KUMHO PETROCHEMICAL

beyond the best

Technical Data Sheet (ASTM)

ABS(Acrylonitrile Butadiene Styrene)

ABS 745

Features Super impact resistance

Applications Helmets, Suitcase

Physical	Test Method	Value
Density	ASTM D792	1.04 g/cm^3
Melt Flow Index (220℃, 10kg)	ASTM D1238	10 g/10min
Melt Flow Index (200℃, 21.6kg)	ASTM D1238	18 g/10min
Mold Shrinkage	ASTM D955	0.5 ~ 0.8 %
Water absorption	ASTM D570	- %

Mechanical	Test Method	Value
Tensile Strength	ASTM D638	420 kgf/cm^2 (5,880) (psi)
Elongation	ASTM D638	25 %
Flexural Strength	ASTM D790	580 kgf/cm^2 (8,120) (psi)
Flexural Modulus	ASTM D790	20,000 kgf/cm^2 (284,000) (psi)
Izod Impact Strength(3.2mm, 23℃)	ASTM D256	45 kgf·cm/cm (8.3) (ft·lb/in)
Izod Impact Strength(6.4mm, 23℃)	ASTM D256	35 kgf·cm/cm (6.4) (ft·lb/in)
Rockwell Hardness(R scale)	ASTM D785	98

Thermal	Test Method	Value
Heat Deflection Temperature(18.6kgf/cm^2)	ASTM D648	84 ℃ (183) (°F)
Vicat Softening Temperature(5kg, 50℃/h)	ASTM D1525	94 ℃ (201) (°F)

Flammability	Test Method	Value
Flame Rating - UL (1.6mm)	UL 94	HB

Notes

These are just typical properties, not specifications. Users should confirm results by their own test.

Rev:2018-10-10

CYCOLAC™ RESIN MG47F

REGION AMERICAS

DESCRIPTION

Multi-purpose, injection molding ABS providing a favorable balance of engineering properties. FDA compliant.

TYPICAL PROPERTY VALUES

Revision 20190925

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, yld, Type I, 5 mm/min	44	MPa	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	33	MPa	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	2	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	24	%	ASTM D 638
Tensile Modulus, 5 mm/min	2270	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	70	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	2300	MPa	ASTM D 790
Hardness, Rockwell R	112	-	ASTM D 785
Tensile Stress, yield, 50 mm/min	47	MPa	ISO 527
Tensile Stress, break, 50 mm/min	35	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	2.6	%	ISO 527
Tensile Strain, break, 50 mm/min	25	%	ISO 527
Tensile Modulus, 1 mm/min	2370	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	70	MPa	ISO 178
Flexural Modulus, 2 mm/min	2200	MPa	ISO 178
IMPACT			
Izod Impact, notched, 23°C	320	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	30	J	ASTM D 3763
Izod Impact, notched 80*10*4 +23°C	22	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	8	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	26	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	9	kJ/m²	ISO 179/1eA
THERMAL			
Vicat Softening Temp, Rate B/50	99	°C	ASTM D 1525
HDT, 0.45 MPa, 3.2 mm, unannealed	94	°C	ASTM D 648
HDT, 1.82 MPa, 3.2mm, unannealed	80	°C	ASTM D 648
CTE, -40°C to 40°C, flow	8.82E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	8.82E-05	1/°C	ASTM E 831
Vicat Softening Temp, Rate B/50	98	°C	ISO 306
Vicat Softening Temp, Rate B/120	100	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	81	°C	ISO 75/Af
Relative Temp Index, Elec	60	°C	UL 746B
Relative Temp Index, Mech w/impact	60	°C	UL 746B
Relative Temp Index, Mech w/o impact	60	°C	UL 746B

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
PHYSICAL			
Specific Gravity	1.04	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm	0.5 – 0.8	%	SABIC method
Melt Flow Rate, 230°C/3.8 kg	5.6	g/10 min	ASTM D 1238
Melt Viscosity, 240°C, 1000 sec-1	2250	Poise	ASTM D 3825
Density	1.04	g/cm³	ISO 1183
Melt Flow Rate, 220°C/10.0 kg	18	g/10 min	ISO 1133
ELECTRICAL			
Arc Resistance, Tungsten (PLC)	6	PLC Code	ASTM D 495
Hot Wire Ignition (PLC)	3	PLC Code	UL 746A
High Voltage Arc Track Rate (PLC)	3	PLC Code	UL 746A
High Ampere Arc Ign, surface (PLC)	0	PLC Code	UL 746A
Comparative Tracking Index (UL) (PLC)	0	PLC Code	UL 746A
FLAME CHARACTERISTICS			
UL Yellow Card Link	E121562-100324185	.	.
UL Recognized, 94HB Flame Class Rating	1.5	mm	UL 94
INJECTION MOLDING			
Drying Temperature	80 – 95	°C	
Drying Time	2 – 4	hrs	
Drying Time (Cumulative)	8	hrs	
Maximum Moisture Content	0.1	%	
Melt Temperature	220 – 260	°C	
Nozzle Temperature	220 – 260	°C	
Front - Zone 3 Temperature	215 – 240	°C	
Middle - Zone 2 Temperature	205 – 225	°C	
Rear - Zone 1 Temperature	190 – 210	°C	
Mold Temperature	50 – 70	°C	
Back Pressure	0.3 – 0.7	MPa	
Screw Speed	30 – 60	rpm	
Shot to Cylinder Size	50 – 70	%	
Vent Depth	0.038 – 0.051	mm	