



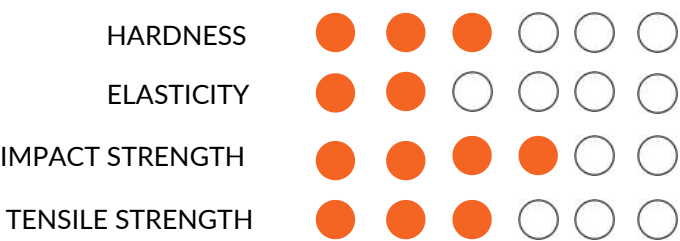
TECHNICAL DATA SHEETS


OMNI3D
Industrial 3D printing



TECHNICAL DATA SHEET ABS-42

ABS-42 - universal material, characterized by durability and high mechanical strength. It is also a material easy to to post-process. ABS is used in production, especially in prototyping elements with higher rigidity.



PHYSICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Density	1,04	g/cm^3	ASTM D792
Water Absorption	0,85	%	-

MECHANICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Young's modulus	2,5	GPa	-
Elasticity	2	GPa	-
Tensile Strength	520	kg/cm ²	ASTM D638
Tensile Elongation	30	%	ASTM D638
Flexural strength	800	kg/cm ²	ASTM D790
Izod impact strength 23°C	20	kg×cm/cm	ASTM D256
Izod impact strength 30°C	8	kg×cm/cm	ASTM D256
Rockwell Hardness	110	-	ASTM D785

THERMAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Heat Deflection Temperature 0,45 MPa	90	°C	ASTM D648
Heat Deflection Temperature 1,8 MPa	86	°C	
VICAT Softening Temperature	94	°C	ASTM D1525
Flammability class	HB	-	UL94

RECOMMENDED PRINTING PARAMETERS



Nozzle temerature

235 – 255°C



Bed temperature

70 – 110°C



Heated chamber

65°C



Drying temperature

60°C



TECHNICAL DATA SHEET PVA-20

PVA-20 - polymer suitable as a support material due to unique property of dissolving in warm water. Ideal for working as an auxiliary material for printing complicated geometries, large overhangs or complex cavities. Popularly used for the production of packaging dishwasher detergent “pods” or bags full of fishing bait.

PHYSICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Density	0,6-0,9	g/cm ³	DIN EN 543
Center of gravity	1,19	g /cc	ISO 1183
MFI 190°C / 21,6kg	58/10	g/min	ISO 1183

RECOMMENDED PRINTING PARAMETERS



Nozzle temperature

235 – 250°C



Bed temperature

60°C



Drying temperature

60°C



Print speed

40-80mm/s



Temperature to dissolve

<70°C



TECHNICAL DATE SHEET WS-20

WS-20 - support material, soluble in lukewarm water, preferably in circulating water. Waste can be disposed of in municipal sewage. The use of this filament allows the printing of supports in closed spaces, thanks to which there are no geometric restrictions on the printed models.

PHYSICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Density	1,04	g/cm ³	DIN 53479
Center of gravity	1,19	g /cc	ISO 1183
MFI 190°C / 21,6kg	58/10	g/min	ISO 1183

THERMAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Melting temperature	>200	°C	DIN EN ISO 306
Ignition temperature	>400	°C	DIN 51794
Thermal decomposition temperatures	>300	°C	-

RECOMMENDED PRINTING PARAMETERS



Nozzle temperature

210 – 220°C



Bed temperature

60°C



Drying temperature

15-20°C



Heated chamber

55°C



Keep out of reach of UV light

TECHNICAL DATA SHEET PLA-36

PLA-36 - biodegradable polymer made from renewable resources. One of the basic materials for fast prototyping, especially appreciated by 3D printing hobbyists or people starting their adventure with 3D printing. Universal, used in many industries. It is characterized by high precision and aesthetics of made models, ease of printing and excellent adhesion between layers.



PHYSICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Density	1,24	g/cm ³	ASTM D792

MECHANICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Tensile Strength	53	MPa	ASTM D882
Tensile Elongation	6	%	ASTM D882
Flexural strength	83	MPa	ASTM D790
Izod impact strength	16	J/m	ASTM D256

THERMAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Heat Deflection Temperature 0,45 MPa	55	°C	ASTM E2092

RECOMMENDED PRINTING PARAMETERS



Nozzle temerature

190-230°C



Bed temperature

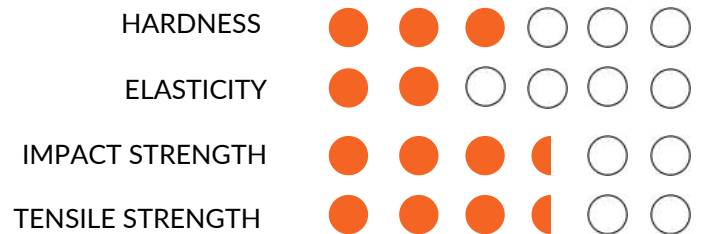
50-60°C



TECHNICAL DATA SHEET

ASA-39

ASA-39 - material used where resistance to weather conditions is needed, especially UV light. High temperature resistance allows to test models in direct sunlight without the risk of deformation or discoloration.



PHYSICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Density	1,06	g/cm ³	ASTM D792

MECHANICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Tensile strength	45	MPa	ASTM D638
Tensile elongation	23	%	ASTM D638
Flexural strength	66	MPa	ASTM D790
Izod impact strenght	118	kJ/m	ASTM D256
Rockwell hardness	105	-	ASTM D785

THERMAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Heat Deflection Temperature 1,8 MPa	85	°C	ASTM D648
VICAT Softening Temperature	201	°C	ISO R306 50N

RECOMMENDED PRINTING PARAMETERS



Nozzle temperature

>240°C



TECHNICAL DATA SHEET

PET-G-32

PET-G-32 - industrial material with low shrinkage, designed to work in extreme conditions. It is characterized by high printing accuracy. The material used for the production of packaging for food products and in medicine due to the possibility of sterilization. PET-G can be used in printing elements resistant to grease, oil and gasoline.

HARDNESS



ELASTICITY



IMPACT STRENGTH



TENSILE STRENGTH



PHYSICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Density	1,27	g/cm ³	ISO 1183
Water Absorption	0,13	%	ISO 62

MECHANICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Tensile strength	28	MPa	ISO 527
Tensile elongation	100	%	ISO 527
Flexural strength	68	MPa	ISO 178
Izod impact strenght 23°C	6,2	kJ/m	ISO 180
Rockwell hardness	109	-	ISO 2039-2

THERMAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Heat Deflection Temperature 0,45 MPa	70	°C	ASTM D648
Heat Deflection Temperature 1,8 MPa	64	°C	ASTM D648
VICAT Softening Temperature	85	°C	ASTM D1525

ELECTRICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Surface resistivity	10 ¹⁶	Ω/cm ²	ASTM D257



Nozzle temperature

230-250°C



Bed temperature

90°C

RECOMMENDED PRINTING PARAMETERS



TECHNICAL DATA SHEET

PC-ABS-47

PC-ABS-47 - filament with high mechanical and temperature resistance, guaranteeing print durability and stability. Resistant to chemicals, including salts, acids and alkalis. The material is ideal for prototyping, printing specialized tools and producing final parts.



PHYSICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Density	1,1	g/cm ³	ASTM D792
Water Absorption	0,2	%	ASTM D570

MECHANICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Tensile strength	55	MPa	ASTM D638
Tensile elongation	50	%	ASTM D638
Flexural strength	80	MPa	ASTM D790
Izod impact strenght	60	kg*cm/cm	ASTM D256
Rockwell hardness	110	-	ASTM D785

THERMAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Heat Deflection Temperature 1,8 MPa	98	°C	ASTM D648
VICAT Softening Temperature	110	°C	ASTM D1525
Flammability class	HB	-	UL 94

