

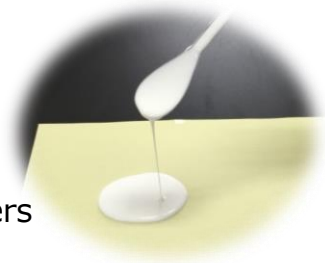
What is SUMIKAFLEX™?

**SUMIKAFLEX™** series is a product line of water-based emulsions for various forms of polymer compositions, including ethylene-vinyl acetate copolymer resins(EVA), and ternary copolymer resins composed of ethylene, vinyl acetate, and acrylic ethylene-vinyl acetate copolymer resins.

A film formed from **SUMIKAFLEX™** is highly adhesive, adequately strong and elastic, and furthermore, possesses excellent resistance to alkalis and water, and exceptional durability, due to its unique polymer structures.

The advantages of using ethylene as copolymerized monomer are:

- 1. Excellent plasticizing effect as an internal plasticizing monomer
- 2. Unique polymer designs enabled by the combination with various monomers
- 3. Excellent water and alkaline resistance
- 4. Superior weather resistance
- 5. Good affinity for non-polar materials such as plastics and synthetic fabrics



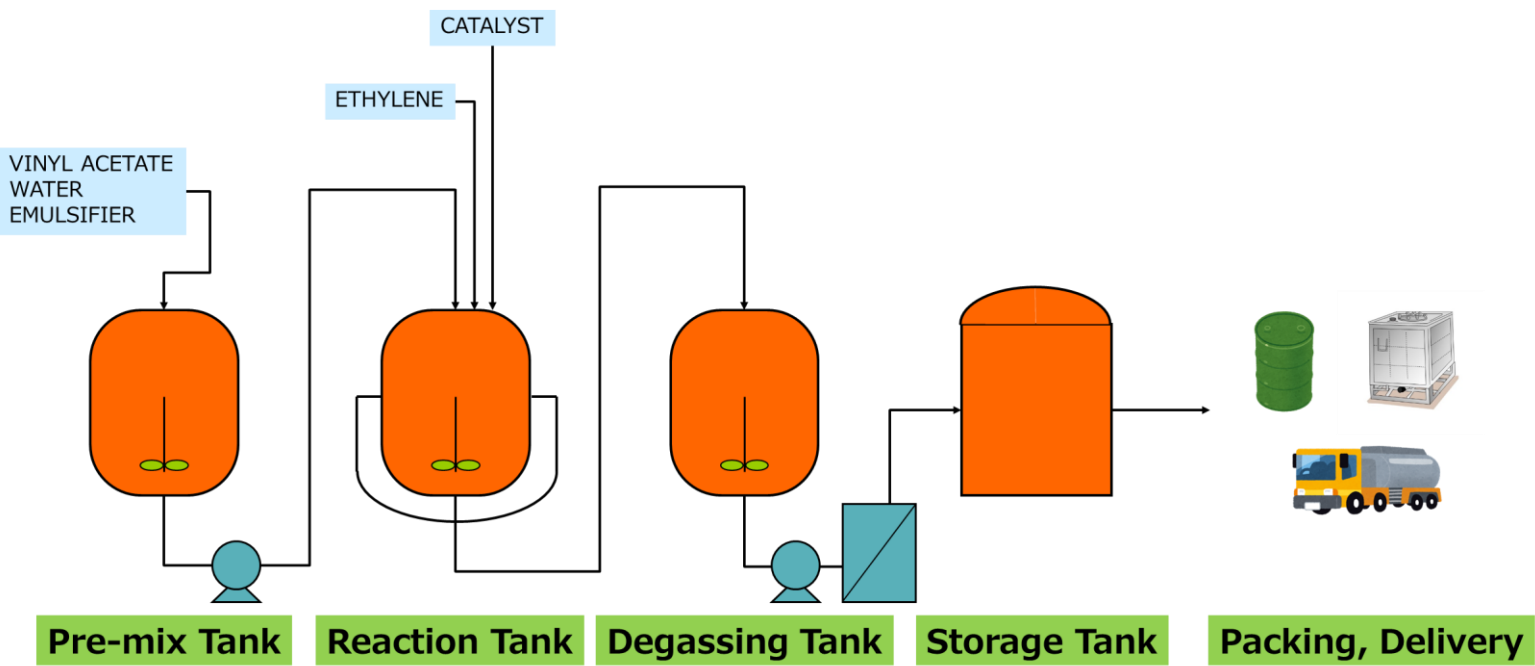
**SUMIKAFLEX™** is widely used as a raw material for various adhesives, inks, paints, paper and fiber binders, as well as civil engineering and construction applications. It has been highly regarded by customers in a wide range of applications.

