PRODUCT PORTFOLIO

SPSMA Resins:

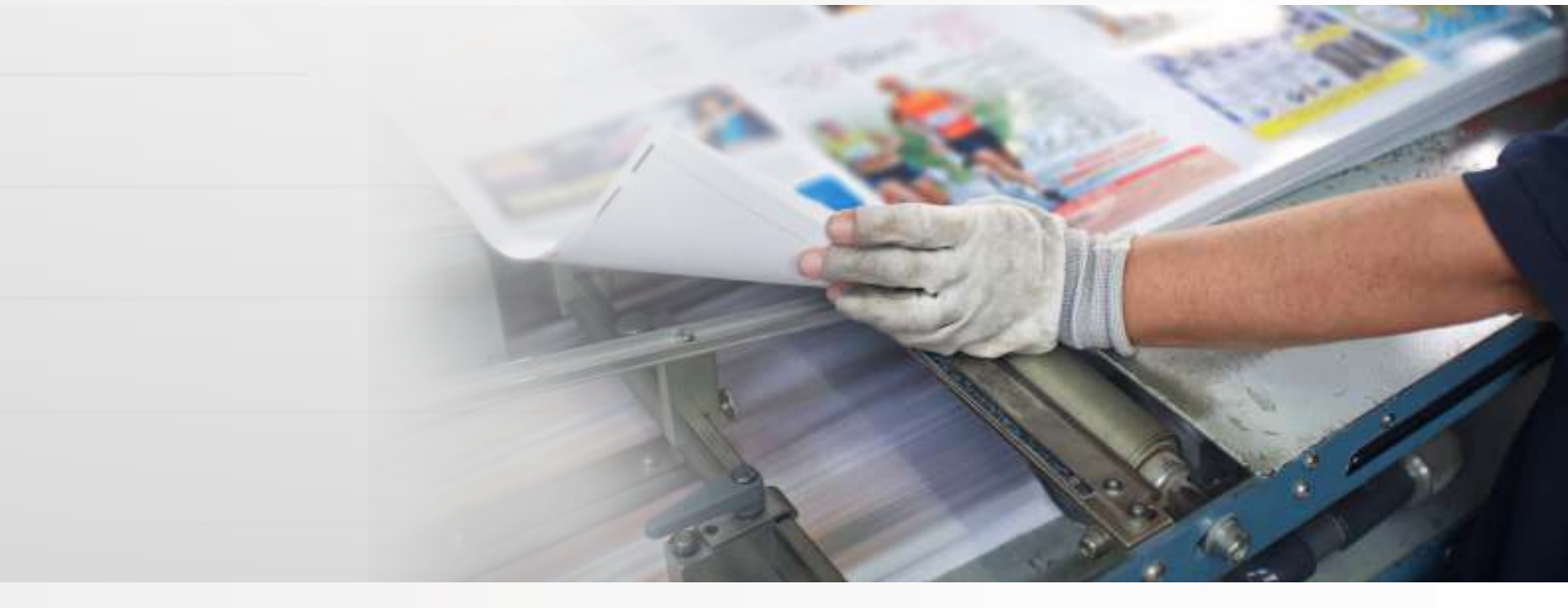
Product	S:MA Ratio	M_w	M_n	Viscosity @ 200°C (Poise)	Acid Value	Tg (°C)
SPSMA 10	1:1	5,000	2,100	60,000	465-495	155
SPSMA 20	2:1	7,500	2,700	6,000	335-375	135
SPSMA 30	3:1	9,500	3,050	3,000	275-285	125
SPSMA 40	4:1	11,000	3,600	750	195-235	115
SPSMA 60	6:1	11,500	5,500	70	141-171	106
SPSMA 80	8:1	14,000	7,500	100	105-135	104

SPSMA Esters:

Product	M_w	M_n	Viscosity @ 200°C (Poise)	Acid Value	Tg (°C)
SPSMA 10 E	7,000	2,900	300	165-205	60
SPSMA 10 EX	7,000	2,900	10,000	255-285	125
SPSMA 20 E	9,000	3,100	1,000	200-240	110
SPSMA 30 E	10,500	4,100	50	95-120	75
SPSMA 80 E	17,000	5,500	15	110-120	45

SPSMA Resins & Ester Aqueous Base Solutions:

Resin Grade	Solid %	pH	Viscosity(cps at 30°C)	Gardener Color
SPSMA 10 H	35.5 – 39.5	9.0 ± 0.5	200 to 1,200	<2
SPSMA 10 EH	31.0 – 36.5	9.0 ± 0.5	5,000 to 15,000	<5
SPSMA 20 H	20.0 – 24.0	9.0 ± 0.5	As measured	<2
SPSMA 20 EH	18.5 – 20.0	9.0 ± 0.5	As measured	<3
SPSMA 10 EXH	24.0 – 26.0	9.0 ± 0.5	As measured	<3
SPSMA 10 HNa	39.0 – 41.0	9.5 ± 1.5	<500	As measured
SPSMA 20 HK	29.0 – 31.0	9.5 ± 1.5	<5,000	As measured
SPSMA 30 HNa	19.0 – 21.0	9.5 ± 1.5	<5,00	As measured



SPSMA resins are multipurpose polymeric resins produced by the copolymerization of styrene andmaleic anhydride and its ester derivatives. SPSMA resins are available as free-flowing powders that are soluble in alkali and many solvent systems.

Pre-blended solutions are also available and contain sodium hydroxide or ammonium hydroxide. SPSMA resins promotes water resistance, adhesion, strength, durability, flexibility and heat resistance. They are used in diverse applications such as paper sizing, powder coating, pigment dispersions, inks, over print varnishes, leather retanning, microelectronics fabrication and processing, carpet/textile cleaners and floor care products.

Markets:

Adhesives
widely used in adhesive applications due to their inherent hydrophobicity and adjustability of the copolymer.

Electronics
used as epoxy cross-linking agents during the manufacturing of prepregs for Copper Clad Laminate / Printed Circuit Board (CCL/PCB).

Leather Tanning
used as leather retanning agents providing improved suppleness, softer leather and fine grain.

Carpet Treatments / Shampoos
used in detergents to prevent stains from binding to fabric and remove soil.

Paper
used as paper polymer sizing agents as well as coating additives as they offer improved printability and surface of the final paper and paperboards.

Pigment Dispersions & Inks
used for providing stable dispersions with good color development and low viscosity.

Overprint Varnishes
used for providing heat resistance properties..

Wax Emulsions
used in paraffin wax emulsions acting as Surfactants or Dispersing agents or Hydrophobing agents.