VINYBLAN 700 Series
Vinyl Chloride-based Emulsion

VINYBLAN

Point

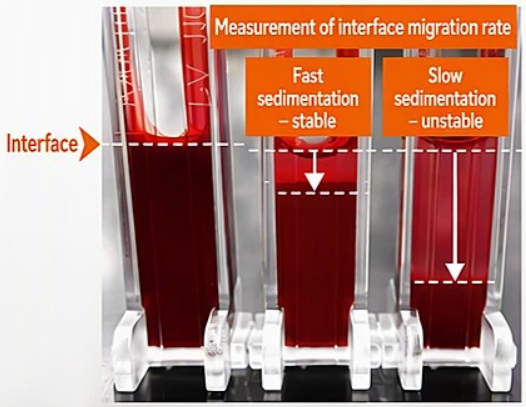
**Waterborne fine-particle chlorinated vinyl–acrylic emulsion.
In water-based inks, it improves pigment dispersibility,
color development and storage stability.**

Grade	Solids (%)	Viscosity (mPa·s)	pH	Average particle size (nm)	Tg (°C)	MFT (°C)	Acid value (mg KOH/g)
VINYBLAN 701	30	50	7.5	30	73	80°C or higher Min. 80°C	43

Dispersion stability data

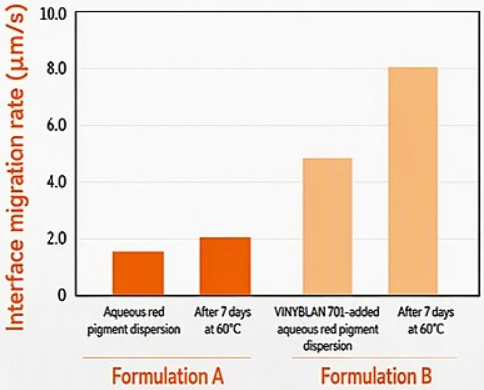
Component		Formulation A	Formulation B
Pigment	RED 146	10	10
Resin (solids)	VINYBLAN 701	7.5	–
	Acrylic dispersion	–	7.5
Deionized water		82.5	82.5

Dispersion stability test by LUMiSizer®



Before centrifugation　　After centrifugation

Dispersion stability



Formulation A using VINYBLAN provides a lower sedimentation rate, maintaining a more stable dispersion state.

Dispersion / Application method

- Mix 5 g of beads with 50 g of the above formulation
- Beads: zirconia beads, 5 mm diameter
- Disperser: paint shaker
- Dispersion time: 5 hours

Test conditions

- Measuring instrument: LUMiSizer®
- Sample volume: approx. 450 µL
- Liquid temperature: 25°C
- Rotation speed: 4000 rpm
- Measurement time: 50 min

Examples of use: water-based gravure inks, water-based inkjet inks

VINYBLAN

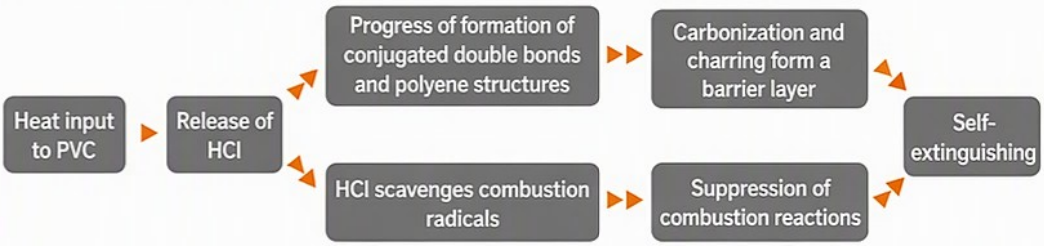
VINYL CHLORIDE/ACRYLIC ESTER EMULSION

VINYBLAN

Point

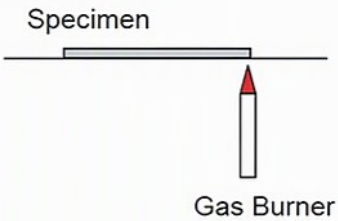
**Provides inherent self-extinguishing properties unique to PVC.
Can be used as a flame-retardant binder for a wide range of fibers and nonwoven fabrics.**

PVC Flame-Retardant Mechanism



Grade	Solids (%)	Viscosity (mPa·s)	pH	Average Particle Size (nm)	Tg (°C)	MFT (°C)	Acid Value (KOHmg/g)
690	54	200	8.5	200	46	60	4

Flame-Retardancy Data



Treatment: Padding, 105°C × 3 min drying
Test Method: FMVSS No.302
Fuel: Phosphorus/Nitrogen System
Substrate: 100% Polyester Fabric

Composition (wt%)		Dry Add-On (g/m^2)	Burning Rate (mm/min)
690	Flame Retardant		
100	0	100	NB
100	0	30	150
80	20	30	NB

【Evaluation Criteria】NB: Non-flammable, SE: Self-extinguishing, Delayed: ≤100 mm/min, Standard: >100 mm/min

Applications: Fiber Flame-Retardant Treatment Agents, Building Air Filters, Automotive Filters, etc.

