SUMIKAFLEX 456HQ

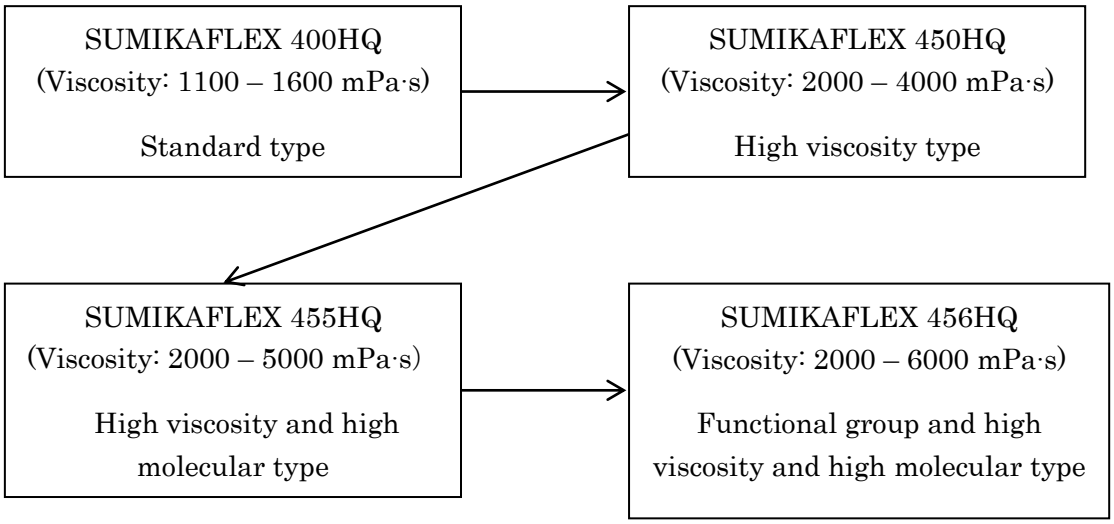
Type:	Ethylene-Vinyl acetate Copolymer Emulsion
Properties:	SUMIKAFLEX 456HQ (S-456HQ) is the high molecular weight ethylene vinyl acetate copolymer emulsion with the functional group. It is similar polymer properties to SUMIKAFLEX 455HQ and it is good water resistance and heat resistance and organic solvent resistance when it is mixed with hardening agent because it has functional group.
Main application:	Adhesives

Physical properties:

Appearance		Milky white
Solid content	(%)	55 ± 1
Viscosity	(mPa·s)	2000 – 6000
pH		4 – 7
Ave. particle size	(μm)	0.7
Density	(g/cm^3)	1.07
MFT	(°C)	0
Particle charge		Nonionic
Mechanical stability		Good
Tg	(°C)	0
Tensile strength	(MPa)	12.0
Tensile elongation	(%)	550

< Technical Information of SUMIKAFLEX 456HQ >

1. Grade positioning



2. Emulsion properties

		Emulsion properties
Appearance		Milky white
Solid content	(%)	55 ± 1
Viscosity	(mPa·s)	2000 – 6000
pH		4 – 7
Ave. particle size	(μm)	0.7
Density	(g/cm^3)	1.07
MFT	(°C)	0
Particle charge		Nonionic
Mechanical stability		Good
Tg	(°C)	0

3. Film properties

(1) Tensile strength

		S-456HQ	S-455HQ	S-400HQ
Dry	Elongation (%)	550	500	550
	Strength (MPa)	12.0	11.0	12.7

Test method

Thickness of film : 0.15 mm
Shape of film : Dumbbell No.3
Film forming condition and aging : 23°C × 65%RH × 7 days
Measurement speed : 500 mm/min

4. Application

(1) PVC sheet to plywood

		S-456HQ	S-455HQ	S-400HQ
Original adhesive strength (N/25 mm)		53	50	51
Wet adhesive strength (N/25 mm)		14	12	12
80°C Creep (mm)	1 hour	0.5	0.5	27
	24 hours	3	4	-

Test method

PVC sheet : Half semi-rigid PVC sheet
Plywood : Lauan Type I 3-ply, 3 mm thick
Formulation : Emulsion / Ammonia / Urethane Dispersion / Toluene / Thickener = 100 / 0.2 / 34 / 5 / 1
Coating weight : Wet 130 g/m^2
Clamping : 50 kg / 30 cm × 30 cm at 20 hours (23°C × 65%RH)
Aging : 6 days after clamping (23°C × 65%RH)
Original adhesive strength : Peel at 100 mm/min of at a 180° angle
Wet adhesive strength : After soaking in water for 20 hours, peel at 100 mm/min at a 180° angle
80°C Creep : 80°C, 500 g weight and a 90° angle for static load test

(2) Binder for impregnated paper

			Example				
Formulation		S-456HQ	100	100	100	0	0
		S-455HQ	0	0	0	100	100
		Srz.675A	0	1	3	0	1
Basic weight (g/m^2)			147.7	145.2	153.0	149.3	152.0
Dry Pick Up (%)			26.6	25.1	25.4	25.3	26.3
Dry tensile strength 130°C × 5 min		Strength (N/1.5 cm)	76.3	79.0	81.5	73.9	76.9
		Breaking length (km)	3.51	3.70	3.62	3.36	3.44
Wet strength	Strength (N/1.5 cm)	110°C ×5 min	2.5	11.1	12.4	2.9	7.5
		130°C ×5 min	3.1	15.8	20.1	3.4	10.0
		150°C ×5 min	4.2	21.3	26.1	4.6	14.0
		170°C ×5 min	6.1	26.4	33.3	6.2	19.8
	Breaking length (km)	110°C ×5 min	0.11	0.52	0.55	0.13	0.34
		130°C ×5 min	0.14	0.74	0.89	0.16	0.45
		150°C ×5 min	0.19	1.00	1.16	0.21	0.63
		170°C ×5 min	0.28	1.24	1.48	0.28	0.89

Srz.675A: Sumirez Resin 675A
(polyamide epoxy resin: products by Sumitomo chemical)

Test method

Master paper : filter paper No.2 (basic weight: 120 g/m^2)

Dipping : mangle condition
25% dipping liquid
nip pressure: 0.2 MPa
DPU: 25 – 27%

Drying : at room temperature

Curing : 110°C × 5 min, 130°C × 5 min,
150°C × 5 min, 170°C × 5 min