

XRF THIN-FILM WINDOW TECHNICAL INFORMATION

SPECTROCERTIFIED® THIN-FILM SAMPLE SUPPORT WINDOW MATERIALS

A thin-film sample support window is a substance used for retaining liquid, powdered, slurry or solid specimens in XRF Sample Cups. Of the many different types of materials available, few possess the necessary combination of consistency and chemical and physical properties to serve x-ray spectrochemical needs.



Typical Thickness Variations

Variations	Uniformity of Thickness	Orientation
Between packages	$\leq 1 - 2\%$	Multiaxially orientated; minimizes effects of preferred orientation Between lots $\leq \pm 5\%$
Between lots	$\leq \pm 5\%$	

Physical Characteristics

Thin-Film Substances	Melting Point, °C (°F)	Density, gm/cc	Structural Formula
Etnom®	270 (518)	1.36	C ₁₄ H ₁₀ O ₄
Prolene®	165 (329)	0.91	C ₃ H ₆
Mylar®	260 (500)	1.38	C ₁₀ H ₃ O ₄
Polypropylene	160 (320)	0.91	C ₃ H ₆
Ultra-Polyester®	210 (410)	0.93	C ₁₀ H ₃ O ₄
Polyimide (Kapton®)	None Reported	1.42	C ₂₀ H ₁₀ O ₅ N ₂
Polycarbonate	267 (513)	1.37	C ₂ H ₃ F

Purity

Thin-Film Substance	Trace Impurities, PPM
Mylar®, Ultra-Polyester®	Ca, P, Sb, Fe, Zn
Prolene®, Polypropylene	Ca, P, Fe, Cu, Zr, Ti, Al
Etnom®	Si, Ca, P, Zn, Sb
Polyimide (Kapton®)	Unknown
Polycarbonate	Unknown

CAUTION: All thin-film window materials affixed to sample cups present the risk of stretching or rupturing in the sample chamber and/or causing sample cup leakage through the ring and cell juncture or disassembly with potential contamination and damage to the system. Additionally, the possibility of pinholes, pores and depressions existing in any thin-film sample support substance regardless of form, configuration and packaging can present leakage of a sample with subsequent contamination, costly clean-ups and damage to the analytical instrumentation and its components.

Chemplex Industries, Inc. is not the manufacturer of any thin-film substance and assumes no responsibility of the product substance as provided. It is strongly recommended that the products used be subject to judicious testing, use and applications and user evaluation prior to actual use by a method that does not risk contamination, costly clean-ups or damage to the x-ray analytical spectrometer. The responsibility of product purchase, acceptance and performance resides totally with the user. Chemplex Industries, Inc. assumes no liability or guarantees whatsoever that the products will perform in accordance with their usage, advertisements or methodologies written, orally expressed or insinuated.