VINYBLAN C765S/C767S (Cationic Type)

Vinyl Chloride/Acrylic Ester Emulsion

VINYBLAN

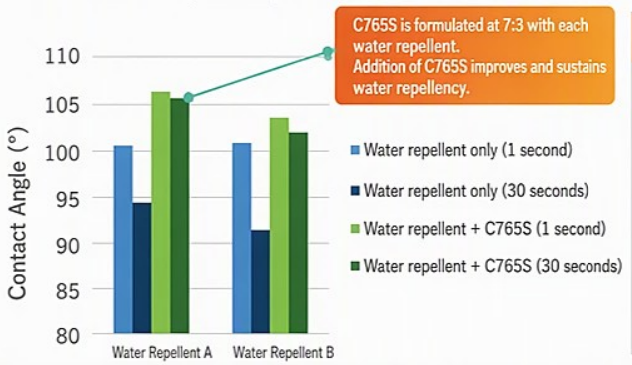
Point

Water-based emulsion with excellent washability
Cationic binder resin that enhances the performance of water repellents

Basic Properties

Grade	Solid Content (%)	Viscosity (mPa·s)	pH pH	Average Particle Size (nm) Average Particle Size (nm)	Tg (°C) Tg (°C)	MFT (°C) MFT (°C)
C765S	25	50	4.5	150	66	48
C767S	25	50	4.0	80	62	63

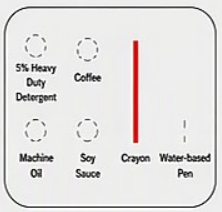
Water Repellency Evaluation





Laundering/Stain Resistance Evaluation

Water Repellent A + C765S	
5% Heavy Duty Detergent	○
Machine Oil	○
Coffee	○
Soy Sauce	○
Crayon	×
Water-based Pen	○
Washability	After 10 launderings, the water repellency remained unchanged.

	Stain Removal Photos	Locations of Stains
Without C765S (after laundering)		
With C765S (after laundering)		

Applications: Fiber processing agents, inkjet printing receiving layers

CHALINE 1800 Series

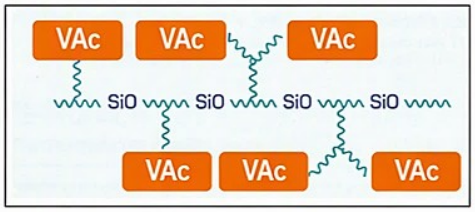
Silicone/Vinyl Acetate Hybrid Resin Emulsion

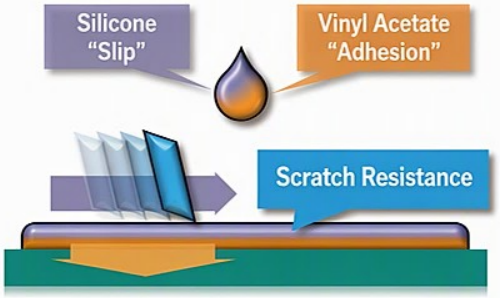
CHALINE

Point

Provides slip, film-forming properties and adhesion, forming coating films with excellent abrasion resistance.
Lineup ranges from hydrophilic to water-repellent grades.