RECOMMENDED PRINTING PARAMETERS



Nozzle temperature

255-270°C



Bed temperature

90 - 105°C



Print speed

30 - 55mm/s



Heated chamber

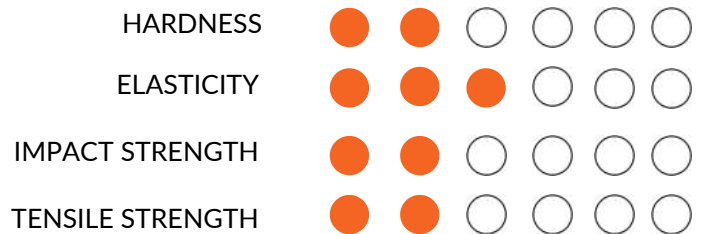
60-70°C



TECHNICAL DATA SHEET

HIPS-20

HIPS-20 - used as both support material and material suitable for 3D printing. Printed elements made of this filament can be subjected to post-processing, such as gluing, polishing or painting. Safe material, commonly used for the production of packaging, suitable for contact with food.



PHYSICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Density	1,04	g/cm ³	ISO 1183
Water Absorption	>0,1	%	ISO 62

MECHANICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Tensile strength	28	MPa	ISO 527-2
Tensile elongation	55	%	ISO 527-2
Charpy impact strength	8	kJ/m ²	ISO 179/1eA
Rockwell hardness	77	-	ISO 2039-2

THERMAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Heat Deflection Temperature 1,8 MPa	94	°C	ISO 75-2A
VICAT Softening Temperature	95	°C	ISO 306B50
Surface resistivity	>10 ¹³	Ω	ISO IEC 93