Manufacturing Process of SUMIKAFLEX™

SUMIKAFLEX™ is manufactured through a process known as high-pressure polymerization.

First, the main raw material, vinyl acetate, along with an emulsifier and water, are mixed in a pretreatment tank. Next, this mixture is sent to a pressure-resistant reaction tank, where a catalyst for the polymerization reaction is added while ethylene, the other main raw material, is fed, and the polymerization reaction is carried out under high pressure. Since many small bubbles are trapped in the emulsion at this stage, the emulsion is degassed under reduced pressure in a degassing tank, filtered, and then sent to a storage tank.

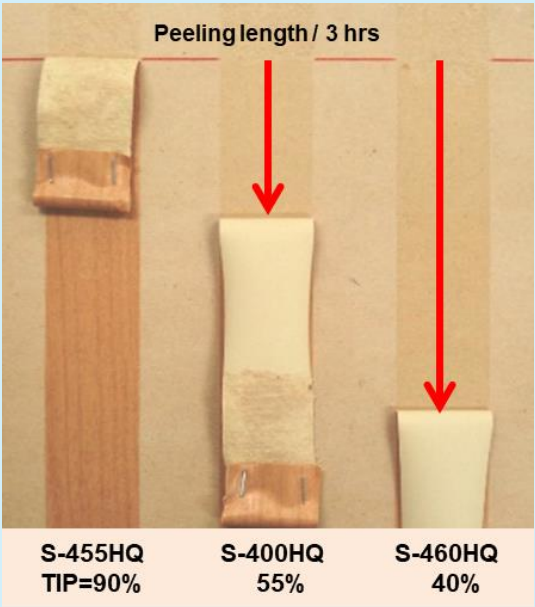
The produced SUMIKAFLEX™ is filled into various containers and delivered to the customer.



Application of SUMIKAFLEX™

Sheet Lamination:

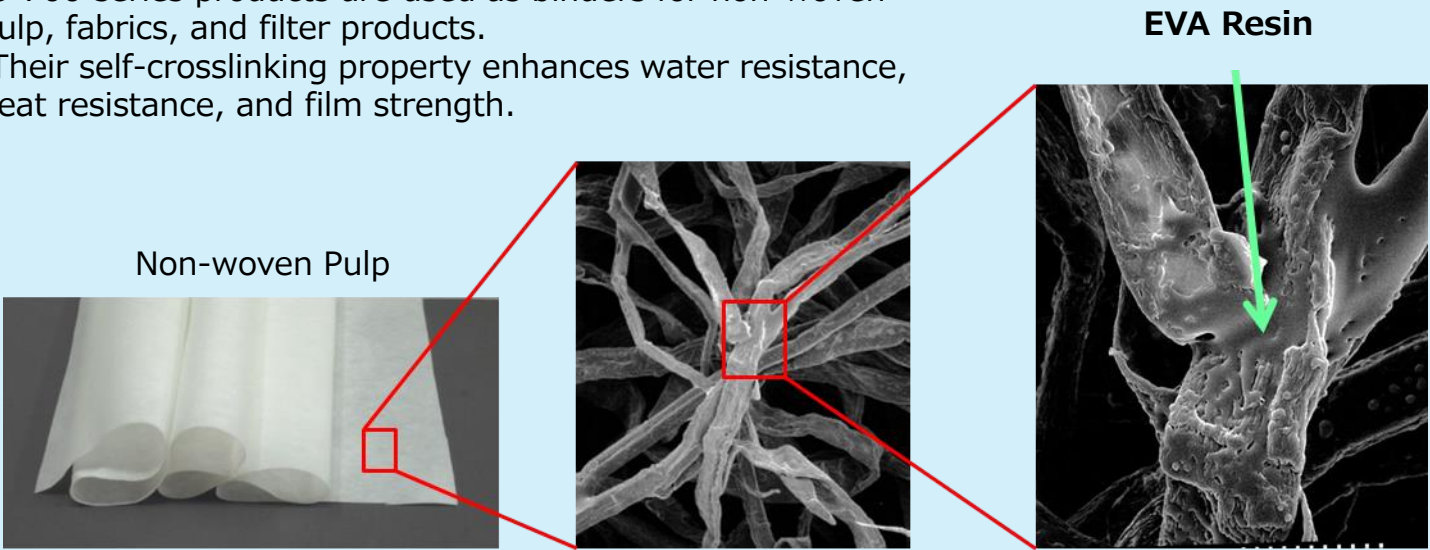
S-455HQ is used as an adhesive for sheet-laminated plywood for interior materials. It exhibits excellent heat-resistant creep properties and organic solvent resistance due to the ultra-high molecular weight.