Resin Image



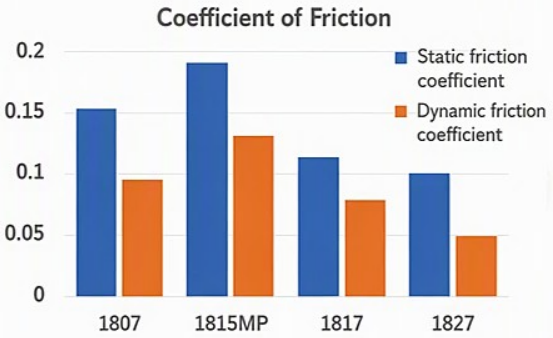


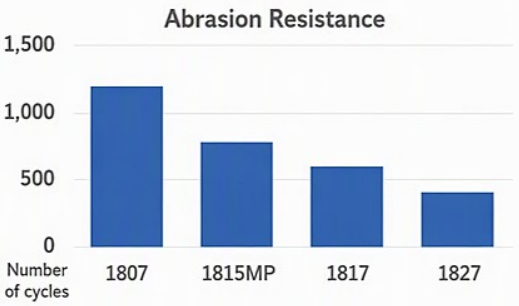












Substrate: PET
Coating amount: wet 36 g/m²
Drying conditions: 105°C × 3 min

Contact angle: 2 μL, measured 1 s after dropping
Slidability: load 30 g
Abrasion resistance: Gakushin-type abrasion test, load 49 N, rubbing head: cotton cloth

Intended Applications: Back-side treatment layer for tapes and labels

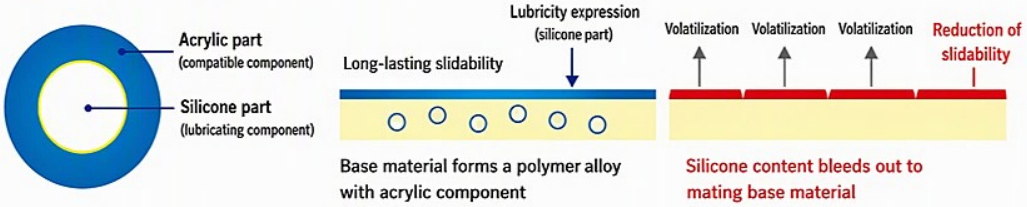
CHALINE LC-190 Modified Grade
Silicone–Acrylic Resin Emulsion

CHALINE

Point

Water-based additive that imparts antifouling and abrasion resistance. Low bleed-out and excellent durability of functions.

Resin Image



Antifouling Data



Substrate: White PVC leather
Blend: CHALINE (solids 10%)
Water-based PUD (solids 90%)
Silface SAG503A* (0.1% on liquid basis)
* Silicone-based leveling agent

Test conditions:
Equipment: Martindale abrasion tester
Contaminants: Denim, soot
Load: 12 kPa, 2000 cycles
Others: Color difference measured before and after test

Example applications: Surface treatment agent for synthetic leather / Interior-use coatings

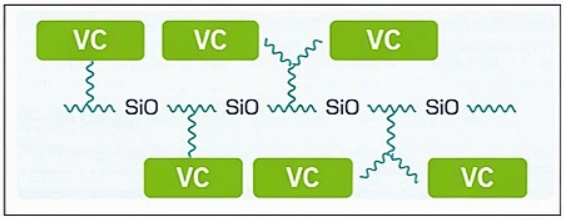
HIGH SLEED
Silicone–Vinyl Chloride Resin Emulsion

HIGHSLEED

Point

- Forms coating films with excellent adhesion, water repellency and alcohol resistance.
- Exhibits excellent compatibility, and can also impart functionality to water-based paints.

Polymer Structure Image

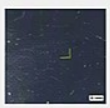


Basic Properties

Item	E-7713	E-7715	E-7717	Silicone–Acrylic
Solid content (%)	30	30	30	45
Viscosity (mPa・s)	≦500	≦500	≦500	≦500
pH	7	7	7	7
Ionic character	Anionic	Anionic	Anionic	Anionic
Average particle size (nm)	200	200	200	200
MFT (°C)	73	81	77	60
Contact angle (1 second)	110	108	126	112
Contact angle (after 30 seconds)	104	103	105	98
Static friction coefficient	0.13	0.23	0.62	0.15
Dynamic friction coefficient	0.05	0.10	0.37	0.02

Solvent Compatibility / Alcohol Resistance

Solvent	E-7713	E-7715	E-7717
EtOH	○	○	○
IPA	△	○	○
PG	○	○	○
TPG	○	○	○
DEGBME	△	○	○
TEGMBE	△	△	○
NMP	○	○	○

	E-7713	E-7715	E-7717
EtOH resistance			
	No change	No change	No change

○: Emulsion is compatible, no separation, and can be used.
△: Compatible but viscosity increases and foam remains.
×: Incompatible, separation and gelation occur.

Test conditions: PET film, coating amount Wet 9.14 g/m², dried at 105°C×3 minutes, then immersed for 1 second in 95% EtOH solution and dried.

Intended Applications: Ink-Receiving Layer, PVC Coating, Flame-Retardant Treatment Agents.

