

<Resin Bonding >

5. 가

, Web web

. web

가 .

5-1 (Binder)

.

. . . , casein, PVA, CMC polymer

.

Emulsion () . . . polymer ,

Emulsion . Polymer

2 Emulsion , gum

latex . Binder Acrylic

resin Emulsion N.B.R.(Nitril butadiene rubber), S.B.R.(Stylen

butadiene rubber) Synthetic rubber latex vinyl , ethylene vinyl

(EVA), vinyl (PVC) Emulsion .

Binder

hot melt , (芯鞘型, 偏心型, side by side)

Bicomponent thermo-bonding Hot melt bonding

Resin bonding spray bonding

가 Type fiberfil web

15~25% Resin spray bonding thermo-bonding ,

Bulky soft 가

ski-jacket .

, 3 .

< 2> Emulsion

Polyer		
	Polyacrylic acid ester Acrylicstylen Copolymer Polyvinyl acetate Vinyl acetate veoba Copolymer Vinyl acetate ethylene Copolymer Vinyl ethylene chloride Copolymer Vinyl acrylic Copolymer Polyethylene Polyvinyl chloride Ethylene vinyl chloride Copolymer Polyvinyliden chloride Polystyrene Polyurethane Polyester Epoxy	Acrylic Emulsion Acrylic styrene Emulsion Vinyl acetate Emulsion(PVAc) Vinyl acetate veoba Emulsion Ethylene vinyl acetate Emulsion EVA vinyl chloride Emulsion Vinyl acetate acrylic Emulsion Polyethylene Emulsion(PE) Polyvinyl chloride(PVC) Ethylene vinyl chloride-Latex Polyvinyliden chloride Latex(PVdC) Polystyrene Emulsion(PS) Polyurethane Emulsion PET Emulsion Epoxy Emulsion
	Natureal Gum Polybutadiene Butadiene stylen Copolymer Butadiene acrylonitril Copolymer Butadiene methyl metaacrylate Copolymer Butadiene stylen vinyl pyridine Copolymer Polychloroprene Polyisoprene	Natural Gum Latex(NR) Polybutadiene Latex SBR Latex NBR Latex MBR Latex VP Latex Chloroprene Latex(CR) IR Latex

Type of bonding fibre	Structure	Examples	Cross - section	Cost level	Suitability for Bonding :		Comments on end-Product
					Heat +air	Heat+ air	
Adhesive fibre	Homopolymer	Polyester amorph	○	Low	-	+	Very stiff, relatively low strength, high proportion of bonding fibre
Bicomponent fibre	Coated-core	Polyamide 6/66	●	High	+	++	Soft, high-bulk
	Side-by-side	Polypropylene /polyethylene		High	+	++	Good strength, good resistance, high proportion of bonding fibre
Melt adhesive fibre	Homopolymer	Polypropylene /polyethylene	○	Low	+-	++	Stiff to medium-soft, moderate strength, low resistance, medium proportion of bonding fibre
	Copolymer	Copolyamide	○	High	+	+	Soft, high-bulk, high strength values
		Copolyester	○	medium	+	++	Good resistance low proportion of bonding fibre

5-2. Emulsion

Emulsion

가 ,

. Emulsion

polymer

,

polymer

,

. 가

polymer

Binder

4

resin

Emulsion

< 4> Binder

BINDER	Hand	Colorfastness	Washability	Drycleaning	Strength	Relative Price	Applications
Acrylates & copolymers	soft	good	good	good	good	high	Disposable diaper, interlinings, upholstery, sanitary products, apparel
Vinyl Acetate & copolymers	Soft	good	fair	fair	fair	low	Filters, sanitary products, disposable diapers
Butadiene styrene	soft	good	fair	poor	fair	low	Disposable diaper, abrasive fabric, medical/surgical, interlinings, belt inserts
Polyvinyl chloride	stiff	good	fair	poor	good	Medium	Automotive, heat-sealable battings, synthetic leather
Butadiene(nitrile) acrylonitrile (carboxylated)	firm	poor	good	good	good	high	Interlinings, shoe innersoles, luggage, belt inserts
Polyvinyl							
Vinyl acetateethylene	soft	good	fair		good	medium	Wipes, coverstock

Emulsion polymer

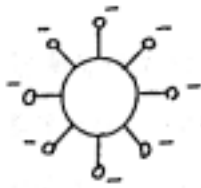
colloid

가 polymer

8 model

(水散)

.



