

# Aegis® H135QP Nylon 6 Extrusion Grade Homopolymer

## Description

**Aegis® H135QP** is a lubricated, high viscosity, nylon 6 extrusion grade homopolymer for cast or blown film. It conforms to FDA requirements of 21 CFR 177.1500 as well as EU Directive 2011/10/EC. Aegis® H135QP homopolymer possesses the combination of strength, toughness and thermoforming properties associated with nylon 6 as well as excellent heat, chemical and abrasion resistance.

| Typical Properties  | ASTM Test Method | Dry           | Conditioned |
|---|------------------|---------------|-------------|
| <b>Parameter</b>  |                  |               |             |
| Viscosity, FAV  | D-789            | 135           | -           |
| 96% SAV   |                  | 3.75          | -           |
| Melt Flow Rate, 235°C/1.0 kg (455°F/1.0 kg)                                       | D-1238           | 1.2           | -           |
| <b>Gas Barrier @ 23°C (73°F)/0% RH</b>  |                  |               |             |
| Oxygen Permeability, cc/m <sup>2</sup> /day (cc/100 in <sup>2</sup> /day)         |                  | 40.3 (2.600)  | -           |
| Nitrogen Permeability, cc/m <sup>2</sup> /day (cc/100 in <sup>2</sup> /day)       |                  | 14.0 (0.903)  | -           |
| Carbon Dioxide Permeability, cc/m <sup>2</sup> /day (cc/100 in <sup>2</sup> /day) |                  | 72.8 (4.697)  | -           |
| <b>Moisture</b>   |                  |               |             |
| Moisture Content, %   |                  | Max. 0.08     | -           |
| Extractable Content, %  |                  | Max. 0.8      | -           |
| Water Absorption in 24 hrs, %   |                  | 1.6           | -           |
| Equilibrium Moisture @ 50% RH, %  |                  | 2.7           | -           |
| Saturation Moisture Content, %  |                  | 9.5           | -           |
| <b>Density, g/cm<sup>3</sup></b>  | D-1505           | 1.13          | -           |
| <b>Thermal</b>  |                  |               |             |
| Melting Point, °C (°F)  | D-3418           | 220°C (428°F) | -           |

## Processing Guidelines

### Material Handling

Aegis® H135QP homopolymer is supplied in sealed containers and drying prior to processing is not required. However, high moisture is the primary cause of processing problems. If drying becomes necessary, a dehumidifying or desiccant dryer operating at 80°C (176°F) is recommended. Drying time is dependent on moisture level. Further information concerning safe handling procedures can be obtained from the Safety Data Sheet. Alternatively, please contact your AdvanSix representative.

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

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August 2018-5, Printed in U.S.A.

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## Extrusion Guidelines

### Melt Viscosity vs. Temperature

Melt Temperature: 220°C (428°F)

Melt Temperature Range: 232°C (450°F) to 271°C (520°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)

### Typical Barrel Profile for Tubular (Blown) Films

Barrel: 246-254°C (474-490°F)

Adapter: 260°C (500°F)

Die: 254°C (490°F)

Process Melt Temperature: 254-260°C (490-500°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

### 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 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

To learn more about the benefits of of Aegis® Nylon Resins, visit

[AdvanSix.com/NylonSolutions](http://AdvanSix.com/NylonSolutions) or call:

**1-844-890-8949** (toll free, U.S./Can.)

**+1-973-526-1800** (international)

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### AdvanSix

300 Kimball Drive, Suite 101  
Parsippany, NJ 07054



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