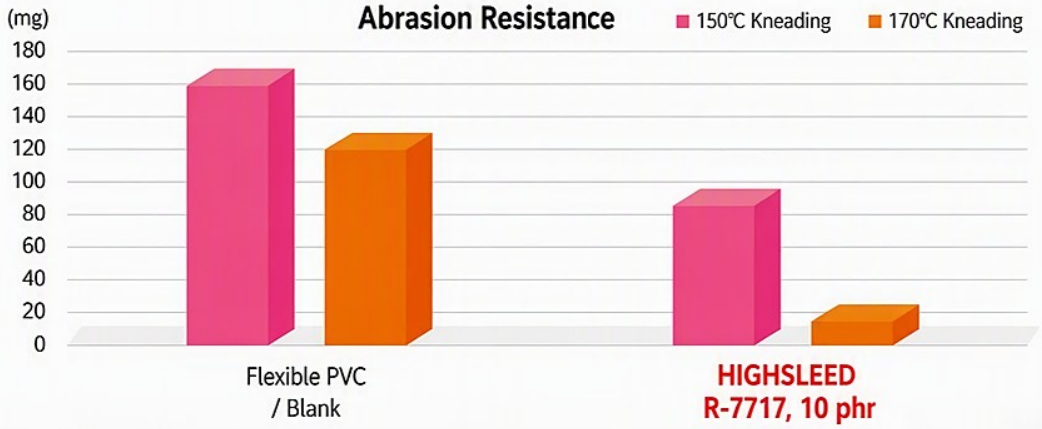
HIGHSLEED

Silicone • Vinyl Chloride Resin Powder

Point

A newly developed powder product copolymerized from silicone and vinyl chloride.
Adding it to resin compounds imparts silicone properties.

Evaluation Item / Grade	R-7717
Average Particle Size (μm)	Approx. 70
Volatile Matter	<5%
Bulk Density (g/cm^3)	0.28
True Specific Gravity (g/cm^3)	1.134
Tg (theoretical value)	81



Test: Taber abrasion test
Formulation: PVC 100 phr, DOP 35 phr, stabilizer, etc. 5 phr

Applications / Examples of Use

- Flexible and rigid PVC compounds
- Various elastomers
- Various synthetic rubbers



CHALINE R Series

Silicone-Acrylic Resin Sliding Additive

CHALINE

Point

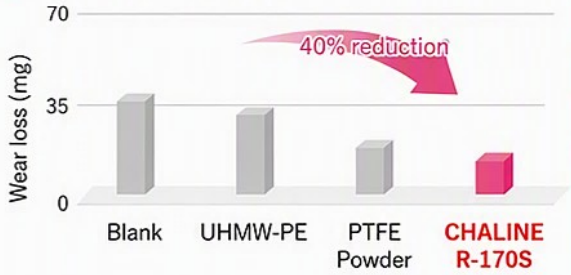
Powder additive for improving sliding properties and wear resistance of engineering plastics and thermoplastic elastomers.

PA Resin: Fluorine-Based Alternative

Adding CHALINE to PA resin achieves high sliding performance and high wear resistance.
PTFE powder can be replaced.



Wear Resistance



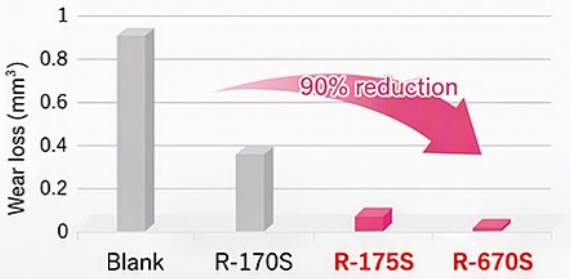
Test conditions: Taber abrasion test, JIS K 7204
Load: 9.8 N; 1,000 rotations
Formulation: PA66 resin 100 phr + additives 5 phr

Thermoplastic Elastomers: High Sliding Performance and High Wear Resistance

Imparts wear resistance to various elastomers, enabling improved durability and longer service life.



TPU Wear Resistance



Test conditions: Reciprocating ball-on-plate sliding wear test
Formulation: TPU 100 phr + additives 5 phr
TPU hardness: A80

* All values are measured test results and are not guaranteed values.
Contents may be changed without notice for product improvement. Please contact us for details.

Applications / Examples of Use

◆ **Resin compounds**

- Engineering plastics:
  PPS, PA, PC, etc.
- Thermoplastic elastomers:
  TPU, TPO, TPV, TPS, TPC, etc.
- General-purpose resins:
  PVC, PP, PE, ABS, PS, etc.