\*TIP : Toluene insoluble Percent

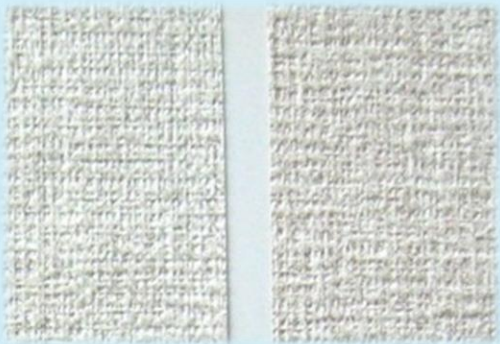
Binder for Non-woven Fabrics:

S-700 series products are used as binders for non-woven pulp, fabrics, and filter products. Their self-crosslinking property enhances water resistance, heat resistance, and film strength.



Base for Various Paints:

S-7400HQ is used as a raw material for foamed wallpaper and foam moldings. Despite its extremely high solids content, it maintains low viscosity, enabling a wide range of formulation adjustments and ensuring fluidity even in paints with various fillers added, without impairing coating and processing properties.



SUMIMKAFLEX™ Products List

Composition	Grade	Properties of emulsion						Properties of film (at 23℃)			Features	Application
		N.V. [%]	Vsicosity [mPa·s, BL-60, 25℃]	pH (25℃)	Surfactants	Particle size [μm]	MFT※ (℃)	Tg (℃)	Tensile [Mpa]	Elongation [%]		
Ethylene - Vinyl Acetate	S-201HQ	55 ~ 57	2500 ~ 5500	3 ~ 6	PVA / Nonionic	0.6	0	-20	4.5	1000	High ethylene content, water resistance	Plastic lamination, paper and fabrics
	S-328HQ	55 ~ 57	3000 ~ 5000	4 ~ 7	PVA	0.6	0	-5	9.0	700	High viscosity, soft type	Wood and paper
	S-355HQ	54 ~ 56	500 ~ 2000	4 ~ 7	PVA	0.7	0	10	20.6	420	Functionalized with acid, hard type	Construction, wood and paper
	S-400HQ	54 ~ 56	1100 ~ 1600	4 ~ 7	PVA	0.7	0	0	12.7	550	Standard	General adhesives
	S-401HQ	54 ~ 56	800 ~ 1600	4 ~ 7	PVA	0.8	0	-18	6.2	850	High ethylene content	Paper and textile
	S-408HQE	49 ~ 51	50 ~ 500	4 ~ 7	PVA	0.9	0	-30	5.0	650	Ultra high ethylene content	Plastic lamination, paper and fabrics
	S-410HQ	53 ~ 56	1500 ~ 4000	4 ~ 7	PVA	0.9	0	-18	8.9	700	High ethylene content, high M.W.	Paper and textile
	S-450HQ	54 ~ 56	2000 ~ 4000	4 ~ 7	PVA	0.7	0	0	13.0	540	High viscosity	General adhesives
	S-455HQ	54 ~ 57	2000 ~ 4000	4 ~ 7	PVA	0.8	0	0	11.0	500	High viscosity, high M.W.	Sheet lamination
	S-456HQ	54 ~ 56	2000 ~ 6000	4 ~ 7	PVA	0.8	0	0	12.0	550	Functionalized with acid, high M.W.	Sheet lamination
