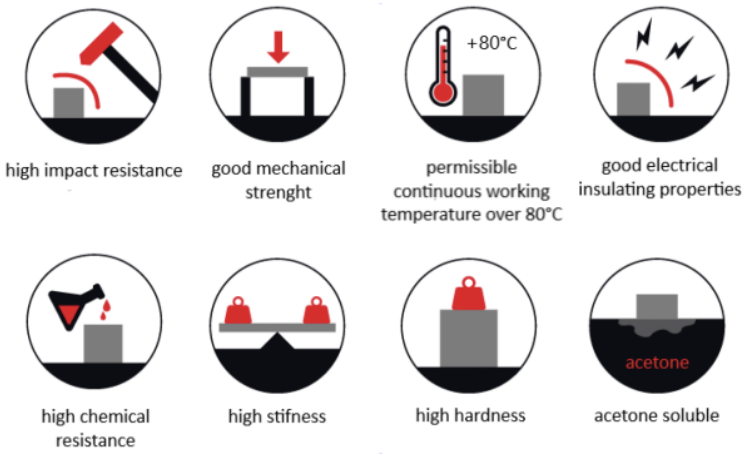
Buddy3D

Product card

ABS MAT



1. GENERAL INFORMATION ABOUT THE PRODUCT

ABS (acrylonitrile butadiene styrene copolymer) is second, after PLA, most popular material. It used when higher impact strength , hardness and better scratch resistance than Polylactide is needed. ABS has good isolation properties and much more temperature resistance than PLA. Printing with ABS is a little more difficult because of more shrinkage and less universality of the substrate. The ABS Mat filament is characterized by a higher temp erature resistance than the basic Noctuo ABS, it is slightly harder and has a much lower gloss.

Main ABS Mat features:

- good mechanical strength, stiffness, and hardness
- high impact resistance
- good thermal stability
- permissible continuous operation temperature over 80°C
- average chemical resistance, in particular satisfactory resistance to alkalis, diluted acids, aliphatic hydrocarbons, oils and fats
- good electrical insulation properties
- slight gloss

2. TECHNICAL PARAMETERS

CHARACTERISTICS	TEST METHOD	TEST CONDITIONS	IU	VALUE
	ISO			
PHYSICAL				
Density	ASTM D792	–	g/cm^3	1.04
Water absorption to saturation	ASTM D570	23 °C/sat.	%	0.3
Processing shrinkage II/ □		–	%	0.4 – 0.6
MECHANICAL				
Yield strength	527-1, -2	50 mm/min	MPa	45
Elongation at break	527-1, -2	50 mm/min	%	45
Bending stress	178	2 mm/min	MPa	68
Elastic modulus at tension	178	2 mm/min	MPa	1950
Notched Charpy impact strength	179-1	1eA	kJ/m^2	20
Notched Charpy Impact strength (-30°C)	179-1	1eA	kJ/m^2	10
THERMAL				
Vicat softening point	306	50N	°C	104
Deflection temperature under load	75-1,-2	1.8 MPa	°C	81
Coefficient of linear thermal expansion II/ □	11359-1, -2	23 °C – 85 °C	E-6/°C	90
COMBUSTIBILITY				
Flammability level test	UL94	3.2 mm	Class	HB
Flammability index of incandescent material wire(GWFI)	IEC-60695-2-12	2 mm	°C	650
ELECTRICAL				
Surface resistivity	IEC 60093	–	□	10^14
Volume resistivity	IEC 60093	–	□xcm	10^15
Dielectric constant	IEC 600250	100 kHz	–	3.1

Tests have been done at 23°C if it's not marked differently.

3. RECOMMENDATION OF PRINTING

There might be some problems to achieve proper adhesion on glass bed. Using perforated bed, PVA glue, specialized product (Dimafix), kapton coating or other different way to obtain adhesion is recommended.

Recommended parameters of printing:

Hotend temperature	240 – 265 °C
Bed temperature	90 – 105 °C
Print speed	< 200 mm/s

Examples of problems and their solutions:

Problem	Possible cause	Proposed solution
Weak layers adhesion	1) Extruder temperature is too low 2) Too high speed of printing	1) Raising the extruder temperature 2) Raising the extruder temperature / reducing the print speed
Uneven feeding losing steps of the feeder/filament sliding on the drive gear	1) Extruder temperature is too low 2) Weak feeder pressure	1) Raising the extruder temperature 2) Raising the pressure
Print is peeling of the bed	1) Too low temperature of bed 2) Improperly prepared surface 3) Cooling	1) Raising the bed temperature 2) Degreasing the bed / using another source of adhesion / using a perforated bed 3) Giving up the cooling on first stage is recommended
Edge curling	1) Processing shrinkage	1) Compensation with amount of served filament / select ion cooling parameters / changing the chamber temperature

4. SAFETY NOTES

Exhaust fan is recommended.
Air filters in printer is recommended.
ABS needs to be used only in well-ventilated conditions.
Inhaling fumes generated during the printing must be avoided.

Generating fumes during the printing depends mainly on printing temperature. In case of visibly raising emission level, the printing needs to end. Check the hotend temperature and efficiency of the control system before using it next time.

In proper using conditions, the product doesn't endanger health.

It's forbidden to set fire or exceed decomposition temperature!

Decomposition of ABS is typically over 300 °C.
Main ingredient of decomposition is styrene.

Detailed safety information available in SDS.