CHALINE R Series

Silicone-Acrylic Resin Flame-Retardant Additive

CHALINE

Point

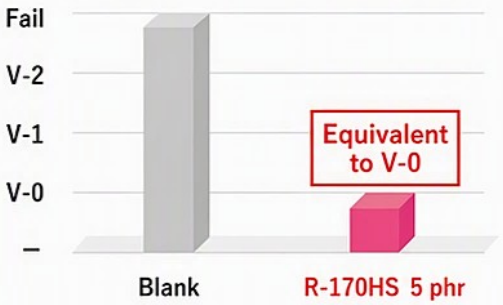
By adding CHALINE as a flame retardant or flame-retardant synergist, UL-94 rating and oxygen index can be improved.

PC Resin Improved Flame Retardancy

By adding CHALINE to PC resin, flame retardancy can be achieved even without a drip-prevention agent.



PC Resin UL94 Flammability Test



Blank formulation: PC resin 100 phr, specimen thickness: 3 mm

EEA Resin (Wire) Improved Flame Retardancy

By using CHALINE together with hydrated metal compounds in EEA and EVA resin wire formulations, flame retardancy can be improved.



EEA Resin Oxygen Index Test



Blank formulation: EEA 100 phr, magnesium hydroxide 150 phr
*EEA resin: ethylene ethyl acrylate

Applications / Examples of Use

- PC resin: housings for home appliances, electronic devices, OA equipment, battery cases, etc.
- EEA, EVA, PE, synthetic rubber: power cables, optical fiber cables, etc.

CHALINE SIP Series
Silicone-Acrylic Resin Microparticles

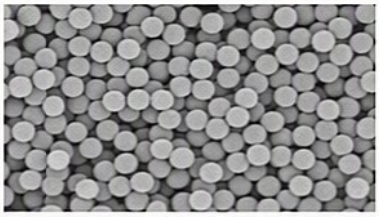
CHALINE

Point

Highly heat-resistant, perfectly spherical powder produced by 3D crosslinking.
Enables sliding properties, scratch resistance, matting, and light diffusion.

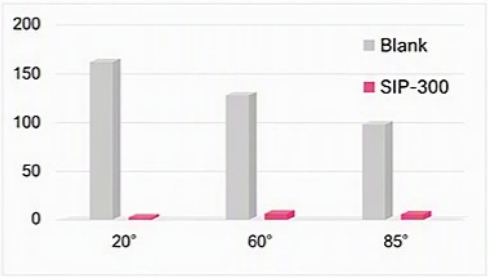
Lineup

Grade	Mean Particle Size
SIP-100	1 μm
SIP-200	2 μm
SIP-205	6 μm
SIP-300	13 μm

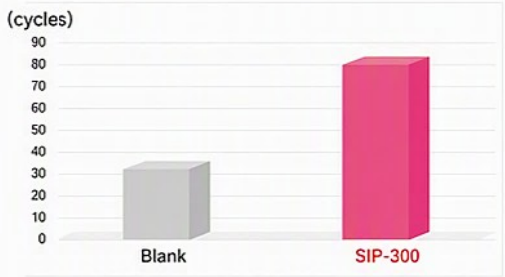


SIP-100 SEM image (×8000)

Gloss



Scratch Resistance



Coating Conditions

Coating: solvent-based acrylic + CHALINE, solids ratio acrylic:CHALINE = 9:1
Substrate: PET, dry film thickness: 10 μm

Evaluation Methods

Gloss: measured at 20°, 60°, and 80° using a gloss meter.
Scratch resistance: the coating was fixed to a JIS-type friction tester, and a scratch stylus was used to repeatedly abrade the coating under a 100 g load. The number of cycles until the coating was removed and the substrate was exposed was recorded.

Applications / Examples of Use

- **Paints, inks, coatings /**
  Imparts sliding properties, scratch resistance, and matting.
- **Synthetic resins /**
  Provides light diffusion, sliding properties, and wear resistance.
- **Plastic films and sheets /**
  Provides anti-blocking and wear resistance.



