

Styrene methacrylate copolymer



Nippon Steel Chemical Co., Ltd.

TECHNICAL SHEET OF ESTYRENE® MS

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1.Introduction of ESTYRENE® MS

ESTYRENE® MS is a styrene(St)-methylmethacrylate(MMA) copolymer designed for replacing a commodity products made of PMMA. ESTYRENE® MS has excellent following appearance:

- 1.Sparkling clarity
- 2.Ease of processing compared with PMMA
- 3.Low water absorption compared with PMMA
- 4.Good weather resistance

ESTYRENE ® is a registered trademark of Nippon Steel Chemical Co., Ltd. .

2. Features and application of ESTYRENE® MS

Features of each grade of ESTYRENE® MS are as follows:

MS-200 Ease of processing
 Low moisture , high refractive index
 Can be blended with K-Resine at any level to
modify impact strength , flexibility etc.
Application:Optical lens,Electric appliances etc

MS-600 Sparkling clarity
 Good weather resistance
 Good scratch resistance
Application:Mag cups,housewares,bathroom accessories,lamp
shald,signbord etc

K-Resin : Trademark of Phillips Chemical Company.

All grades are complied with the self-restrictive standards of Japan hygienic olefin and styrene plastics association for food contact application.

3. Property data table of ESTYRENE® MS

Test Items	Test Method	Condition	Unit	ESTYRENE	
				MS-200	MS-600
Izod Impact Strength	ASTM D 256	Thickness 6.4mm notched	Kj/m2 kgf·cm/cm2	2.5 (2.5)	2.5 (2.5)
Flexural Strength	ASTM D 790	3mm/min	MPa kgf/cm2	97 (990)	116 (1,190)
Flexural Modulus	ASTM D 790	3mm/min	MPa kgf/cm2	3,230 (33,000)	3,330 (34,000)
Tensile Strength	ASTM D 638	5mm/min	MPa kgf/cm2	56 (570)	70 (710)
Tensile Elongation	ASTM D 638	5mm/min	%	3.0	5.5
Melt Flow Rate	ASTM D 1238	200 ,5kgf	g/10min	1.6	1.0
		230 ,3.8kgf	g/10min	5.5	5.0
Deflection Temperature Under Load	ASTM D 648	Thickness 6.4mm 18.2Mpa		88	91
Vicat softening Point.	ASTM D 1525	120 /h,5kg		101	103
Rockwell Hardness	JIS K 7202	60kgf,1/4in	M scale	75	85
Specific Gravity	JIS K 7112	-	-	1.08	1.13
Light transmittance	ASTM D1003	4.0mm	%	90	92
Refractive index	ASTM D542		-	1.57	1.53
Water absorption	JIS K 7209	-	%	0.10	0.15
Flammability	UL 94	-	-	HB	HB

1) The above data represent the typical values of our resin performance and are not used as our sales specification or guaranteed values.

4. Typical Processing of ESTYRENE® MS

MS is a low moisture absorption compared with PMMA but pre-drying is recommended.

Molding conditions is as followed as below, but it is of a general nature to serve as a guide, so it is necessary to modify these conditions as experince indicates, depending upon the characteristics of the processing equipment and the mold or die to obtain the desired results.

		MS-200	MS-600
Pre-drying		80	85
	Hrs.	2.0 ~ 3.0	3.5 ~ 5.0
Cylinder temp.		220 ~ 250	220 ~ 260
Mold temp.		40 ~ 60	40 ~ 70
Injection pressure	kg/cm2	400 ~ 1,400	600 ~ 1,400