



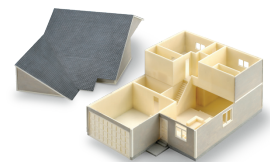
ABS-M30

PRODUCTION-GRADE THERMOPLASTIC FOR FDM 3D PRINTERS

ABS-M30™ is up to 25 to 70 percent stronger than standard ABS and is an ideal material for conceptual modeling, functional prototyping, manufacturing tools and end-use-parts. ABS-M30 has greater tensile, impact and flexural strength than standard ABS. Layer bonding is significantly stronger than that of standard ABS, for a more durable part. This results in more realistic functional tests and higher quality parts for end use. ABS-M30 parts are stronger, smoother and have better feature detail. ABS-M30 runs the Xtend 500 Fortus Plus option, which enables more than 400 hours of unattended build time.

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	4,550 psi	3,750 psi	31 MPa	26 MPa
Tensile Strength, Ultimate (Type 1, 0.125", 0.2"/min)	ASTM D638	4,650 psi	4,050 psi	32 MPa	28 MPa
Tensile Modulus (Type 1, 0.125", 0.2"/min)	ASTM D638	320,000 psi	310,000 psi	2,230 MPa	2,180 MPa
Tensile Elongation at Break (Type 1, 0.125", 0.2"/min)	ASTM D638	7%	2%	7%	2%
Tensile Elongation at Yield (Type 1, 0.125", 0.2"/min)	ASTM D638	2%	1%	2%	1%
Flexural Strength (Method 1, 0.05"/min)	ASTM D790	8,700 psi	7,000 psi	60 MPa	48 MPa
Flexural Modulus (Method 1, 0.05"/min)	ASTM D790	300,000 psi	250,000 psi	2,060 MPa	1,760 MPa
Flexural Strain at Break (Method 1, 0.05"/min)	ASTM D790	4%	3.5%	4%	3.5%

MECHANICAL PROPERTIES	TEST METHOD	ENGLISH	METRIC
		XZ AXIS	XZ AXIS
IZOD Impact, notched (Method A, 23°C)	ASTM D256	2.4 ft-lb/in	128 J/m
IZOD Impact, un-notched (Method A, 23°C)	ASTM D256	5.6 ft-lb/in	300 J/m



THERMAL PROPERTIES ²	TEST METHOD	ENGLISH	METRIC
Heat Deflection (HDT) @ 66 psi, 0.125" unannealed	ASTM D648	204°F	96°C
Heat Deflection (HDT) @ 264 psi, 0.125" unannealed	ASTM D648	180°F	82°C
Vicat Softening Temperature (Rate B/50)	ASTM D1525	210°F	99°C
Glass Transition (Tg)	DMA (SSYS)	226°F	108°C
Coefficient of Thermal Expansion (flow)	ASTM E831	4.90x10 ⁻⁰⁵ in/in/°F	8.82x10 ⁻⁰⁵ mm/mm/°C
Coefficient of Thermal Expansion (xflow)	ASTM E831	4.70x10 ⁻⁰⁵ in/in/°F	8.46x10 ⁻⁰⁵ mm/mm/°C
Melting Point	-----	Not Applicable ²	Not Applicable ²

STRATASYS.COM



ABS-M30

PRODUCTION-GRADE THERMOPLASTIC FOR FDM 3D PRINTERS

At the core:

Advanced FDM Technology™

Fortus systems are based on Stratasys® FDM® (fused deposition modeling) technology. FDM is the industry's leading additive manufacturing technology, and the only one that uses production-grade thermoplastics, enabling the most durable parts. Fortus systems use a wide range of thermoplastics with advanced mechanical properties so your parts can endure high heat, caustic chemicals,

No special facilities needed

You can install a Fortus 3D Printer or Stratasys F123 Series 3D Printer just about anywhere. No special venting is required because they don't produce noxious fumes, chemicals or waste.

No special skills needed

Fortus 3D Printers and Stratasys F123 Series 3D Printers are easy to operate and maintain compared to other additive fabrication systems because there are no messy powders to handle and contain. They're so simple, an operator can be trained to operate one in less than 30 minutes.

