VICOTE™ COATINGS F804

General Information

Product Description

VICOTE F804 Aqueous Dispersion for use on Ferrous Metals.

VICOTE is the brand name for the Victrex range of coatings. VICOTE dispersions are available through Victrex or its preferred coater network.

VICOTE F804 has been specifically formulated to provide a resilient coating with high wear and abrasion resistance on ferrous substrates such as carbon and cast steels. These properties are retained at high temperatures where other coatings would potentially fail. Typical properties are high continuous use temperature of 260°C, excellent wear, abrasion and cut through resistance at these high temperatures combined with excellent chemical and radiation resistance. VICOTE dispersions have a low level of extractables and inherently flame retardant. Contact Victrex for further details.

VICOTE F804 DISPERSIONS

VICOTE F804 dispersions are aqueous based, however there are small amounts of solvents present. Refer to the appropriate MSDS sheet for details.

The PEEK polymer contained in the VICOTE dispersions like other non-coating grades of VICTREX™ PEEK polymer are thermoplastic in nature and exhibit flow above the melt temperature. When processed using the correct guidelines the coatings will exhibit the excellent properties that VICTREX PEEK is renowned for. For further chemical resistance information consult the Victrex Chemical Resistance Data sheets.

SUBSTRATES AND PREPARATION

VICOTE F804 can be applied to most ferrous metals. A primer is not required. Cast metals need to be de-gassed in an oven to prevent pin holes in the coating surface. VICOTE has also been used successfully in coating systems with other polymers to coat glass cloth for conveyor belting applications.

Substrates should be free from grease, oils and corrosion prior to coating. Solvent de-greasing and grit blasting with Aluminium Oxide with final solvent wash should ensure a suitable surface for coating.

Note: phosphate pretreated substrates are not recommended for VICOTE grades as the high processing temperatures required for processing can result in delamination of the coating.

SPRAYING

A conventional gravity fed spray gun with a nozzle size between 0.7 and 1.8 mm 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 10-step guide for VICOTE Coatings 800 series. Coated parts should be dried in air for 5 minutes then dried in an oven for 5 minutes at 120°C before placing in an oven at 400°C to melt and fuse the coating.

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

Normally processed and cooled coatings should result in semi-crystalline coatings which should not require further post processing treatment. However, an increase in crystallinity may enhance certain properties such as wear and scratch resistance. To anneal the coating the part should be placed in an air circulating oven and the temperature raised at 10°C per minute to 250°C and held at that temperature for 30 minutes to 1 hour.

With coated parts that are subject to a high service temperature it may be beneficial to anneal the parts at 10°C above the maximum service temperature to

prevent further volume change of the coating. Note: The colour of the final coating may depend on the substrate. For example, VICOTE processing temperatures will turn some steels blue and may impart a blue/grey colour to the final VICOTE coating.

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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 to ensure homogeneity. 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, redispersing after thawing is possible. Optimum storage temperature is 5°C – 25°C.

VICOTE F804 is packed in 20 kg polythene UN drums enclosed in a strong cardboard box with the VICOTE logo.

SAFETY PRECAUTIONS:

Before applying VICOTE dispersions, read the appropriate Material Safety Data Sheet (MSDS) and the 10-step guide for VICOTE coatings 800 series, available from Victrex.

VICOTE F804 natural coating resins 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

Mechanical	Nominal Value	Unit	Test Method
Coefficient of Friction @ 10 min. [1]	0.53 µm		ASTM G133
Thermal	**Nominal Value**	**Unit**	**Test Method**
Glass Transition Temperature [2]			ISO 11357-2
Onset	143	°C	
Midpoint	147	°C	
Melting Temperature [2]	343	°C	ISO 11357-3
Additional Information	**Nominal Value**	**Unit**	**Test Method**
Cross Hatch Adhesion Aluminum [3]	0		ISO 2409
Cross Hatch Adhesion Mild Steel [3]	0		ISO 2409
Cross Hatch Adhesion Stainless Steel [3]	0		ISO 2409
Direct Impact Height	1 m		ISO 6272-1
Direct Impact Indentation depth	15 mm		ISO 6272-1
Direct Impact Weight	1 kg		ISO 6272-1
Konig Hardness [4] (40.0 to 50.0 µm)	200	sec	ISO 1522

Typical Property Data for VICOTE F804 Coating on Film Thickness 25 - 30 µm

Notes

[1] Using 100N Load

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

[3] Rating 0 to 5

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

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