	S-460HQ	59 ~ 61	1600 ~ 3500	4 ~ 7	PVA	0.7	0	0	13.0	620	High solid content	Wood, and paper
	S-465HQ	64 ~ 66	300 ~ 3000	4 ~ 7	PVA / Nonionic	1.0	0	0	9.6	750	High solid content, water resistance	Wood, and paper
	S-467HQ	64 ~ 66	2000 ~ 6000	4 ~ 7	PVA / Nonionic	0.8	0	0	5.8	790	High solid content	Wood, and paper
	S-7000HQ	70 ~ 72	700 ~ 2500	4 ~ 7	PVA / Nonionic	0.8	0	0	5.4	810	High solid content	Inkjet paper, and interior paint
	S-7400HQ	70 ~ 74	2000 ~ 6000	4 ~ 7	PVA / Nonionic	0.8	0	0	5.4	810	Ultra high solid content	Inkjet paper, and interior paint
	S-470HQ	54 ~ 56	2000 ~ 4000	4 ~ 7	PVA	0.8	0	0	13.0	530	Low T.I.	Wood and paper
	S-478HQ	59 ~ 61	1000 ~ 5000	4 ~ 7	PVA	0.8	0	0	13.0	620	High solid content, Low T.I.	Wood and paper
	S-483HQ	54 ~ 56	400 ~ 1500	4 ~ 7	PVA	0.6	0	0	13.5	400	Mechanical stability, low VOC	Paper
	S-500HQ	52 ~ 54	50 ~ 500	4 ~ 7	Nonionic / Anionic	0.3	0	-10	8.0	500	Pigment dispersibility	Paper, textile and paint
	S-510HQ	54 ~ 56	10 ~ 400	4 ~ 7	HEC / Nonionic	0.7	0	0	5.8	800	Pigment dispersibility	Paper, textile and paint
	S-752	49 ~ 51	400 ~ 1300	4 ~ 7	PVA / Nonionic	0.5	9	15	23.0	360	Self cross-linking, hard type	Binder for non-woven
	S-755	49 ~ 52	500 ~ 1500	4 ~ 7	PVA / Nonionic	0.5	0	-15	1.0	> 1500	Self cross-linking, soft type	Binder for non-woven
	SDX-5100	48 ~ 51	10 ~ 400	3 ~ 8	Special	0.7	0	0	-	-	Water and oil repellent	Water shedding fabric and paper
Ethylene - Vinyl Acetate - Acrylate	S-900HL	59 ~ 61	10 ~ 500	4 ~ 7	HEC / Nonionic / Anionic	0.4	0	-20	0.9	> 1500	Functionalized with acrylate	Binder for non-woven and interior paint
Ethylene - Vinyl Acetate - Specialty Ester	S-950HQ	52 ~ 54	500 ~ 2000	4 ~ 7	PVA / Nonionic	0.6	0	-30	0.2	> 1500	Tackiness property	Contact adhesive and water proof sheet
	S-951HQ	54 ~ 56	100 ~ 1000	4 ~ 7	PVA / Nonionic	0.8	0	-25	2.6	1200	Tackiness property	Plastic lamination, and elastic paint
	S-955HQ	52 ~ 54	100 ~ 500	4 ~ 7	PVA / Nonionic	0.6	0	-30	0.4	> 1500	Tackiness property	Contact adhesive and water proof sheet

※Minimum Film Forming Temperature

# Products Relationship of SUMIKAFLEX™