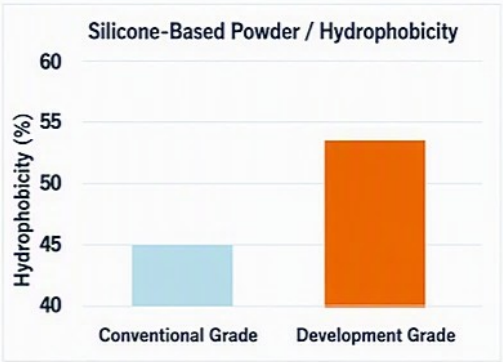
SILICONE

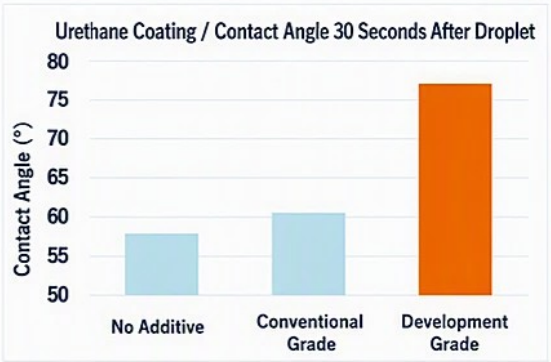
Spherical Silicone-Based Powder

Enhanced Hydrophobicity & Water Repellency (Development Product)

Point

Hydrophobicity 20% higher, coating contact angle approx. 30% higher.
For paints, coatings, various compounds, and electronic materials.





Do you have these challenges?

- Want to impart hydrophobicity and water repellency to coatings.
- Want to increase contact angle.
- Want to impart hydrophobicity and water repellency to resins and elastomers.
- Want to reduce the influence of moisture and surface OH groups in electronic materials.
- Looking for fillers with high heat resistance, low moisture absorption, and low Df.

Development Grades

- Spherical silicone crosslinked powder
  Mean particle sizes: 1 µm, 2 µm, 6 µm, 13 µm
- Spherical silicone rubber powder
  Mean particle size: 0.8 µm
- For other silicone-based powders and particle sizes, please feel free to contact us.

Test Method

Contact angle measurement conditions
Resin: urethane resin
Powders: conventional grade / development grade
Dispersion solvent: methanol
Measurement: contact angle 30 seconds after water droplet

Applications / Evaluation Themes

Application	Evaluation Theme
Paints / Coatings	Contact angle, water repellency, surface modification, evaluation related to water wetting
Resins / Elastomers / Rubber	Water repellency, water wetting, evaluation of water absorption and moisture absorption
Electronic Materials	Evaluation and study of moisture effects, surface OH effects, and low-Df applications

Notes

※ The above data are evaluation results obtained under our specified conditions.
※ The effect on contact angle may vary depending on the resin, formulation conditions, dispersion conditions, and coating conditions.
※ Low Df, moisture absorption, and insulation reliability are currently under evaluation.
※ As this is a development product, please consult us regarding sample supply conditions and schedule.





SOLBIN TA3L (Under Development)

Vinyl Chloride–Vinyl Acetate Copolymer Resin

SOLBIN

Point

Properties

Vinyl Chloride (%)	Vinyl Acetate (%)	Hydroxyalkyl Acrylate (%)	K Value	Viscosity* (mPa・s)
75	10	15	38	33

(Values shown are typical values, not specifications.)

* Dissolution conditions: Solids content 20 wt%, solvent Methyl Isobutyl Ketone / Toluene = 1/1, temperature 50°C, stirring time 45 min.
Measurement conditions: 25°C, BL-type viscometer.

Features

(1) Excellent solubility
(2) Excellent thermal stability
(3) Excellent filterability
(4) Excellent pigment dispersibility

Appearance



(1) Solubility

Environmentally Friendly Solvents

Dissolution conditions
Solids content 20 wt%, temperature 60°C, stirring time 120 min

Viscosity measurement conditions
25°C, BL-type viscometer

DEGEME: Diethylene Glycol Ethyl Methyl Ether
EBA: Ethylene Glycol Monobutyl Ether Acetate

Solvent	DEGEME	EBA
Appearance		
Viscosity (mPa・s)	89	168

UV-Curable Acrylate Monomers

Monomer type	Monofunctional		Difunctional		Trifunctional	Tetrafunctional	Hexafunctional
	THFA	BZA	HDDA	TPGDA	TMP(EO)3TA	DTMPTTA	DPHA
Appearance							
Viscosity (mPa・s)	15	12	28	63	371	3,236	29,450

Dissolution conditions
Solids content 5 wt%, temperature 60°C
Stirring time 180 min
(* DPHA only: 100°C, 60 min)

Viscosity measurement conditions
25°C, BL-type viscometer

THFA: Tetrahydrofurfuryl Acrylate
BZA: Benzyl Acrylate
HDDA: Hexanediol Diacrylate
TPGDA: Tripropylene Glycol Diacrylate
TMP(EO)3TA: Trimethylolpropane Ethoxylate (EO)3 Triacrylate
DTMPTTA: Ditrimethylolpropane Tetraacrylate
DPHA: Dipentaerythritol Hexaacrylate

