VICOTE™ COATINGS F817

General Information

Product Description

VICOTE F817 Enhanced Adhesion Grade

VICOTE is the brand name for the Victrex range of coatings based on VICTREX PEEK polymer. The VICOTE dispersions are available through Victrex plc or its preferred coater network. Contact Victrex plc for further details.

VICOTE dispersions are aqueous based, however there may be small amounts of solvent present. Refer to the appropriate MSDS sheet for details.

SUBSTRATES AND PREPARATION

VICOTE F817 can be applied to most ferrous and non-ferrous metals. Cast metals need to be de-gassed in an oven to prevent pin holes in the coating surface. Aluminium and other thermally sensitive substrates may be coated however the mechanical properties of the substrate may be affected when exposed to VICOTE processing temperatures.

The VICOTE F817 enhanced adhesion grade can be used on metal substrates where limited surface roughening is allowed or desired. When using this VICOTE grade the adhesion to a non-roughened or grit blasted surface is much higher than using the standard VICOTE dispersions. VICOTE F817 will withstand 24 hours boiling water test on non-grit blasted stainless steel without loss of adhesion.

Note: Although roughening the metal surface may not be required, removal of oils and greases must be undertaken to obtain the optimum adhesion. Rust and mill scale would need to be removed by conventional grit blasting while either thermal degreasing or a conventional vapour degreasing step should be employed to remove oils and greases. Once this is done the substrate should not be handled with bare hands.

Note: Phosphate pretreated substrates are not recommended for VICOTE grades as the high processing temperatures required for processing can result in de-lamination of the coating.

SPRAYING

A conventional gravity fed spray gun with a nozzle size between 0.7 and 1.8mm has been found suitable for applying VICOTE dispersions. Edges of components should be sprayed first before applying a complete coating. An air pressure to the gun of between 35 and 50 psi has been found to be a suitable spray pressure. Spray at right angles to the substrate wherever possible. The spray gun and cup can be cleaned with water after use.

PROCESSING

For general processing information consult the VICOTE dispersion coating guides. Coated parts should be dried in air for 10 minutes then dried in an oven for 10 minutes at 120°C before placing in an oven at 400°C to fuse and melt the coating.

By following the processing guide smooth coatings should be achievable. Because VICOTE Coatings are semicrystalline thermoplastics as with all these types of products some shrinkage will take place when the coating cools. Depending on the mass of the substrate, coating thickness and rate of cooling will determine the amount of shrinkage.

VICOTE F817 should result in crystalline coatings which should not require further post processing treatment.

STORAGE AND HANDLING CONSIDERATIONS

VICOTE drums should be stored in a clean dry environment and should not be stored with the lids removed as this may result in airborne dust contaminating the product, which could cause coating defects.

The VICOTE dispersions will soft settle after prolonged standing. They can be re-dispersed readily by stirring of the liquid suspension. The drums can also be rolled to agitate the dispersion and re-disperse. High shear dispersing should be avoided as the wetting agent is prone to shear thinning. Although it is recommended that the dispersion is not allowed to freeze, re-dispersing after thawing is possible. Optimum storage temperature is 5°C – 25°C.

VICOTE F817 is packed in 20 kg polythene UN drums enclosed in a strong cardboard box with the VICOTE logo. The product has a shelf life of 12 months if kept in its original container with the lid securely fastened and ideally should not be used after this time.

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SAFETY PRECAUTIONS
Before applying VICOTE dispersions, read the appropriate Material Safety Data Sheet (MSDS) and the processing guide, available from Victrex plc.

VICOTE F817 should be only applied using suitable exhaust ventilation. Care should be taken not to inhale fumes or vapours. The washing of hands and good housekeeping are a prerequisite before handling these products.

Material Properties

Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.150	g/cm³	ISO 2811
pH	10.0		Internal Method
Viscosity - DIn 6 Cup (25°C)	30.0	sec	ISO 2431
Thermal	**Nominal Value**	**Unit**	**Test Method**
Glass Transition Temperature [1]			ISO 11357-2
Onset	143	°C	
Midpoint	147	°C	
Melting Temperature [1]	343	°C	ISO 11357-3
Additional Information	**Nominal Value**	**Unit**	**Test Method**
Adhesion - 24 hour Boiling Water on non-grit blasted stainless steel [2]	0		Internal Method
Conical Bend [3]	Pass at 3.0	sec	
Cross Hatch Adhesion [2]			ISO 2409
Aluminum	0		
Mild Steel	0		
Stainless Steel	0		
Direct Impact			ISO 6272-1
Height	1 m		
Indentation depth	15 mm		
Weight	1 kg		
Konig Hardness [4] (40.0 to 50.0 µm)	118	sec	ISO 1522
Salt Spray - degree of rusting	Ri/1		ISO 4628
Theory Volume Solids	28	%	
Weight Solids	40	%	Internal Method

Typical Property Data for VICOTE F817 Coating on Film Thickness 25 - 30 µm

Notes

[1] Thermal analysis data of the PAEK polymer used in the VICOTE coating formulation

[2] Rating 0 to 5

[3] BS EN ISO 6860

[4] Minimum coating thickness required for this test was 30 µm

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