TECHNICAL DATA SHEET

ASA

Smart Print ASA is an engineering-grade filament developed for functional and outdoor-ready 3D printing applications. The material is based on ASA (Acrylonitrile Styrene Acrylate) and offers excellent resistance to weather conditions, UV radiation, and temperature fluctuations while maintaining balanced mechanical properties.
ASA is designed to deliver strong layer adhesion, reliable dimensional stability, and consistent print quality. Its low warping behavior and stable thermal characteristics make it suitable for producing durable structural parts and functional components intended for long-term use in demanding environments.

Product features

Weather and UV Resistance

Smart Print ASA maintains mechanical strength and color stability during prolonged exposure to sunlight and outdoor conditions, making it ideal for exterior applications.

Balanced Mechanical Performance

The material offers a combination of rigidity, toughness, and tensile strength, ensuring reliable performance in functional and structural printed parts.

Dimensional Stability

Low shrinkage and controlled thermal behavior help reduce warping and deformation, allowing for accurate prints across both small and large components.

Reliable Printing Behavior

Smart Print ASA provides smooth extrusion, strong interlayer bonding, and consistent results, supporting repeatable production and clean surface finishes.

Printing guidelines

Based on a 0.4 mm nozzle. Printing conditions may vary with different nozzle diameters.

Nozzle temperature **210–250°C**	Build surface material **PEI, glass**	Build surface treatment **glue**
Build plate **60–100°C**	Cooling fan **turned off**	Printing speed: **30 - 70 mm/s**
Raft separation distance **0.2 mm**	Retraction distance **7 mm**	Retraction speed **20 mm/s**

Drying guidelines

To ensure consistent extrusion and surface quality, Smart Print ASA should be dried at 70–90°C for 2–4 hours prior to printing. The filament should be stored in a cool, dry place, protected from UV light, and kept in a sealed container with desiccant when not in use.

Available colors

Precautions

Printer Compatibility

Smart Print ASA is compatible with most FDM printers capable of temperatures above 240°C. Due to the abrasive nature of the material, a hardened steel or ruby nozzle is strongly recommended to prevent wear and maintain consistent print quality.

Shrinkage Control

ASA offers good dimensional stability, but may experience slight shrinkage if cooled too quickly. For best results, print in a warm, draft-free environment or inside an enclosure to reduce warping and edge lift.

Cooling Settings

Print with cooling fan turned off to achieve strong layer adhesion and prevent cracking, especially in larger or structural parts.

Filament Storage

Store Smart Print ASA in a cool, dry place in a sealed container with desiccant. The material may absorb moisture over time, which can negatively affect extrusion quality. Proper storage ensures long-term performance.

Printing & Handling Guidelines

Smart Print ASA can be printed on most FDM/FFF 3D printers capable of maintaining stable extrusion temperatures. A heated build plate is recommended for optimal adhesion, although the material may also be printed without a heated bed due to its low warping tendency.
For best results, printing should be performed in a warm, draft-free environment or inside an enclosure to maintain temperature stability and reduce shrinkage effects.

Property	Test Standard	Unit	Value
Density (Specific Gravity)	ISO 1183	g/cm³	1.1
Melt Flow Rate (MFR)	ISO 1133	g/10 min	15
Tensile Strength	ASTM D790	kg/cm²	800
Tensile Modulus	ASTM D790	kg/cm²	22,100
Mold Shrinkage	ISO 294-4	%	0.5
Printing Temperature	–	°C	210–250
Melting Temperature	ISO 3146-C	°C	190 ±10
Vicat Softening Temperature (VICAT A)	ISO 306	°C	95

Disclaimer

The technical information provided in this document is based on internal testing and is intended for reference only. Actual performance may vary depending on printer setup, nozzle wear, environmental factors, and part design. Because ASA contains reinforcing additives and may exhibit abrasive behavior, users should ensure proper nozzle selection and maintenance. Smart Print is not responsible for equipment damage, improper handling, or results obtained outside recommended guidelines. Always store and dispose of materials in accordance with local regulations.