

Product description

Ultramid® A 217-1 Natural is an unreinforced polyamide 66, heat stabilized, standard viscosity, for injection moulding. This grade offers all the primary properties of unreinforced polyamide 66. In addition it has improved resistance to high temperature and it can be used for components which have to withstand mid term temperature stresses.

Injection Notes

The material is supplied in airtight bags, ready for use. In case that the virgin material has absorbed moisture, it must be dried with a dehumidified air drying equipment, dew point mini -20°C. Recommended time 2-4h.

Injection Advice:

- For unfilled polyamides, BASF SE recommends the use of high alloy steel with a low chromium content. For example: X38CrMoV5-1 (EN Norm) - 1.2367 /1.2343 (DIN Norm). In the case of high requirements on surface quality a mould temperature of up to 120°C can be considered.
- The processing parameters like processing temperatures are a recommendation and can be adjusted in function of injection machine size, part geometry / design.

Disclaimer

The information contained in this document is given in good faith based on our current knowledge. It is only an indication and it is in no way binding. This information must on no account be used as a substitute for necessary prior tests which alone can ensure that a product is suitable for a given use. ANY WARRANTY OF PRODUCT PERFORMANCE, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY EXCLUDED. Users are responsible for ensuring compliance with local legislation and for obtaining the necessary certifications and authorizations. Users are requested to check that they are in possession of the latest version of this document, and BASF SE is at their disposal to supply any additional information.

Safety Information

Detailed information regarding safety are available on the safety data sheet (MSDS). MSDS is sent with the first material order or available by contacting our customer services

Regulations Compliance

This product is not intended to be used for the following regulated market: food contact, drinking water, toys, cosmetics or medical devices.

This grade complies with RoHS Directive 2011/65/EU, 2015/863 and local regulations as amended.

Customer Services

Our customer services are not only concerned with manufacturing and supply of Engineering Plastics products. We are available to assist our customers in finding technical solutions that meet their requirements. Specific support is in particular offered on:

- Material selection
- Material testing
- Parts design advice, training for design engineers
- Part testing
- Design simulation
- Processing through different technologies
- Assembly and post-processing technology expertise
- Parts optimization through Computer Aided Design

Product Information

Typical values for uncoloured product at 23 °C ¹⁾	Test method	Unit	Values ²⁾
General Properties			
Asia Pacific	-	-	+
Processing: Injection moulding (M), Extrusion (E), Blow moulding (B)	-	-	M
Colour: black (bk), uncoloured (un), coloured (co), transparent (tr)	-	-	bk,un
Pellets	-	-	+
Physical			
Molding shrinkage (parallel)	ISO 294-4	%	1.50
Molding shrinkage (normal)	ISO 294-4	%	1.70
Water absorption, 24 h in water, 23 °C	ISO 62	%	1.3
Water absorption, equilibrium in water at 23°C	similar to ISO 62	%	8.3
Moisture absorption, equilibrium 23°C/50% r.h	similar to ISO 62	%	2.90
Density	ISO 1183	kg/m ³	1140 / -
Mechanical properties			
			dry / cond.
Tensile modulus	ISO 527-1/-2	MPa	3200 / 1400
Yield stress, 50 mm/min	ISO 527-1/-2	MPa	85 / -
Stress at break	ISO 527-1/-2	MPa	55 / 50
Yield strain, 50 mm/min	ISO 527-1/-2	%	> 30 / > 300
Flexural modulus	ISO 178	MPa	2900 / -
Flexural modulus (ASTM)	ASTM D 790	MPa	3300 / -
Flexural strength	ISO 178	MPa	120 / -
Flexural strength (ASTM)	ASTM D 790	MPa	115 / -
Charpy notched impact strength ISO 179/1eA (23°C)	ISO 179/1eA	kJ/m ²	4.5 / -
Charpy impact strength ISO 179-1eU (23°C)	ISO 179/1eU	kJ/m ²	N / N
Thermal properties			
HDT B (0.45 MPa)	ISO 75-1/-2	°C	200
HDT B (0.45 MPa), ASTM	ASTM D 648	°C	233
HDT A (1.80 MPa)	ISO 75-1/-2	°C	75
HDT A (1.82 MPa), ASTM	ASTM D 648	°C	75
Melting temperature, DSC (10°C/min)	ISO 11357-1/-3	°C	262
Electrical properties			
			dry / cond.
Electric strength (d = 0.8 mm)	IEC 60243-1	kV/mm	35 / -
Electric strength (d = 2.0 mm)	IEC 60243-1	kV/mm	22 / -
Relative permittivity (100Hz)	IEC 62631-2-1	-	0.032 / -
Injection			
Pre/Post-processing, Pre-drying, Temperature	-	°C	80
Pre/Post-processing, max. allowed water content	-	%	0.2
Injection molding cylinder temperature 1 (feed zone)	-	°C	265 - 275
Injection molding cylinder temperature 2 (compression)	-	°C	270 - 280
Injection molding cylinder temperature 3 (metering-zone, head room of screw)	-	°C	280 - 285
injection molding, Mold temperature, range	ISO 294	°C	60 - 80

Footnotes

1) If product name or properties don't state otherwise.

2) The asterisk symbol "*" signifies inapplicable properties.

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