

# Technical Specification

UPM Formi Pro EFP

25.03.2021



**Material** UPM Formi is a cellulose fibre reinforced plastic composite with high renewable material content. It is specially designed for injection moulding applications. Principal ingredients are specially selected cellulose fibres and virgin polypropylene. Cellulose fibres significantly increase stiffness and strength of polypropylene.

**Applications** Environmentally sound UPM Formi composite can be used in injection moulding applications instead of polypropylene, filled polypropylene or several other plastics. EFP-grades complies with EU and US/FDA food contact regulations.

**Environment** UPM Formi is manufactured from renewable cellulose fibers which reduce usage of oil based plastics. Material is fully recyclable or can be burned for energy. All cellulose fibres are from sustainably managed forests.

Physical and mechanical properties	Property	Test method	EFP 30	EFP 40	EFP 50
	Density, g/cm <sup>3</sup>	ISO 1183	1.03	1.08	1.13
Tensile strength, 50mm/min, N/mm <sup>2</sup>	ISO 527-2	48	57	62	
Tensile modulus, 1mm/min, N/mm <sup>2</sup>	ISO 527-2	2800	3700	5100	
Elongation at break, 50mm/min, %	ISO 527-2	6.2	5.0	3.6	
Charpy impact strength, notched +23 °C , kJ/m <sup>2</sup>	ISO 179-2/1eA	6,2	6,9	7,4	
Charpy impact strength, unnotched +23 °C , kJ/m <sup>2</sup>	ISO 179-2/1eU	34	37	37	
Cellulose content, weight %		30	40	50	

**Pretreatment** It is highly recommended to dry granulates before injection moulding. Recommended drying temperature and time is 115 °C and 3 hours in a desiccant air dryer.

**Injection moulding** UPM Formi does not need special equipment for processing. Recommended processing parameters for typical injection moulding machine are:

Temperature profile from nozzle	190/185/180/175 °C
Injection pressure	<1200 bar
Mould temperature	+60 - +120 °C
Injection speed	As high as possible

**Safety** Maximum recommended processing temperature is 200 °C. Overheating may cause risk for thermal degradation. Auto-ignition of UPM Formi material is possible after purging the injection moulding machine.

**Storage** UPM Formi granulates should be protected from UV-light and stored in closed packages in dry conditions at temperature below 50 °C. Air humidity can increase moisture content of the material and have negative effects on the end product properties.

All information is based on our knowledge and experience. This information has as sole purpose to act as a manual for safe handling, use, processing, transport, storage, removal and release and cannot be used as guarantee or identification of quality. You are required to comply with all rules, regulations, and guidelines applicable to the use of the UPM Formi material. In all cases, you are fully responsible for any claims or liabilities resulting from your handling, use, processing, transport, storage, removal and release of the UPM Formi material.