SUMIKAFLEX 7400HQ

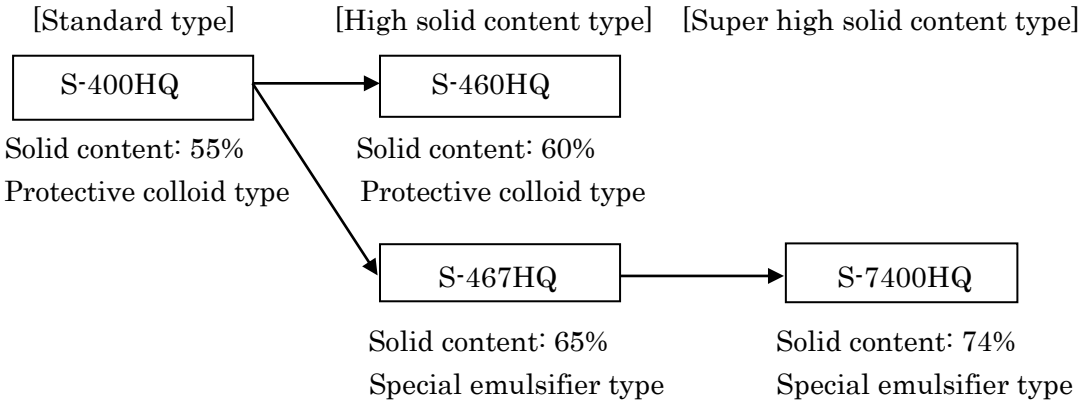
Type:	Ethylene-Vinyl acetate Copolymer Emulsion
Properties:	SUMIKAFLEX 7400HQ (S-7400HQ) is an emulsion which has an anticipated great efficacy for the initial set time because of its solid content is 74%, which is extremely high. Also, due to its high concentration and low viscosity, it allows for various blending recipes and expands the range choice of additives.
Main application:	Adhesives for all (Paper packaging, woodworking) Inkjet-printed paper

Physical properties:

Appearance		Milky white
Solid content	(%)	70 – 74
Viscosity	(mPa·s)	2000 – 6000
pH		4 – 7
Ave. Particle size	(μm)	0.8
Density	(g/ cm^3)	1.09
MFT	(°C)	0
Particle charge		Nonionic
Machine stability		Good
Tg	(°C)	0
Film strength	(MPa)	5.4
Film elongation	(%)	810

< Technical Information of SUMIKAFLEX 7400HQ >

1. Grade positioning



2. Emulsion properties

		S-7400HQ
Appearance		Milky white
Solid content	(%)	72 –75
Viscosity	(mPa·s)	2000 – 6000
pH		4 – 7
Ave. particle size	(μm)	0.8
Density	(g/cm^3)	1.09
MFT	(°C)	0
Particle charge		Nonionic
Mechanical stability		Good
Tg	(°C)	0

3. Film properties

(1) Film tensile strength

Item		S-7400HQ	S-467HQ	S-400HQ
Dry	Elongation (%)	810	790	550
	Strength (MPa)	5.4	5.8	12.7
Wet	Elongation (%)	730	840	600
	Strength (MPa)	2.7	2.0	3.3

Test method

Thickness of film : 0.15 mm
Film forming condition and aging : 23ºC × 65%RH × 7 days
Film shape : Dumbbell No.3
Dry film strength : 23ºC × 65%RH
Wet film strength : Dipped film in water for 24 hours at 23ºC, measured in wet condition
Measurement speed : 500 mm/min

(2) Film water-drop test

	S-7400HQ	S-467HQ	S-400HQ
Whitening time (min)	> 120	> 120	2

Test method

Foam film (thickness: 0.15 mm) on the slide glass at room temperature. The slide glass is on the 8-points Chinese character of newspaper. Measure the time till that character can't be read when puts one drop of water on the film.