SOLBIN TA3L (Under Development)

Vinyl Chloride–Vinyl Acetate Copolymer Resin

SOLBIN

(2) Heat Stability (60°C, after 14 days)

Environmentally Considerate Solvents

DEGEME



EBA



Dissolution conditions
Solids content: 20 wt%, Temperature: 60°C, Stirring time: 120 min
DEGEME: Diethylene Glycol Ethyl Methyl Ether
EBA: Ethylene Glycol Monobutyl Ether Acetate

UV-Curable Acrylate Monomers

THFA



BZA



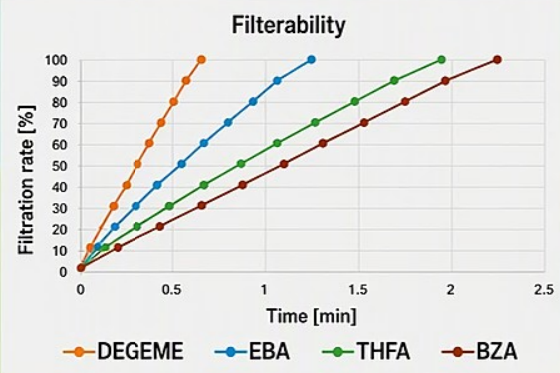
Dissolution conditions
Solids content: 5 wt%, Temperature: 60°C, Stirring time: 180 min
THFA: Tetrahydrofurfuryl Acrylate
BZA: Benzyl Acrylate

(3) Filterability (Particle Retention: 1 μm)

Environmentally Considerate Solvents
UV-Curable Acrylate Monomers

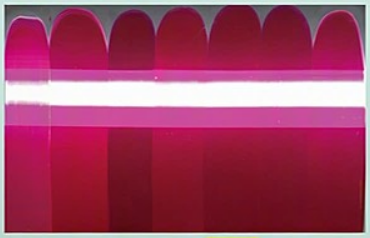
Dissolution conditions
Solids content: 5 wt%, Temperature: 60°C,
Stirring time: 120 min

Measurement conditions
Solution: 100 mL
Filter: Glass fiber, particle retention 1 μm
(Whatman GF/B)
Load: 4 kgf (Pressure: 445 Pa)
Temperature: 25°C



(4) Pigment Dispersibility (Color Development of Coating Film)

UV-Curable Acrylate Monomers



Formulation conditions
Formulation: Pigment / SOLBIN / Monomer (TPGDA) = 15 / 2 / 83
*TPGDA: Tripropylene Glycol Diacrylate

Curing conditions
Initiator: TPO (8 wt% added)
*TPO: Diphenyl (2,4,6-trimethylbenzoyl)
phosphine oxide

Film thickness: 6.86 μm (dry)
Lamp: Metal halide lamp
Irradiance: approx. 2,500 mW/cm²



Applications / Examples

- Inks (inkjet, gravure, screen printing)
- Coatings (coatings, primers)
- Adhesives (heat seal)

OLFINE
Acetylene-based Low-Foaming Wetting Agent

OLFINE

Point

Excellent wetting, low foaming, and dispersion-aiding properties

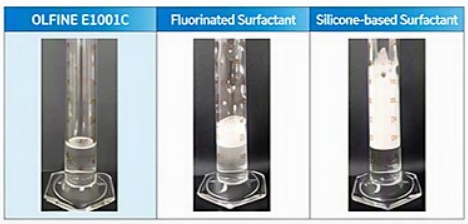
Representative Products Water-Solubility Property Data

Product Name	Water Solubility (wt%)	Static Surface Tension (mN/m)	Dynamic Surface Tension (mN/m)		Contact Angle (°)	Foaming (ml)	
			1Hz	10Hz		Immediately after shaking	After 5 min
E1001C	< 0.1	32	33	36	51	2	0
E1004	< 0.5	32	35	38	57	5	0
E1010	3.0 <	37	41	44	66	15	5
E1023	3.0 <	46	51	53	83	20	16
E1204C	< 0.1	26	27	36	22	5	3
EXP.4123	3.0<	34	39	53	54	8	2
EXP.4200	< 3.0	29	31	42	37	5	0
EXP.4300	< 0.5	27	30	40	15	28	10
Fluorinated	-	18	33	62	35	12	11
Silicone-based	-	22	38	59	34	35	32

*Evaluated using a 0.1% aqueous solution

Defoaming Data

Effective for both foam suppression and defoaming, reducing foam during production and use.



