wenext

ASA

Material Introduction

Introduction

ASA filament is the perfect all-purpose 3D printing thermoplastic, suitable for many different applications. It has a similar chemical makeup to ABS plastic but offers three improvements: better mechanical properties, superior aesthetics and it's UV resistant.

The Attribute for a 102*102*2.5mm sample

MECHANICAL PROPERTIES[1]	TEST METHOD	ENGLISH		METRIC	
		XZ AXIS	ZX AXIS	XZ AXIS	ZX AXIS
Tensile Strength, Yield(Type 1, 0.125", 0.2"/min)	ASTM D638	4,200 psi	3,850 psi	29 MPa	27 MPa
Tensile Strength, Ultimate(Type 1, 0.125", 0.2"/min)	ASTM D638	4,750 psi	4,300 psi	33 MPa	30 MPa
Tensile Modulus(Type 1, 0.125", 0.2"/min)	ASTM D638	290,000 psi	280,000 psi	2,010 MPa	1,950 MPa
Tensile Elongation at Break(Type 1, 0.125", 0.2"/min)	ASTM D638	9%	3%	9%	3%
Tensile Elongation at Yield(Type 1, 0.125", 0.2"/min)	ASTM D638	2%	2%	2%	2%
Flexural Strength(Method 1, 0.05"/min)	ASTM D790	8,700 psi	6,900 psi	60 MPa	48 MPa
Flexural Modulus(Method 1, 0.05"/min)	ASTM D790	270,00 psi	240,000 psi	1,870 MPa	1,630 MPa
Flexural Strain at Break(Method 1, 0.05"/min)	ASTM D790	No Break	4%	No Break	4%

Advantages

1. Good UV resistance
2. Nice glossy surface, which is pleasant to tough
3. Tough and strong
4. Chemically resistant
5. Lower color fade
6. Can be smoothed with a solvent like acetone

Disadvantage

1. ASA is hygroscopic, which means it absorbs water from the air
2. May be tough to work with
3. May produce toxic smoke when burnt
4. Some grades and filaments cost much
5. ASA melts with some other plastics giving rise to moldings of poor strength
6. Can't withstand some concentrated acids, hydrocarbons, esters, ethers and ketones

Applications

- Automotive
- Medical products
- Consumer Products
- Electronics
- IT and Communication
- Outdoor Products
- Building and Construction
- Sports equipment
- Exterior signage