(3) Water and alkali resistance of film

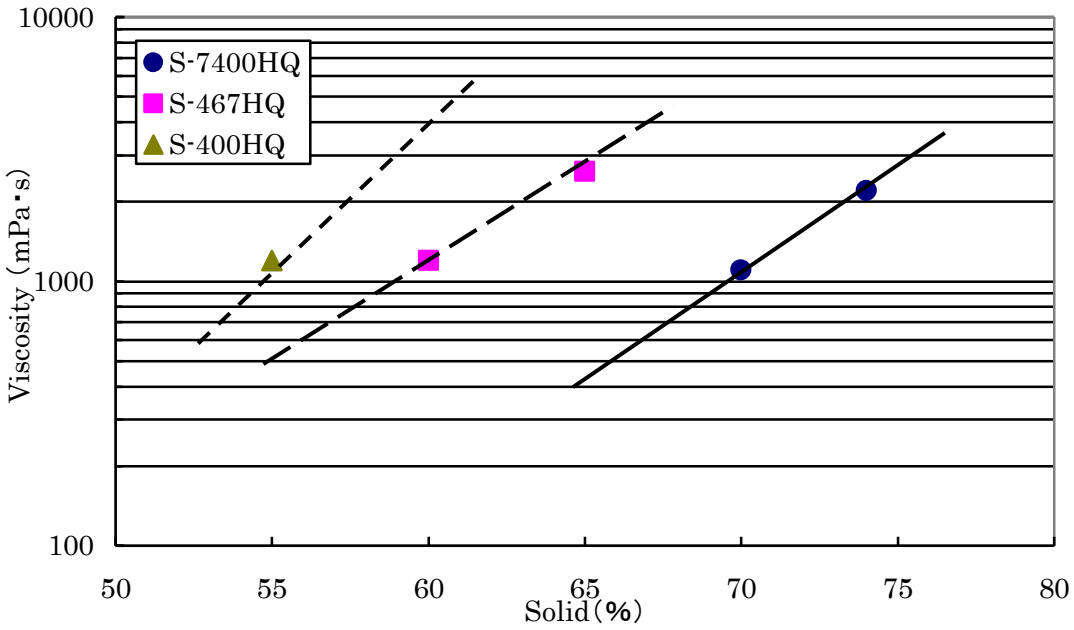
		S-7400HQ	S-467HQ	S-400HQ
Water resistance	Elusion (%)	2	1	5
	Absorption (%)	37	12	16
Alkali resistance	Elusion (%)	2	1	9
	Absorption (%)	15	15	20

Test method

Thickness of film : 0.15 mm
Water resistance : Film in water for 4 days at 23 °C
Alkali resistance : Film in 1 N NaOH for 4 days at 23 °C

