

	Product Data Sheet	Issue Date : 01.01.10
Product Name	Futura PEN – Type 403	Old Type No. 7001

Recommended Applications

- ▶ Container packaging applications.
- ▶ Specialty films such as Photographic, Capacitor, etc.
- ▶ High performance fibre.

Product Features

- ▶ Futura PEN is derived from NDC (dimethyl-2,6-naphthalene dicarboxylate) and MEG (monoethylene glycol).
- ▶ Futura PEN resin provides improved UV, gas and water vapor barrier properties, thermal resistance, enhanced flavour retention and extended shelf life in packaging applications.
- ▶ Intrinsic Viscosity can be customized as per customer's requirement.
- ▶ Futura PEN is in full compliance with USFDA regulations and fulfills EU norms.

Properties

Characteristic	Unit	Type 403				Test Method
		W5	D8	D10	D12	
Intrinsic Viscosity @ 30°C	dL/g	0.45 ± 0.02	0.65 ± 0.02	0.75 ± 0.02	0.85 ± 0.02	FPL-QP-V-20-61
b* Color	CIELab	1 max. #	1 max.	3 max.	5 max.	FPL-QP-S-20-55-Part-B-XXI
Carboxyl Number	meq/kg	25 max.	25 max.	25 max.	25 max.	FPL-QP-T-20-55-Part-B-VIII
Melting Point	°C	267 ± 5	267 ± 5	267 ± 5	267 ± 5	FPL-QP-DSC-20-55-Part-B-XVIII ##
DEG	wt. %	0.80 max.	0.80 max.	0.80 max.	0.80 max.	FPL-QP-GC-20-55-Part-B-XIII
Bulk Density	g/cc	0.80 ± 0.10	0.80 ± 0.10	0.80 ± 0.10	0.80 ± 0.10	FPL-QP-P-20-55-Part-B-XX
Weight of 20 Chips	mg	350 ± 50	350 ± 50	350 ± 50	350 ± 50	FPL-QP-W-20-55-Part-A-I
Moisture (when packed)	wt. %	0.25 max.	0.25 max.	0.25 max.	0.25 max.	FPL-QP-E-20-55-Part-B-VI

Not Crystallized

Determined using DSC second heating cycle.

Processing Parameters

a) Drying Condition

Granules must be thoroughly dried before processing to limit the occurrence of hydrolytic degradation.

Drying temperature	165 ± 5 °C
Drying time	4- 5 hours
Dew point	- 40 °C
Residual moisture content	≤ 25 ppm

b) Process Temperature** (Injection Stretch Blow Molding)

Barrel Temperature	310 ± 10°C
Mold Temperature	310 ± 10 °C
Preform Temperature	140 ± 10 °C

** The values quoted above are typical numbers for benchmarking. Individual machine parameters should be determined on a case-by-case depending on the design of the product(s).

Packing

Resin can be supplied in 900 kg PP jumbo bags with LDPE liner at 20 bags per 20 ft FCL container as required.

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