

General composition of TMC

Composition	Typical materials	Mass parts
Thermosetting resins	Unsaturated polyester resin, Vinylester resin, etc.	40-60
Low profile additives	Polystyrene, polyvinyl acetate, PMMA, various elastomers, etc.	0-50
Reactive monomers	Styrene, various acrylic monomers, etc.	0-30
Initiators	Organic peroxides, etc.	1-3
Filler	Calcium carbonate, alumina trihydrate, Glass bubbles, clay, etc.	0-300
Colorant	Pigments, etc.	Required quantity
Mold release agents	Metallic soap	1-8
Thickeners	Alkaline earth metal oxides, hydroxides	0.5-2
Fiber	Glass, Carbon fiber	5-45(wt%)

Typical properties of molded TMC

Grade (Application)			Water proof pan	Artificial marble
Glass fiber length (inch)			1	1
Fiber contents (wt%)			28	50
Items	Test method	Unit		
Flexural Strength	JIS K6911	MPa	160	60
Flexural modulus	JIS K6911	GPa	11.5	9.0
Tensile strength	JIS K7164	MPa	70	30
Tensile modulus	JIS K7164	GPa	12.0	12.0
Compression strength	ASTM D695	MPa	160	-
Impact strength(Flat width) (Edge width)	JIS K6911	kJ/m2	80	-
	(Notched Izod)		40	-
Barcol hardness	ASTM D2583	- (934-1)	50-60	50-60
Withstand voltage	JIS K6911	kV/mm	15	-
Insulating resistance (Normal state) (After boiling)	JIS K6911	Ω	10^{14} - 10^{15}	-
	JIS K6911	Ω	10^{13} - 10^{14}	-
Surface resistance	JIS K6911	Ω	10^{13} - 10^{15}	-
Volume resistance	JIS K6911	Ω cm	10^{13} - 10^{15}	-
Arc resistance	JIS K6911	sec.	180	-
Tracking resistance	IEC	V	>600	-
Heat distortion temperature	ASTM D648	°C	>200	>200
Oxygen index	JIS K7201-2	%	21	20
Water absorption	JIS K6911	%	0.15	0.10
Molding shrinkage	In-house	%	0.10	0.25
Density	In-house	g/cm3	1.8	1.7

These values are representative grade TMC's measurement values and are for reference only.