Aegis® H85WP Nylon Extrusion-Grade Homopolymer

NYLON SOLUTIONS

DESCRIPTION

Aegis® H85WP is a lubricated, medium viscosity, nylon 6 extrusion-grade homopolymer for cast or blown film and BOPA film. Aegis® H85WP combines strength, toughness and thermoforming properties with excellent heat, chemical and abrasion resistance.

PHYSICAL AND CHEMICAL PROPERTIES

GENERAL PROPERTIES	TEST METHOD	UNIT	VALUE
Parameter			
Viscosity, FAV	ASTM D-789		85
SAV @ 96% Sulfuric Acid			3.19
Extractable Content	SOP-702-307	%	Max. 0.6
Specific Gravity, 23°C (73.4°F)	ASTM D-792		1.13
Melt Flow Rate, 235°C/1.0 kg (455°F/1.0 kg)	ASTM D-1238	g/10 min	3.5
Moisture			
Moisture Content	ASTM D-6869	%	Max. 0.08
Moisture (24 Hour)	ASTM D-570	%	1.6
Moisture (50% RH)	ASTM D-570	%	2.7
Moisture (Saturation)	ASTM D-570	%	9.5
Thermal			
Melting Point	ASTM D-3418	°C (°F)	220°C (428°F)

GAS BARRIER FILM PROPERTIES	TEST METHOD	UNIT	VALUE
Oxygen Permeability @ 23°C (73°F)/0% RH	D-3985	cc-mil/m²/day (cc-mil/100 in²/day)	40.3 (2.6)
Water Vapor Permeability @ 38°C (100°F)/100% RH	F-1249	gm-mil/m²/day (gm-mil/100 in²/day)	992 (64)

MECHANICAL FILM PROPERTIES 23°C (73°F), 50% RH	TEST METHOD	UNIT	VALUE (MD)*	VALUE (TD)*
Tensile Modulus	ASTM D-882	MPa	240	230
Tensile Yield	ASTM D-882	MPa	23	22
Tensile Strength	ASTM D-882	MPa	100	85
Elongation	ASTM D-882	%	600	550
Puncture Force	ASTM D-5748	Newtons	59	
Puncture Energy	ASTM D-5748	Joules	1.5	
Puncture Penetration to Break	ASTM D-5748	mm	52	

*Note: MD = Machine Direction and TD = Traverse Direction. Test specimens were obtained from 2-mil thick cast film and tested as conditioned (23°C, 50%RH).

Aegis® H85WP homopolymer conforms to FDA requirements of 21 CFR 177.1500 (a) (4) and (b) (4.2) for use as articles or components of articles intended for use in processing, handling, and packaging food, provided that the finished articles meet the applicable use and/or extraction limitations and requirements of relevant regulations. Aegis® H85WP is also suitable for use as a component of food packaging according to the European Plastic Regulations (EC) No. 10/2011, amended in 2018 to No. 2018/79.

PROCESSING GUIDELINES

Material Handling

Aegis® H85WP homopolymer is supplied in sealed containers and drying prior to processing is not required. However, higher moisture is the primary cause of processing issues. If drying becomes necessary, a dehumidifying or desiccant dryer operating at 80°C (176°F) is recommended. Drying time is dependent on moisture level. More information about safe handling procedures can be obtained by requesting the Safety Data Sheet on AdvanSix.com.

EXTRUSION GUIDELINES

Melt Viscosity vs. Temperature

Melt Temperature: 220°C (428°F)

Two key factors affect the melt viscosity (stiffness or fluidity of the melt):

1. The molecular weight (MW) of the resin: Higher MW resins will have a higher melt viscosity than lower MW resins.
2. Temperature of the melt for any given MW resin: Higher process temperatures will provide a more fluid melt viscosity than lower process temperatures.

Typical Barrel Profile for Cast Films

Barrel: 230-260°C (446-500°F)
Adapter: 260-266°C (500-510°F)
Die: 260°C (500°F)
Process Melt Temperature: 260-270°C (500-518°F)

Screw Parameters

Metering Section: 40%
Transition Section: 3 to 4 flights
Feed Section: Balance of screw length
Compression Ratio: 3.5:1 to 4.0:1 L/D Ratio: 24:1

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Metering Section Flight Depth

SCREW DIAMETER	RECOMMENDED DEPTH
1"	0.055"
1.5"	0.060"
2"	0.070"
2.5"	0.080"
3.5"	0.100"
4.5"	0.115"
6"	0.135"

NOTE

The values presented in this data sheet are typical values and are not to be interpreted as product specifications.

The values in this data sheet are for natural color resins only. Colorants or other additives may alter some or all of these properties. The data listed here fall within the normal range of product properties, but should not be used to establish specification limits nor used alone as the basis of design.

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CONTACT ADVANSIX

Contact AdvanSix to learn more about the benefits of our Nylon Resins.

ADVANSIX.COM
1-844-890-8949 (TOLL FREE, U.S./CAN.)
+1-973-526-1800 (INTERNATIONAL)

ADVANSIX HEADQUARTERS

300 Kimball Drive, Suite 101
Parsippany, NJ 07054

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