



SANHO CHEMICAL CO., LTD.

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n-Propanol	40	J
	30	C
	20	<A
n-Butanol	40	M
	30	E
	20	<A
Iso-Butanol	40	Q
Acetone	40	In
Methyl-ethylketone	40	In
M.I.B.K	40	In
Ethylacetate	40	In
Isobutylacetate	40	In
n-Heptane	40	In
Nitropropane	40	In
Toluene	40	In
I P A / n-Hexane=1 : 1	40	D~ E
	30	<A
	20	<A
Ethylalcohol / Isopropanol=1 : 3	40	Gel
	30	C
	20	<A
Ethylalcohol / Isopropanol=1 : 1	40	Gel
	30	In
	20	In
Isopropanol/Toluene/Ethylacetate=1 : 1 : 1	40	D~E
	30	<A
	20	<A

*The alphabets above are for the Gardner-Holdt Scale, at 20~22 °C.

*In = Insoluble, Gel =Gelled.

An optimum solvent release(=drying,) rate can be attained by the proper combination of the solvent.



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Solvent system ratio	Bubble Viscosity(25°C Gardner-Holdt)	Stability	
		10°C	5°C
8 / 2	H	HG	HG
6 / 4	F	SG	HG
4 / 6	F	HG	HG
2 / 8	G ~ H	HG	HG

SG = Soft gel HG = Hard gel

Similar tests as above were conducted in a mixed solvent system of toluene : IPA : ethylacetate = 2 : 2 : 1 in weight . In this case , the resin content (N.V.%) was made difference.

N.V.%	Bubble Viscosity(25°C Gardner-Holdt)	Stability		
		15°C	10	5°C
40	E	HG	HG	HG
30	<A	F	PG	HG
20	<A	F	F	PG

F = Remains in solution form (fluid)

PG = Partially gelled HG = Hard gel

7 : Gel recovery time of KINGMIDE 550 in the mixed solvent system of toluene / isopropanol / ethylacetate.

KINGMIDE 550 solutions of various resins contents(N.V.%) in a solvent system of toluene / IPA / ethylacetate = 2 : 2 : 1 in weight ,have been kept at 10°C for 24 hours.

Afterwards, some of the samples become gelled , and those cold gels were then kept at the room temperature of 20°C where the time (in minutes,) needed to recover original fluidity were observed as follows;

N.V.% of KINGMIDE 550	Gel recovery time (in minutes)
40	400
30	30
20	F

F = not gelled at 10°C.

8 : Selection of pigments and dyes

KINGMIDE 550 is very low in the chemical reactivities as seen by the low acid , and amine values, so that practically no particular pigments and dyes are to be avoided for use in the KINGMIDE 550 based ink formulations.

Pigment : Pigments of high acidity should be refrained.

Dyes : Dyes to be employed must be soluble type.

Pigments and dyes for KINGMIDE 550 based ink should not contain any manganese and/or



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(b) In case of Face to Glassine paper;

Temperature on the Heat-Sealing Bar				
100°C	110°C	120°C	130°C	140°C
G	G	PB	PB	B

G = good PB = partially blocking B = totally blocking.

Oil resistance : Good .

Smear ink films printed on the treated polyethylene films with margarine , and leave them alone for 24 hour at room temperature. Abrasion test was conducted after wiping down margarine on the ink films.

Load : 250 grs.

Frictional oscillation : 100 times.

Soap resistance : Excellent .

Immerse ink films printed on aluminium foil into one % of soap solution at room temperature ; and put them out after 18 hours to conduct the resistance .

Water resistance : Excellent .

(a) Immerse ink films printed on treated polyethylene films in tap water for 16 hours, and then remove water to conduct Scotch Tape Test.

(b) Immerse ink films printed on treated polyethylene films in tap water for 16 hours, When wrinkle test was conducted using "Face-to Face" printed on the treated polyethylene films, and NO.s of wrinkle ; 20 times.

10 : Formulations to enhance adhesion onto untreated polyolefin films

Example of formulation to enhance adhesion onto polyolefin (polyethylene and polypropylene, etc.) films is as follow, although no adhesion is generally believed when polyamide resins are employed onto untreated films.

Example of formulation :

KINGMIDE 550	20 parts
Organic pigment	10
Dammargum	7
Palmitic acid amide wax	1
Toluene	54
Isopropylalcohol(IPA)	8
Anti-oxidant (B.H.T)	0.1
Anti-oxidant (D.L.T.P)	0.1

Total 100.2 parts