

THERMOPLASTIC

SEMI-CRYSTALLINE GROUP

Definition:

It is the long chained molecules that define the character of this group. When moulded, this highly ordered molecular structure is anisotropic: shrinking less in the direction of flow vs. transverse to flow. Other features of this aligned structure include a high degree of component flexibility, good chemical & ESC (Environmental Stress Cracking) resistance.

Semi-crystalline materials have a distinctive (known) melting temperature, they do not gradually soften when exposed to increases in temperature, instead they remain solid until a given quantity of heat is absorbed then rapidly change into a low viscous (watery) melt.

Typical Features:

- Chemical & ESC resistant.
- Fatigue resistant & flexible
- Good for bearing & wear.
- Resistant to bonding with solvents & adhesives.
- Distinctive (known) melting temperature.

Reinforcements & fillers:

Benefits, if available:-

Glass fibre **reinforcement** by weight (eg: 30%) alters Mechanical Properties:-

- Increases stiffness
- Becomes more brittle.
- Reduces moulding shrinkage.
- Improvements to Heat Distortion Temp (HDT).

Additional **fillers** can improve:-

- Flame-retardance.
- Electrical properties:-

Carbon increases conductivity

Stainless steel improves dissipative behaviour.

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DSM 4.1.1

ACETAL (Black)

General:

A general purpose, medium viscosity resin with an optimised combination of mould flow and physical properties.

Benefits:

- High surface hardness including stiffness.
- Dimensionally stable with low water absorption.
- Good electrical insulation and chemical resistance to solvents & hydrocarbons.

Limitations: (unmodified)

- Become brittle with long term exposure to low temperatures and/or sunlight (UV). Poor fire resistance (UL 94 HB).
- Sensitive to acid & chlorine attack
- Resistant to bonding, when using adhesives or solvents.

Acetal **homopolymer**: compared to Acetal copolymer has a higher hardness therefore lower coefficient of friction which equals, better wear resistance. Combined with higher impact & tensile strength, creep resistance and a lower thermal expansion rate.

Acetal **copolymer**: is preferred for machining due to absence of centre line porosity in rods (extruded) & risk of cavitation in plates (cast).

ASM (DEK) Applications:

- Squeegee Clamp

These values are representative. For critical applications, refer to data-sheet.

MECHANICAL PROPERTIES					
	HARDNESS Shore A	TENSILE STRENGTH:	YOUNGS MODULUS:	POISSONS RATIO:	DENSITY:
POM	---	70 MPa	3.2 GPa	0.35	1420 Kg/m³

HOMOPOLYMER GRADE	SUPPLIER	UL No.	RECYCLE CODE
Delrin 500P NC010 + Master Batch Colour: BLACK	DuPont	E41938	>POM<

COPOLYMER GRADE	SUPPLIER	UL No.	RECYCLE CODE
LUPITAL F20-03 + Master Batch Colour: BLACK	Mitsubishi	E41179	>POM<

Alternatives: Alternative polymers are allowed only with the express written permission of ASMPT. Please email details of your request to engineering_enquiries@asmpt.com

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