Get your benchmark on the future of manufacturing

Fine details. Smooth surface finishes. Accuracy. Strength. The best way to see the advantages of a Fortus 3D Printer or Stratasys F123 Series Printer is to have your own part built on one. Get your free part at: stratasys.com.

ELECTRICAL PROPERTIES ³	TEST METHOD	ORIENTATION	VALUE RANGE
Volume Resistivity	ASTM D257	XZ Axis	4.0x10 ¹⁵ - 3.3x10 ¹⁶ ohm-cm
Dielectric Constant	ASTM D150-98	XZ Axis	2.6 - 2.86
Dissipation Factor	ASTM D150-98	XZ Axis	0.0048 - 0.0054
Dielectric Strength	ASTM D149-09, Method A	XY Axis	100 V/mil
Dielectric Strength	ASTM D149-09, Method A	XZ Axis	360 V/mil

OTHER ¹	TEST METHOD	VALUE
Specific Gravity	ASTM D792	1.04
Flame Classification	UL94	HB (0.09", 2.50 mm)
Rockwell Hardness	ASTM D785	109.5
UL File Number	-----	E345258

SYSTEM AVAILABILITY	LAYER THICKNESS CAPABILITY	SUPPORT STRUCTURE	AVAILABLE COLORS
Fortus® 360mc™ Fortus 380mc™ Fortus 400mc™ Fortus 450mc™ Fortus 900mc™ Stratasys F123 Series	0.013 inch (0.330 mm) 0.010 inch (0.254 mm) 0.007 inch (0.178 mm) 0.005 inch (0.127 mm) ⁴	Soluble Supports	<input type="checkbox"/> Ivory <input type="checkbox"/> White <input type="checkbox"/> Black <input type="checkbox"/> Dark Grey <input type="checkbox"/> Red <input type="checkbox"/> Blue

The information presented are typical values intended for reference and comparison purposes only. They should not be used for design specifications or quality control purposes. End-use material performance can be impacted (+/-) by, but not limited to, part design, end-use conditions, test conditions, etc. Actual values will vary with build conditions. Tested parts were built on Fortus 400mc @ 0.010" (0.254 mm) slice. Product specifications are subject to change without notice.

The performance characteristics of these materials may vary according to application, operating conditions or end use. Each user is responsible for determining that the Stratasys material is safe, lawful and technically suitable for the intended application, as well as for identifying the proper disposal (or recycling) method consistent with applicable environmental laws and regulations. Stratasys makes no warranties of any kind, express or implied, including, but not limited to, the warranties of merchantability, fitness for a particular use, or warranty against patent infringement.

¹Literature value unless otherwise noted.

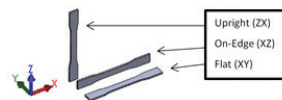
²Due to amorphous nature, material does not display a melting point.

³All Electrical Property values were generated from the average of test plaques built with default part density (solid). Test plaques were 4.0 x 4.0 x 0.1 inches (102 x 102 x 2.5 mm) and were built both in the flat and vertical orientation. The range of values is mostly the result of the difference in properties of test plaques built in the flat vs. vertical orientation.

⁴0.005 inch (0.127 mm) layer thickness not available for Fortus 900mc.

Colors: The test data was collected using ABS-M30 Ivory (natural) specimens. ABS-M30 colored material will have similar properties, but can vary by up to 10%. Orientation: See Stratasys Testing white paper for more detailed description of build orientations.

- XZ = X or "on edge"
- XY = Y or "flat"
- ZX = or "upright"



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Issuing date 05-Nov-2015

Revision Date 05-Nov-2015

Revision Number 0

Section 1. Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

SSYS Part Number 400626-0002

Product name ABS-M30™ / P430™ ABS / P430XL™ ABS / ABSplus™ Model Material

Synonyms ABS

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use Additive manufacturing

Uses advised against No information available

1.3. Details of the supplier of the safety data sheet

Importer	Supplier
Stratasys GMBH	Stratasys Inc
Simon Hegele	7665 Commerce Way
Gesellschaft für Logistik und Service mbH	Eden Prairie, MN
Tejostraße 1-9 (Unit 5, Gate 67)	55344
65479 Raunheim	TEL: 1(952) 937 3000
Germany	
TEL: +49 722 977720	

