



VICTREX® PEEK COATING TECHNOLOGY

800 SERIES AQUEOUS DISPERSIONS PRODUCT DATA SHEET

VICOTE® F805 Natural, F806 Natural and F807Blk (Black) Aqueous Dispersions for Use on Ferrous and Non-Ferrous Metals

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

The VICOTE F805 natural, F806 natural and F807Blk grades have been specifically formulated to provide a tough, resilient, high wear resistant coating with varying levels of lubricants on ferrous and non-ferrous substrates such as carbon steel, cast steel and aluminium. Typical properties are high continuous use temperature of 260°C, exceptional wear, abrasion and cut through resistance at these high temperatures combined with excellent chemical resistance. VICOTE dispersions have a low level of extractables. These properties are retained at high temperatures where other release coatings may potentially fail. Contact Victrex for further details.

VICOTE F805 Natural, F806 Natural and F807Blk Dispersions

VICOTE F805 natural, F806 natural and F807Blk dispersions are aqueous based however there are small amounts of solvents present. Refer to the appropriate MSDS sheet for details.

The VICTREX® 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 polymer is renowned for.

VICOTE Coatings have excellent chemical resistance. Consult the Victrex Chemical Resistance brochure for further details.

SUBSTRATES AND PREPARATION

VICOTE Coatings 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.

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 pre-treated 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 1.0mm 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 Guide. 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 rate of cooling will determine the amount of shrinkage.

Normally processed and cooled coatings should result in 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 when using VICOTE F805 natural and F806 natural may depend on the substrate. For example, VICOTE Coating processing temperatures will turn some steels blue and may impart a blue/grey colour to the final VICOTE coating.

STORAGE AND HANDLING CONSIDERATIONS

VICOTE Coatings 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 to ensure homogeneity. High shear dispersing should be avoided as the wetting agent is prone to shear thinning. It is recommended that the dispersions are not allowed to freeze. Optimum storage temperature is 5 – 25°C.

VICOTE F805 natural, F806 natural and F807Blk are 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 processing guide, available from Victrex.

VICOTE F805 natural, F806 natural and F807Blk dispersions must only be applied where Local Extract Ventilation (LEV) is available with the gasses removed completely from the work area. The hot gasses given off during melt processing can cause flu like symptoms. Care should be taken not to inhale such gasses; also contact of the polymer with tobacco products should be avoided. Washing of hands and good housekeeping are a pre requisite before and after handling these products. *Note: these products are not for human implantation.*

FDA

Materials and articles manufactured from VICOTE F805, F806 and F807Blk, comply with the compositional requirements of regulation 21 CFR 175.300 for resinous and polymeric coatings of the Food and Drug Administration (FDA) of the United States of America.

Regulation 21 CFR 175.300 further specifies that the finished coated part which is in contact with food is subject to extractive limitations. Compliance with any applicable extractive limits can only be demonstrated by testing carried out on the finished article.

Typical Properties of VICOTE F805 Natural, F806 Natural and F807 Blk — Coating Film Thickness 25-30 µm

Property	Test Method	Units	F805	F806	F807 Black
Cross Hatch Adhesion	BS EN ISO 2409	Rating 0-5	0 - mild steel 0 - aluminium 0 - stainless steel	0 - mild steel 0 - aluminium 0 - stainless steel	0 - mild steel 0 - aluminium 0 - stainless steel
Direct Impact	BS EN ISO 6272 Part 1 (pass criterion)	Height (m)	1	1	1
		Weight (kg)	2	2	2
		Indentation depth (mm)	5	5	5
Konig Hardness*	BS EN ISO 1522	seconds	145	130	140
Coefficient of Friction	ASTM G 133 Using 250N Load	µm @ 10 min.	0.180	0.165	0.165

* Minimum coating thickness required for this test was 30µm. Coatings tested were between 40 and 50µ.

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