RECOMMENDED PRINTING PARAMETERS

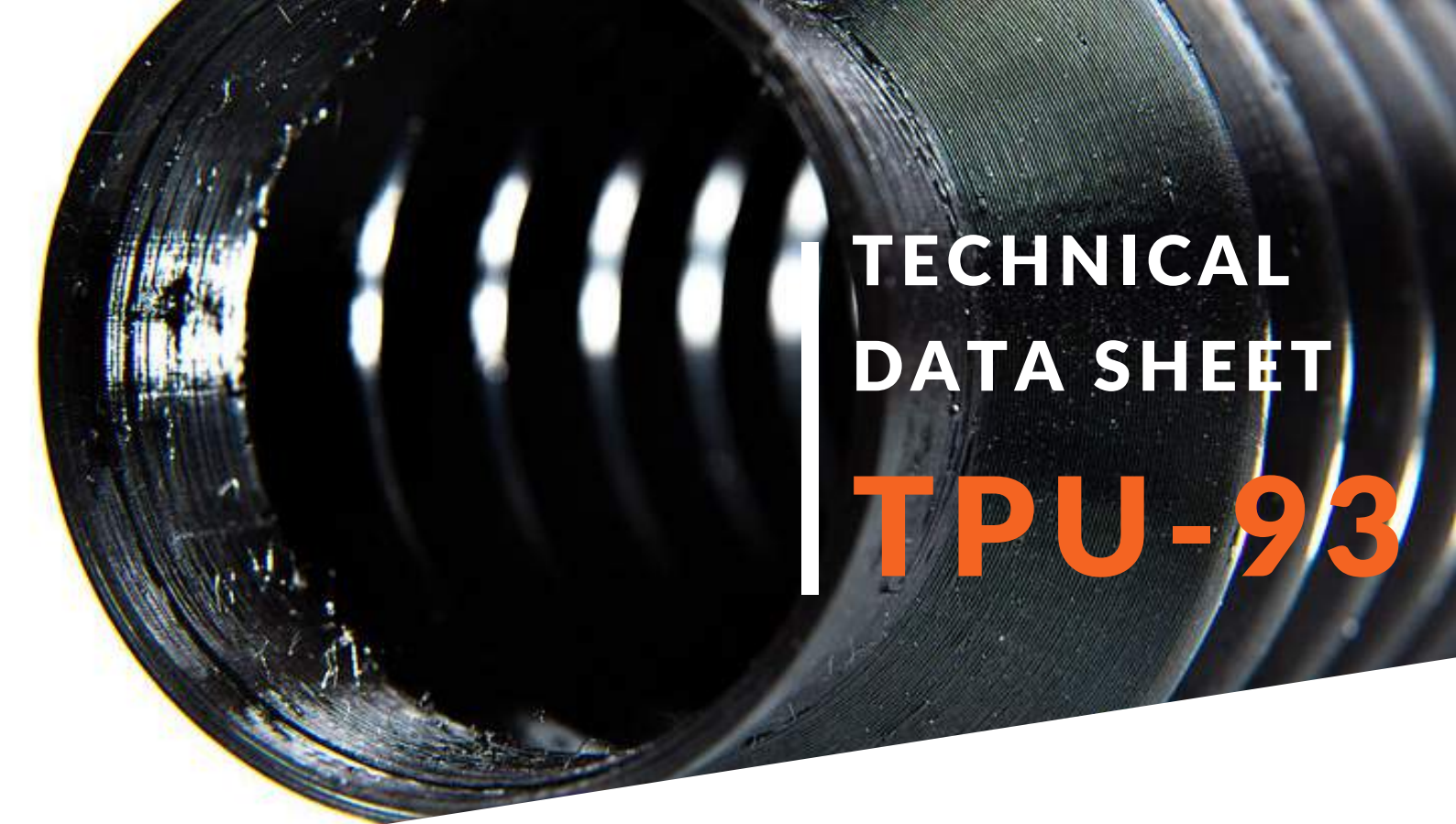


Nozzle temperature
>225°C



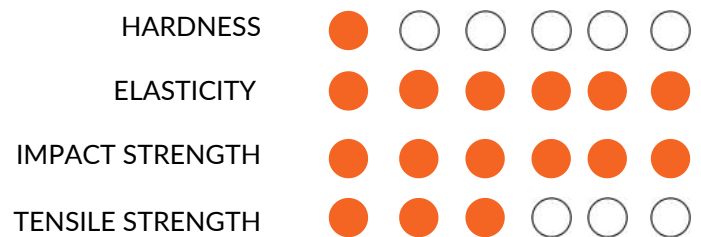
Bed temperature
80-100°C





TECHNICAL DATA SHEET TPU-93

TPU-93 - flexible material with a hardness of 93A Shore. It has such features as low processing shrinkage, high durability and good bonding of layers, making it suitable for the production of tool components, e.g. those in contact with the car body, flexible hoses, holders and housings.



PHYSICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Density	1,21	g/cm ³	ISO 1183-1A

MECHANICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Tensile strength	40	MPa	ISO 37
Tensile elongation	550	%	ISO 37
Izod impact strenght	35	kJ/m ²	ISO 179
Shore hardness	93	-	ISO 868

THERMAL PROPERTIES

	VALUE	UNIT	TEST METHOD
VICAT Softening Temperature	125	°C	ISO 306-A

RECOMMENDED PRINTING PARAMETERS



Nozzle temperature

220 - 245°C



Bed temperature

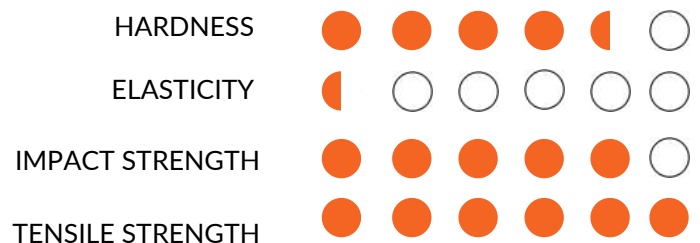
45 - 60 °C



TECHNICAL DATA SHEET

CF PA-12

CF PA-12 - material that never fails on a race track – this is how we can dub the CF-PA-12 filament – a composite material enhanced with carbon fibre, which has found its use in 3D printing. It is particularly solid, highly stiff and resistant to ripping. The last feature is of particular interest here because carbon fibre is 2.5 times more durable than the popular ABS-42.



PHYSICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Density	1,08	g/cm ³	ISO 1183
Longitudinal shrinkage	0,15 - 0,3	%	ISO 294-4
Transverse shrinkage	0,2 - 0,6	%	ISO 294-4

MECHANICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Tensile strength	105	MPa	ISO 527-1
Tensile elongation	4,1	%	ISO 527-1
Charpy impact strength 23°C	12	kJ/m ²	ISO 179-1eA

THERMAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Heat Deflection Temperature 0,45 MPa	169	°C	ISO 79
Heat Deflection Temperature 1,8 MPa	154	°C	ISO 79
VICAT Softening Temperature	173	°C	ISO 306

ELECTRICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Surface resistivity	4*10 ⁸	Ω/cm ²	ASTM D257

RECOMMENDED PRINTING PARAMETERS



Nozzle temperature

240 - 260°C



Bed temperature

75-100°C



Heated chamber

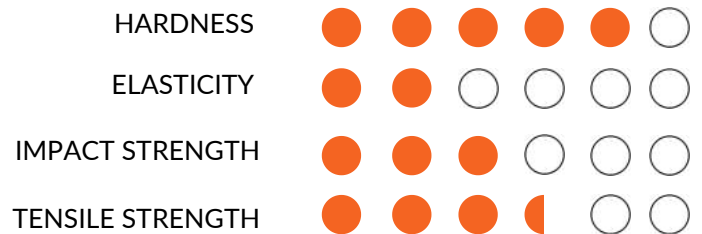
50°C

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TECHNICAL DATA SHEET

PA-12

PA-12 - combines mechanical strength, flexibility and chemical resistance (oils, greases, gasoline), great impact resistance, flexibility and dimensional stability. Finish of this filament is quite smooth which gives it low friction properties (large sliding).



PHYSICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Density	1,02	g/cm ³	ISO 1183
Water Absorption	1,5	%	ISO 62

MECHANICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Tensile strength	45	MPa	ISO 527-2
Charpy impact strength 23°C	7	kJ/m2	ISO 179-1eA
Charpy impact strength 40°C	7	kJ/m2	ISO 179-1eA

THERMAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Heat Deflection Temperature 0,45 MPa	110	°C	ISO 75-2
Heat Deflection Temperature 1,8 MPa	50	°C	ISO 75-2
VICAT Softening Temperature	138	°C	ISO 306B
Flammability class	HB	-	UL 94

ELECTRICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Resistivity	>1018	Ω/cm2	IEC 60093

RECOMMENDED PRINTING PARAMETERS



Nozzle temperature
240-260°C



Bed temperature
80-120°C



Heated chamber
50°C



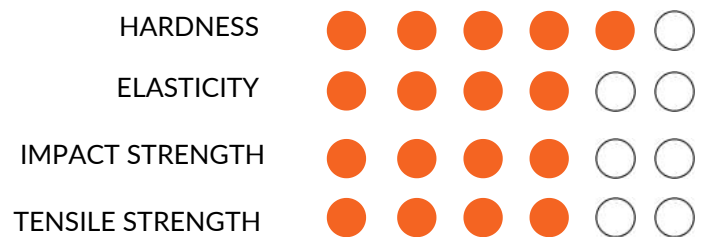
Print Speed
30-80mm/s



TECHNICAL DATA SHEET

PA-6/66 HD

PA-6/66 HD - high strength nylon. It is characterised by hardness, elasticity and resilience. It has properties similar to materials used by engineers to produce final parts.



PHYSICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Density	1,12	g/cm ³	ISO 1183
Water absorption	10,05	%	-

RECOMMENDED PRINTING PARAMETERS



Nozzle temperature

240-260°C



Bed temperature

100-140°C

TECHNICAL DATA SHEET

ODS-20

ODS-20 - compared to water-soluble materials, ODS-20 is a mixture of polymers based on acrylate and is soluble in a mild alkaline solution. As a result, prints are less sensitive to moisture, have higher durability and consistent quality over time. ODS-20 is characterized by very good adhesion to models made e.g. of PEEK, PA, PC, ABS / PC, TPE, ASA, ABS or PET.

PHYSICAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Density	1,1	g/cm ³	-
Minimum pH value to dissolve	>10		

THERMAL PROPERTIES

	VALUE	UNIT	TEST METHOD
Glass transition temperature	108	°C	-
MFI (MFR) 200°C/10kg	1-10	g/10 min	-

RECOMMENDED PRINTING PARAMETERS



Nozzle temperature
220-260°C



Bed temperature
60-80°C



Print speed
30-60mm/s



Temperature to dissolve
20 - 30°C