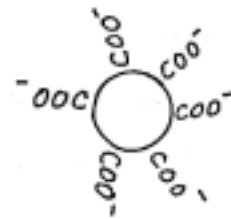
이온성활성제의 흡착



비이온성 활성제의 흡착



보호콜로이드의 흡착



천수기

< 8 >

Binder

Emulsion

, 가 가

,

가 . anion

anion

polymer

,

cation polymer가 가

,

,

가가 ion

(

) .

anion Emulsion nonion

가

가

가

ethylene

oxide 가 mol

가 . Emulsion

,

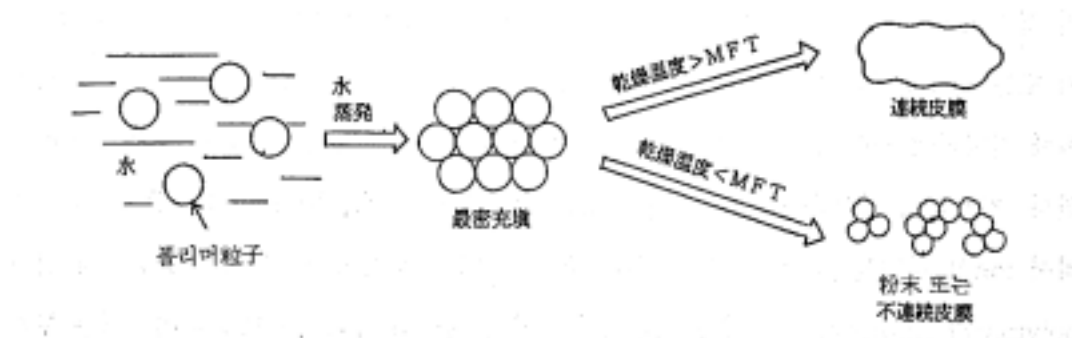
, spray

(剪斷力)

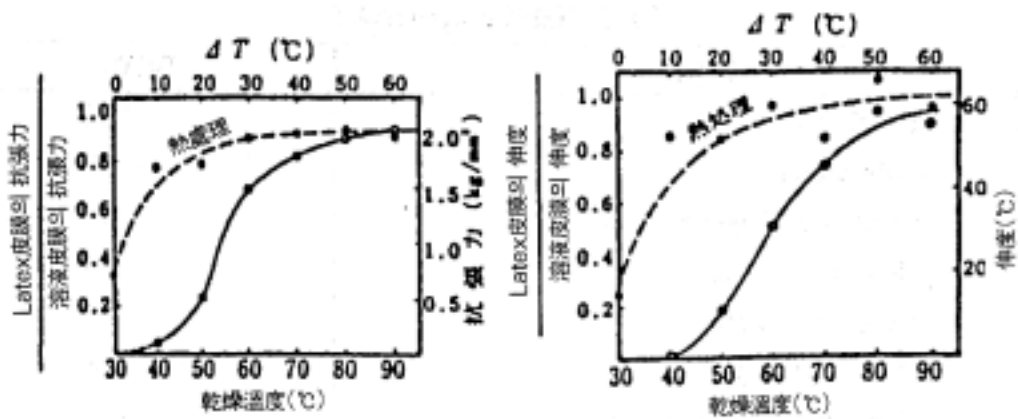
.

polymer 가

, . ion 가
 . carboxyl polymer Emulsion
 alkali 가가 alkali
 ammonium .
 Emulsion Binder
 . 9
 → polymer (最密充實) →
 → polymer → process .
 가 Emulsion MFT(minimum film forming
 temperature) 가 , MFT
 process가 가
 . binder
 . MFT MFT 가
 polymer가
 . 10 가 MFT
 가 . polymer
 가 가 .
 Emulsion MFT 가 .
 Binder .
 polymer Tg(glass : glass transition temperature) 가
 .



