



# Chemlon® 109 H

Teknor Apex Company - Polyamide 66

## General Information

### Product Description

Chemlon® 109 H is an impact modified polyamide 66 (PA 66) designed for injection molding and extrusion. This toughened material offers strength and flexibility, even at low temperatures; and is available globally.

### General

|                           |                                                                                                          |                                                                                                                                |                                     |
|---------------------------|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Material Status           | • Commercial: Active                                                                                     |                                                                                                                                |                                     |
| Availability              | • Africa & Middle East<br>• Asia Pacific                                                                 | • Europe<br>• Latin America                                                                                                    | • North America                     |
| Additive                  | • Heat Stabilizer                                                                                        | • Impact Modifier                                                                                                              |                                     |
| Features                  | • Low Temperature Toughness                                                                              | • Ultra High Toughness                                                                                                         |                                     |
| RoHS Compliance           | • Contact Manufacturer                                                                                   |                                                                                                                                |                                     |
| Automotive Specifications | • FORD ESA-M4D379-B <sup>1</sup><br>• FORD WSB-M4D666-A <sup>1</sup><br>• FORD WSK-M4D666-A <sup>1</sup> | • GM GMP.PA66.021 <sup>1</sup><br>• GM GMP.PA66.062 Color: Black <sup>1</sup><br>• GM GMP.PA66.062 Color: Natural <sup>1</sup> | • GM GMW16447P-PA66-T3 <sup>1</sup> |
| Forms                     | • Pellets                                                                                                |                                                                                                                                |                                     |
| Processing Method         | • Extrusion                                                                                              | • Injection Molding                                                                                                            |                                     |

## ASTM & ISO Properties <sup>2</sup>

| Physical                          | Dry                      | Conditioned | Unit                  | Test Method |
|-----------------------------------|--------------------------|-------------|-----------------------|-------------|
| Density                           | 1.09                     | --          | g/cm <sup>3</sup>     | ISO 1183    |
| Molding Shrinkage                 |                          |             |                       | ISO 294-4   |
| Across Flow                       | 1.9                      | --          | %                     |             |
| Flow                              | 2.0                      | --          | %                     |             |
| Water Absorption (24 hr, 73°F)    | 0.67                     | --          | %                     | ISO 62      |
| Water Absorption                  |                          |             |                       | ISO 62      |
| Saturation, 73°F                  | 2.3                      | --          | %                     |             |
| Mechanical                        | Dry                      | Conditioned | Unit                  | Test Method |
| Tensile Modulus                   | 290000                   | 117000      | psi                   | ISO 527-2   |
| Tensile Stress                    | 6380                     | 5800        | psi                   | ISO 527-2   |
| Tensile Strain (Break)            | 77                       | 200         | %                     | ISO 527-2   |
| Flexural Modulus                  | 254000                   | 111000      | psi                   | ISO 178     |
| Flexural Stress                   | 7540                     | 4350        | psi                   | ISO 178     |
| Impact                            | Dry                      | Conditioned | Unit                  | Test Method |
| Charpy Notched Impact Strength    |                          |             |                       | ISO 179     |
| 73°F                              | 38                       | 52          | ft·lb/in <sup>2</sup> |             |
| Charpy Unnotched Impact Strength  | 40 ft·lb/in <sup>2</sup> | No Break    |                       | ISO 179     |
| Notched Izod Impact Strength      | 32                       | 45          | ft·lb/in <sup>2</sup> | ISO 180     |
| Thermal                           | Dry                      | Conditioned | Unit                  | Test Method |
| Deflection Temperature Under Load |                          |             |                       | ISO 75-2/B  |
| 66 psi, Unannealed                | 252                      | --          | °F                    |             |
| Deflection Temperature Under Load |                          |             |                       | ISO 75-2/A  |
| 264 psi, Unannealed               | 140                      | --          | °F                    |             |
| Melting Temperature               | 495                      | --          | °F                    |             |
| Flammability                      | Dry                      | Conditioned | Unit                  | Test Method |
| Flame Rating (0.030 in)           | HB                       | --          |                       | UL 94       |

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### Processing Information

| Injection              | Dry        | Unit |
|------------------------|------------|------|
| Drying Temperature     | 176        | °F   |
| Suggested Max Moisture | 0.20       | %    |
| Processing (Melt) Temp | 509 to 559 | °F   |
| Mold Temperature       | 171 to 190 | °F   |

#### Injection Notes

Maximum peak injection pressure should not exceed 80% of the machine's maximum pressure capability. Start with a holding pressure that is half the peak injection pressure. Perform a rheology curve in order to determine appropriate injection rate.

| Extrusion              | Dry                  | Unit |
|------------------------|----------------------|------|
| Drying Temperature     | 176                  | °F   |
| Suggested Max Moisture | 0.20                 | %    |
| Melt Temperature       | 509 to 559           | °F   |
| Die Temperature        | 509 to 559           | °F   |
| Screw L/D Ratio        | 25.0:1.0 to 30.0:1.0 |      |

#### Extrusion Notes

For cylinder zones, use an ascending temperature profile that achieves the recommended melt temperature. The die temperature should be the same temperature as the melt or slightly higher. Suggested compression ratio is 3-4:1.

#### Notes

<sup>1</sup> Automotive site approvals apply for US manufactured compound only

<sup>2</sup> Typical properties: these are not to be construed as specifications.