 UV** system is one year.

PRECAUTIONS IN USE

Refer to the enclosed safety data sheet.

PACKAGING

PROTAVIC® EM 290 UV is delivered in 1 kg boxes.

USE OF THE PROTAVIC® EM 290 UV SYSTEM

1 - Application process and rheological properties

During handle it is recommended to keep the **PROTAVIC® EM 290 UV** away from the light in order to avoid the uncontrolled starting of the polymerisation.

The **PROTAVIC® EM 290 UV** system can be easily applied with a micro-dispenser.
The rheological behaviour of the **PROTAVIC® EM 290 UV** system allows filling small cavities (such as small dams). Thus, the thixotropic index is about 1.5.

2 - UV polymerization

The **PROTAVIC® EM 290 UV** system is able to polymerize either under a UV radiation or under a visible radiation. Wavelengths can vary from 250 to 580 nm.

It is strongly recommended to use either a UV lamp or a UV oven with a good ventilation in order to avoid a too high polymerization temperature. Indeed, the optimum temperature is comprise between 20 to 45°C. Beyond, curing time could increase slightly.

Evolution of the polymerization after UV exposure

The **PROTAVIC® EM 290 UV** system continues to polymerise after the UV exposure (this phenomenon is called dark cure). Thus, it means that it is strongly recommended to wait for at least 24 hours after UV exposure before testing the cured **PROTAVIC® EM 290 UV** system, in order to let it to reach its optimum properties.

TYPICAL PROPERTIES OF THE POLYMERIZED SYSTEM

Next properties have been determined at the laboratory from a limited number of samples. These values are given for information. They are not a guarantee.

1 - Adhesion

Each glob top (diameter = 3 mm) is polymerised 3 seconds under a UV spot lamp (Electrolite ELC 7000), the power is 4,15 W/cm^2, the corresponding energy is 12,45 J/cm^2. The measurement of the adhesion has been realised with the micro-shear test 24 hours after UV exposure.

Substrates	Rooting up force in daN/cm^2
Glass	45
Epoxy glass	> 76
Alumna	> 76
PVC	> 76