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UBE NYLON 5033FD9

Technical Product Information: AIR-BLOWN – PA monolayer film properties

UBE NYLON 5033FD9 is a high viscosity lubricated Polyamide 6/6.6 copolymer. This material has the following features:

- Excellent processability
- Excellent mechanical properties
- Excellent optical properties
- Good slip properties

Basic Properties [1]	Method	Unit	Value
Polymer	-	-	PA6/6.6
Melting Point	ISO 11357	°C	196
Relative Viscosity (96% H_2SO_4)	JIS K6810	-	4,05
Density	DIN 53479	g/cm^3	1,14

Mechanical Properties [2]	Method	Unit	Value
Tensile strength at yield	ISO 527-3	MPa	24 - 28
Tensile strength at break		MPa	100 - 120
Tensile elongation at break		%	450 - 470
Tensile modulus		MPa	500 - 600
Tear resistance	ASTM D 1922	N	1,6 - 1,8
Puncture energy	JAS P-1019	mJ	30 - 32
Puncture deformation		mm	8,5 - 9,5
Spencer impact resistance	ASTM D 3420	mJ	850 - 950
Flex crack (23°C, 1000 cycles / 5°C, 100 cycles)	Mil B-131C	Holes/0,04m^2	< 20 / < 5

Optical Properties [2]	Method	Unit	Value
Haze	ASTM D 1003	%	9 - 11
Gloss	ASTM D 523	%	110 - 130

Gas Barrier [2]	Method	Unit	Value
Oxygen (T=23°C, RH=0%)	ASTM D 3985	ml/m^2.day	29 - 31
Water Vapour (T=40°C, RH=90%)	JIS Z-0208	g/m^2.day	160 - 180

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Slip Properties (2)	Method	Unit	Value
Coefficient of friction (static)	ASTM D 1894	-	0,38 - 0,42
Coefficient of friction (dynamic)		-	0,38 - 0,42

Thermoforming Properties (2)	Method	Unit	Value
Max. Thermoforming depth	UBE METHOD	mm	80 - 90

Regulation	Method	Unit	Value
FDA / EC	-	-	- / -

I: Approved for indirect food contact D: Approved for direct food contact

(1) Measured on base resin
(2) All tests carried out with a 5 layers airblown line, Die diameter = 90 mm · Die gap=1,4 mm
Structure: PE (outer) / PE / PA (medium) / PE / PE (inner), PA layer delaminated for the tests
Layer thickness distribution: PE = 50 µm, PA = 50 µm, PE = 50 µm (Total film thickness = 150 µm) · Cooling conditions: Chiller temp. = 13 °C · Take off rolls = 35 °C
Film orientation: Blow-up ratio = 2,1 · Take-off speed = 6m min-1 · Sample conditioning and testing conditions: T = 23°C, RH =50%

Processing conditions

	Extruder					Adaptor	Die
	Hopper	Zone 1	Zone 2	Zone 3	Zone 4		
Temperature (°C)	40 - 120	180 - 200	220 - 240	230 - 250	225 - 245	230 - 250	230 - 250

Drying conditions

UBE NYLON is supplied dry (moisture content < 0,1%) and packed in high barrier films. However, as polyamide is a hygroscopic material, the user should take a special care of the possible moisture absorption once the bag or liner box has been opened. In case of moisture absorption, the material should be dried with dehumidified air at 80°C for more than 4 hours.

Storage

Well-sealed packages could be stored in cool and dry conditions over long periods of time. Protect the packages from heat and direct sunlight to prevent possible damages.

Health & environmental data

Please refer to the corresponding **UBE NYLON** grade SDS.

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