For further information, please contact

E-mail address objet-info@stratasys.com

1.4. Emergency telephone number

Emergency Telephone Number 1(952) 937 3000
+49 722 97772280 - Europe - Multi lingual response
+49 722 97772281 - Global - English language response

Europe	112
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Section 2. Hazards identification**2.1. - Classification of the substance or mixture****REGULATION (EC) No 1272/2008**

The product is not classified as dangerous according to Regulation (EC) No. 1272/2008

Physical hazards

none

2.2. Label elements

The product is not classified as dangerous according to Regulation (EC) No. 1272/2008

Signal Word none

2.3. Other information

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

3.2. Mixtures

Chemical Name	EC-No	CAS-No	Weight percent	EU - GHS Substance Classification	REACH No.
ABS resin	-	9003-56-9	>96		no data available
Colourants	-	-	<4		no data available

For the full text of the H-Statements mentioned in this Section, see Section 16

Note

Only non-hazardous and/or USP Class VI colourants are used. No leachable/extractable or heavy metal colourants are used. Some of the colourants, such as titanium dioxide and carbon black, have dust hazards. These hazards are not germane as the colourants are encapsulated in a fully reacted polymer.

Section 4. First aid measures

4.1. Description of first aid measures

Eye contact	Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician.
Skin contact	Wash off with water. If molten polymer contacts the skin, cool rapidly with cold water. Do not attempt to peel cured polymer from skin. Removal of solidified molten material from skin requires medical assistance.
Ingestion	Drink plenty of water. Do NOT induce vomiting. If symptoms persist, call a physician.
Inhalation	Move to fresh air. If symptoms persist, call a physician.

4.2. Most important symptoms and effects, both acute and delayed

Most Important Symptoms/Effects No information available.

4.3. Indication of immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

Section 5. Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media

Water. Dry powder. Foam. Carbon dioxide (CO₂).

Extinguishing Media Which Must not be Used for Safety Reasons

No information available.

5.2. Special hazards arising from the substance or mixture

Special Exposure Hazards Arising from the Substance or Preparation Itself, Combustion Products, Resulting Gases

Burning produces noxious and toxic fumes. Aldehydes. Carbon monoxide. Carbon dioxide (CO₂). Hydrogen cyanide.

5.3. Advice for firefighters

Special protective equipment for fire-fighters

As in any fire, wear self-contained breathing apparatus and full protective gear.

Section 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Ensure adequate ventilation.

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so.

6.3. Methods and materials for containment and cleaning up

Sweep up and shovel into suitable containers for disposal.

6.4. Reference to other sections

See Section 12 for additional information.

Section 7. Handling and storage

7.1. Precautions for safe handling

Handling

Handle in accordance with good industrial hygiene and safety practise. Wear personal protective equipment. Ensure adequate ventilation. Prevent contact with molten product. Do not eat, drink or smoke when using this product. Do not take internally. Wash thoroughly after handling.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practise.

7.2. Conditions for safe storage, including any incompatibilities

Keep tightly closed in a dry and cool place.

7.3. Specific end uses

Exposure scenario

No information available

Other Guidelines

No information available

Section 8. Exposure controls/personal protection

8.1. Control parameters

Exposure limits

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Derived No Effect Level

No information available.

Predicted No Effect Concentration (PNEC)

No information available.

8.2. Exposure controls

Engineering measures

Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye Protection

Safety glasses with side-shields. For handling molten material, use of a faceshield is recommended.

Skin and body protection

No protective equipment is needed under normal use conditions.

Hand protection When handling hot material, use heat resistant gloves.
Respiratory protection No protective equipment is needed under normal use conditions.

Environmental Exposure Controls No information available.

