THERMOPLASTIC

AMORPHOUS GROUP

Definition:

It is the long chained molecules that define the character of this group. When moulded, the molecular structure has no preferred alignment and is very random and intertwined. These entanglements generally create higher physical properties with lower melt flow and less shrinkage which is isotropic (relatively uniform in all directions).

Amorphous materials do not have a sharp melting point instead they gradually soften when exposed to increases in temperature and quickly lose strength above the Glass Transition temperature (Tg) where they elongate and become 'rubbery'.

Typical Features:

- Low chemical resistance.
- Poor fatigue resistant
- Can be bonded, welded and plated.
- More translucent/transparent

Additions of 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.

DSM 4.1.15

ABS (White)

General:

ABS: is a terpolymer of Acrylonitrile, Butadiene & Polystyrene combining to create a polymer drawing on the inherent benefits of each monomer.
Acrylonitrile: Surface hardness.
Butadiene: Impact strength.
Styrene: Easier to process.

Benefits:

It is a low-cost opaque thermoplastic that is easy to mould, machine and fabricate. Good appearance, colour choice and shine for cosmetic parts including applications where impact resistance, strength, and stiffness are required such as enclosures & appliance housings. Available in a wide range of filled and reinforced versions tailored to individual end uses.

Limitations: (unmodified)

-Limited (UV) weathering resistance.
-Poor solvent resistance.
-Low service temp (melts easily).
- Low flame-retardant standards (UL94: HB).
- Sensitive to thick sections (sinkage).
-Low dielectric strength (not a good insulator).

ASM (DEK) Applications:

- Cosmetic casework

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

MECHANICAL PROPERTIES					
	HARDNESS Shore A	TENSILE STRENGTH:	YOUNGS MODULUS:	POISSONS RATIO:	DENSITY:
ABS	---	**41** MPa	**2.0** GPa	**0.41**	**1040** Kg/m^3

GRADE	SUPPLIER	UL No.	RECYCLE CODE
Polylac: PA-717C + Master Batch Colour: **RAL 9010**	**CHI MEI CORPORATION**	**E56070**	**>ABS<**

Alternatives:

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