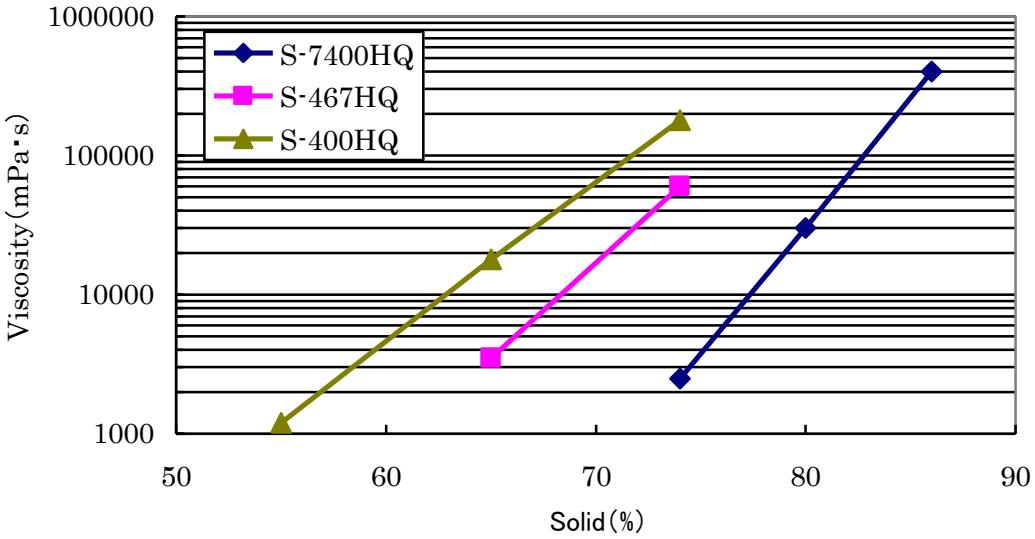
(4) Relation with solid % and viscosity

Relation with solid content and viscosity



(5) Filler miscibility

Miscibility of emulsion and calcium carbonate



4. Applications

(1) Initial adhesive property

1) Quality paper to quality paper

	Set time (sec)	
	Coating: 40 g/m²	Coating: 90 g/m²
S-7400HQ	5 >	18
S-467HQ	12	23
S-400HQ	15	27

Apply emulsion on the quality paper (basis weight: 90 g/m²), glue together with a quality paper in a short time then immediately perform 180° de-lamination. Measure the time until 100% paper broken occurs.

2) PET / Quality paper

	Set time (sec)
	Coating: 40 g/m²
S-7400HQ	17
S-467HQ	20
S-400HQ	23

Apply emulsion on the PET using an applicator, glue together with a quality paper in a short time then immediately perform 180° de-lamination. Measure the time until 100% paper broken occurs.

(2) Application for the inkjet paper

< Blending recipes >

	1	2
Micro powder silicate (20% water dispersion)	100	100
S-7400HQ	40	0
Polyvinyl alcohol (10% aqueous)	0	40
Ink set additive (Sumirez resin 1001: solid 30%)	20	20
Total solid (%)	25.8	15.4
Coating mixture viscosity (mPa·s)	1320	300
15.4% concentration viscosity (mPa·s)	37	300

< Coating method >

Using general quality paper (basis weight: 80 g/m², stockigt sizing degree: 30 sec), above coating composition of A and B are coated on these base materials by using wire rod in condition that each solid % when dried should be 6 g/m² and 10g/m². Furthermore, dried for 2 min at 120ºC, applied 1 min at 110ºC. Evaluation patterns are printed on this recording material using a commercial inkjet printer.

< Test results >

(i) Coating weight = 6 g/m²

	Printing concentration [1]				Water resistance [2]	Bleeding [3]
Method	M	C	Y	B		
1	1.44	1.51	1.60	1.81	◎	○+
2	1.41	1.46	1.66	1.79	△	△

(ii) Coating Weight =10 g/m²

	Printing concentration [1]				Surface strength [4]	Water resistance [2]	Wet Rub [5]	Bleeding [3]
Method	M	C	Y	B				
1	1.39	1.43	1.51	1.77	△	◎	△	◎
2	1.44	1.54	1.67	1.88	○	△	○	○~△

[1] Printing concentration

The record samples are stood in temperature-controlled room in condition of 25ºC and 60RH% for more than half a day, measured the printing concentration by Macbeth concentration mater.

[2] Water resistance

Dipping method … Dipped printed parts for 3 min. In 20ºC of water, picked up the samples and air-dried, measured the color concentration.

Water drop test … One drop water on the printed part and air-dried. Measured the bleeding by visual observation.

[3] Bleeding

Judge the recorded sample bleeding by visual observation using microscope expanded of 40 double and 60 double.

[4] Surface strength

The record samples are stood in temperature-controlled room in condition of 25ºC and 60Rh% for more than half a day, peeled the surface of the coating

paper using commercial adhesion tape. Judge the surface strength from the degree of the peeled pigment moved tape side by visual observation.

[5] Water resistance of white paper (Wet Rub method)

The record samples are stood in temperature-controlled room in condition of 25ºC and 60RH% for more than half a day.

Place five drops of water on the surface of the coating paper by dropper, friction coating paper for five times with right middle finger of abdominal area, moved water on the black paper immediately. Stood until dried then judge the pigment amount moved on the black paper.