< 9> process



< 10> BMA Emulsion(MFT=30)

Tg polymer , glass
 polymer . 5 polymer Tg .
 Tg가 polymer .
 Binder polymer 2 monomer
 (copolymer) . Tg MFT 6 .
 polymer MFT Tg
 polymer Tg 40~30 , Tg가 polymer
 . Tg가 polymer roofing

، 7 polymer Tg

< 5> polymer Tg

Polymer	Tg()
Polyethylene	-125
Polybutadiene	-108
Poly-2-ethyl hexyl acrylate	-50
Polybutyl acrylate	-55
Polyethyl acrylate	-24
Polymethyl acrylate	6
Polymethyl meta acrylate	105
Poly vinyl	28
Poly vinyl	81
Poly, vinylidene	-19
Polystyrene	100
Polyacrylonitrile	105
polyacrylicacid	87

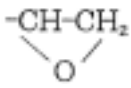
< 6> Polymer Latex MFT Tg

	MFT()	Tg()	Gr/ γ H ₂ O/a
75/25	58	48	0.58
55/45 Styrene-n-Butyl acrylate	23	17	25.0
50/50 Copolymer	21	10	-
50/50 Methyl methacrylate-	27	30	260
45/55 Ethyl acrylate Copolymer	18	25	-
n-Butyl methacrylate Polymer	30	22	8.5
Vinyl acetate Polymer	13	29	-
Methyl acrylate Polymer	< 0	3	-
50/50 Methyl methacrylate –	45	-	-
25/75 Methyl acrylate Copolymer	13	-	-

< 7> Polymer Tg

Polymer	Tg	Polymer (kg/cm ²)	(kg)
Acryl	-15	31.6	3.2
Acryl	-8	42.2	3.8
Acryl	0	105.5	4.1
Acryl	2	112.5	4.4
Acryl styrene	20	218.0	5.7

< 8> monomer

	()
-COOH	(meta) Acrylicacid,
-OH	2-hydroxyethyl(meta)acrylate
-CONH ₂	(meta)acrylamide
-CONHCH ₂ OH	N-methylo(meta)acrylamide
	Glycidyl(meta)acrylate
	Arylglycidylether

가

Resin polymer 가 가

, 가

. 가 (cross linking) polymer 가

(가) 가 (가)가

. Polymer 8

monomer .

binder Emulsion N-

methylol carboxyl . N-methylol 가 가

Acrylic emulsion . Carboxyl 가

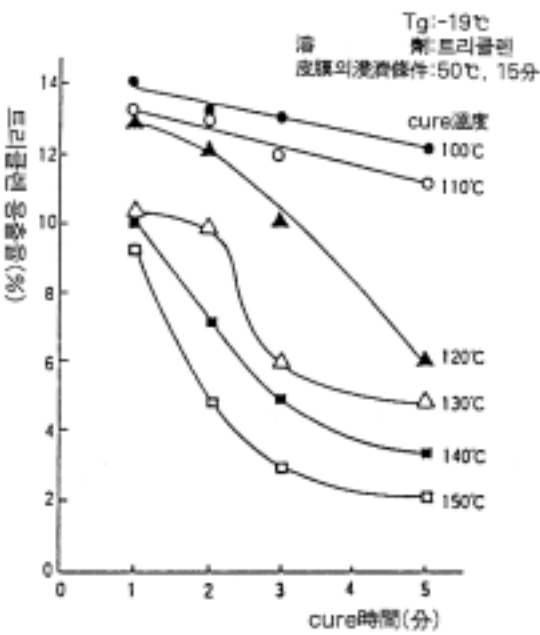
, emulsion ,

binder 가

N-methylol

가 Acrylic emulsion

11



< 11> Acryl emulsion

cure

5-3 Resin

emulsion

emulsion

Soap-free emulsion

Soap-free emulsion oligomer
 , monomer () .
 polymer emulsion
 , emulsion polymer polymer
 polymer emulsion 가 polymer ,
 polymer emulsion 가 polymer
 . MFT 가 .
 emulsion
 가 polystyrene emulsion
 가 . Plastic-pigment
 .
 emulsion
 0.05 μ , 가 micro-
 emulsion 가 micro-gel .