

Flame - retardant ABS

| Product Introduction |

Kumho's flame-retardant ABS resin is approved by UL and CSA. The flame-retardant ABS resin, which has outstanding, impact strength, weather resistance and chemical resistance, is suitable for home electronics and office automation equipment that require flame- retardant quality, such as computer monitors and TV housings.

| Characteristics & Applications |

Grade	Characteristics	Applications
General Purpose	HFA 703	High Rigidity
	HFA 707	General Purpose
	HFA 451	High Flammability
	HFA 452	Low Flammability
Weather Resistant	HFA 462	Extrusion
	HFA 705	General Purpose
Special Purpose	HFA 700HT	Super Heat Resistance
	HFA 456	Non-Halogen

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Test Item / Unit	Test Method (ASTM)	Test Condition	General Purpose					Weather Resistance	Special Purpose	
			HFA-703 High Rigidity	HFA-707 General Purpose	HFA-451 High Flammability	HFA-452 Low Flammability	HFA-462 Extrusion	HFA-705 Weather Resistance	HFA-700HT Super Heat Resistance	HFA-456 Non-halogen
Tensile Strength [kg/cm ² (psi)]	D638	23°C	510 (7,250)	420 (5,970)	420 (5,970)	460 (6,540)	520 (7,367)	460 (6,540)	440 (6,260)	520 (7,367)
Elongation [%]	D638	23°C	30	20	20	20	25	20	15	20
Flexural Strength [kg/cm ² (psi)]	D790	23°C	670 (9,530)	600 (8,530)	600 (8,530)	700 (9,960)	630 (8,960)	650 (9,250)	700 (9,950)	700 (9,950)
Flexural Modulus [kg/cm ² (psi)]	D790	23°C	24,000 (341,400)	23,000 (327,000)	23,000 (327,000)	26,000 (370,000)	25,000 (355,000)	24,000 (341,400)	27,000 (384,000)	27,000 (384,000)
IZOD Impact strength [kg·cm/cm (ft·lb/in)]	D256	3.2mm, Notched, 23°C(73°F)	16 (2.9)	22 (4.1)	21 (4.0)	15 (2.8)	22 (4.1)	15 (2.8)	15 (2.8)	15 (2.8)
		6.4mm, Notched, 23°C(73°F)	14 (2.6)	19 (3.5)	18 (3.3)	14 (2.6)	20 (3.7)	14 (2.6)	14 (2.6)	14 (2.6)
		R scale	105	100	100	102	105	102	100	100
Heat Distortion Temp. [°C(°F)]	D648	18.6kg/cm ² (264psi) Unannealed	76(169)	76(169)	76(169)	80(176)	80(176)	78(172)	87(189)	76(169)
Vicat Softening Temp. [°C(°F)]	D1525		91(196)	91(196)	91(196)	96(205)	96(205)	96(205)	101(214)	91(196)
Melt Flow Index [g/10min]	D1238	200°C, 5kg	3	6	6	5.5	1.6	5	2	5
		220°C, 10kg	30	60	60	55	16	50	1.5	50
		200°C, 21.6kg	60	120	120	110	32	90	18	100
Molding Shrinkage [%]	D955		0.4 ~ 0.7	0.4 ~ 0.7	0.4 ~ 0.7	0.4 ~ 0.7	0.4 ~ 0.7	0.4 ~ 0.7	0.4 ~ 0.7	
Specific Gravity	D792		1.18	1.18	1.18	1.07	1.18	1.18	1.18	1.06
Water Absorption [%]	D570		0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Flammability	UL94*	1.5mm	V-0		V-0	V-2	V-0		V-0	V-2
		2.1mm		V-0	V-0, 5VB			V-0		
		3.0mm	V-0	V-0, 5VB	V-0, 5VB		V-0	V-0	V-0	V-2

(*UL File No. E65424 (CSA File No. LS66457) Note 1) These are typical property values, not specifications.
Note 2) In case of colored products, the values could vary slightly by color.
Note 3) Values are measured at 23°C and in RH of 50% on injection molded specimens.



KUMHO ABS

Acrylonitrile Butadiene Styrene