Section 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical State Solid (compressed) **Appearance** Various
Odour none

<u>Property</u>	<u>Values</u>	<u>Remarks/ - Method</u>
pH	no data available	None known
Melting point/range	no data available	None known
Boiling point/boiling range	no data available	None known
Flash point	no data available	None known
Evapouration rate	no data available	None known
Flammability (solid, gas)	no data available	None known
Vapour pressure	no data available	None known
Vapour density	no data available	None known
Relative density	no data available	None known
Water solubility	no data available	None known
Solubility in other solvents	no data available	None known
Partition coefficient: n-octanol/water	no data available	None known
Autoignition temperature	no data available	None known
Decomposition temperature	no data available	None known
Viscosity	no data available	None known
Explosive properties	no data available	
Oxidising properties	no data available	

9.2. Other information

VOC Content (%) No information available
Flammability Limits in Air no data available

Section 10. Stability and reactivity

10.1. Reactivity

No data available.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

None under normal processing.

10.4. Conditions to avoid

Incompatible products.

Incompatible materials

Strong oxidising agents.

10.6. Hazardous decomposition products

Carbon oxides. Aldehydes. Hydrogen cyanide.

Section 11. Toxicological information

11.1. Information on toxicological effects

Acute toxicity

Product Information

Inhalation

Eye contact

Skin contact

Ingestion

Exposure to volatiles released during hot processing may cause respiratory tract irritation.

Contact with eyes may cause irritation.

Contact with molten material will cause thermal burns.

Not an expected route of exposure. Ingestion may cause stomach discomfort.

Sensitisation

No information available.

Mutagenic effects

No information available.

Carcinogenic effects

No information available.

Reproductive toxicity

No information available.

Developmental Toxicity

No information available.

Specific target organ systemic toxicity (single exposure)

No information available.

Specific target organ systemic toxicity (repeated exposure)

No information available.

Target Organ Effects

Eyes, Skin.

Aspiration hazard

No information available.

Section 12. Ecological information

12.1. Toxicity

Ecotoxicity effects

Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants.

12.2. Persistence and degradability

No information available.

12.3. Bioaccumulative potential

No information available.

12.4. Mobility in soil

Adsorbs on soil.

12.5. Results of PBT and vPvB assessment

No information available.

12.6. Other adverse effects

This product does not contain any known or suspected endocrine disruptors

Section 13. Disposal considerations

13.1. Waste treatment methods

Waste from residues / unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

Section 14. Transport information

IMDG/IMO

14.1. UN-Number not regulated.
14.2. Proper shipping name Not regulated.
14.3. Hazard class not regulated.
14.4. Packing group not regulated.
Description Not applicable.
14.5. Marine pollutant None.
14.6. Special Provisions none.
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available

RID

14.1. UN-Number not regulated.
14.2. Proper shipping name Not regulated.
14.3. Hazard class not regulated.
14.4. Packing group not regulated.
Description Not applicable
14.5. Environmental hazard. None
14.6. Special Provisions none.

ADR

14.1. UN-Number not regulated.
14.2. Proper shipping name Not regulated.
14.3. Hazard class Not regulated.
14.4. Packing group not regulated.
Description Not applicable
14.5. Environmental hazard. None
14.6. Special Provisions None

ICAO

14.1. UN-Number not regulated.
14.2. Proper shipping name not regulated.
14.3. Hazard class not regulated.
14.4. Packing group not regulated.
Description Not applicable
14.5. Environmental hazard. None
14.6. Special Provisions None

IATA

14.1. UN-Number not regulated.
14.2. Proper Shipping Name Not regulated.
14.3. Hazard class not regulated.
14.4. Packing group not regulated.
Description Not applicable
14.5. Environmental hazard. None
14.6. Special Provisions None

Section 15. Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventories

TSCA	Complies
EINECS/ELINCS	-
DSL/NDSL	-
PICCS	-
ENCS	-
IECSC	-
AICS	-
KECL	-

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

PICCS - Philippines Inventory of Chemicals and Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

AICS - Australian Inventory of Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

15.2. Chemical Safety Assessment

No information available

Section 16. Other information

Key literature references and sources for data

www.ChemADVISOR.com/

Issuing date	05-Nov-2015
Revision Date	05-Nov-2015
Revision Note	Initial Release.

This safety data sheet complies with the requirements of Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No. 1907/2006

Disclaimer

The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Safety Data Sheet