Test Method

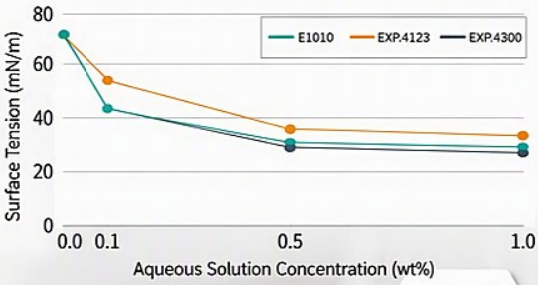
(1) Static surface tension: Measured according to JIS K 0070:2019 (Pendant drop method).
(2) Dynamic surface tension: Measured using a maximum bubble pressure tensiometer (KRÜSS BP100) with air as the gas phase at 25°C, 1 Hz and 10 Hz.
(3) Contact angle: Measured using a DMs-501 system according to JIS R 3056:2002 (sessile drop method). Substrate: Glass slide
(4) Foaming: 0.1% aqueous solution, 100 mL in a 200 mL graduated cylinder. Shaken 180 times (amplitude 40 mm) and allowed to stand. Foam volume measured immediately after shaking and after 5 minutes.

Improved Penetration and Reduced Surface Tension

Adding the product reduces the contact angle on substrates.



Adding the product lowers surface tension and improves substrate wetting.



Applications

Water-based Inkjet Inks and Coatings
Chemicals for Electronic Materials (Developers, Etchants, CMP Slurries, etc.)



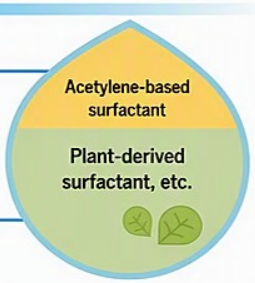
OLFINE BM Series

Biomass-Compatible Leveling Agents

OLFINE

Point

Surfactants made from biomass raw materials
Improved wetting is possible while maintaining low foaming.



Representative Products: Properties

Achieves 25–60% biomass content through the use of plant-derived raw materials.
A lineup of nonionic and anionic products.

	Biomass OLFINE Product Codes					
	BM1001	BM2001	BM3001	OL-A66	OL-A68	OL-A70
Properties	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid
Ionicity	Nonionic	Nonionic	Nonionic	Anionic	Anionic	Anionic
Active ingredient (%)※1	100	65	90	85	30	50
Biomass content (%)※2	55	60	55	25	40	35

※1. The remainder consists of water and/or water-soluble solvents.
※2. Biomass content is measured and calculated in accordance with ASTM D6860.

Properties in Aqueous Solution

A reduction in dynamic surface tension can be expected with a small addition.

	Biomass OLFINE						OLFINE	Typical Surfactants	
	BM1001	BM2001	BM3001	OL-A66	OL-A68	OL-A70	E1010	Fluorinated	Silicone-based
Solubility	Transparent	Transparent	Transparent	Transparent	Transparent	Transparent	Transparent	Transparent	Transparent
Static surface tension [mN/m]	30	28	29	27	27	25	37	18	22
Dynamic surface tension [mN/m]	39	48	47	28	28	28	43	62	59
Foaming [mL]	27	10	20	15	28	26	15	12	35

(1) Comparison of properties in a 0.1% aqueous solution
(2) Solubility ··· Visual observation
(3) Static surface tension ··· Instrument: DY-500 High-Function Surface Tensiometer (Kyowa Interface Science Co., Ltd.)
(4) Dynamic surface tension ··· Instrument: Bubble Pressure Dynamic Surface Tensiometer, Model BP100 (KRÜSS);
Measurement conditions: 10 Hz: 10 bubbles/sec
(5) Foaming ··· 20 mL of sample was placed in a 100 mL graduated cylinder, shaken for 1 minute,
and allowed to stand for 5 minutes; the foam height (mL) was measured.

Applications

Water-based inkjet inks, coatings





OLFINE DI Series
Acrylic Polymer Dispersant

OLFINE

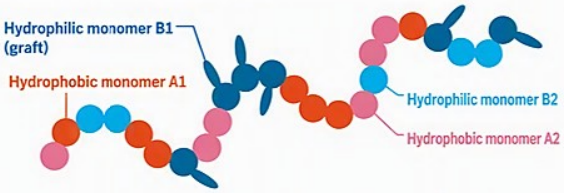
Point

Disperses pigments and dyes, including titanium dioxide
Newly developed products customizable according to application and evaluation results

Conceptual Structure Diagram

Polymer combining multiple acrylic monomers

Hydrophilic / hydrophobic properties, molecular weight, and other characteristics can be optimized



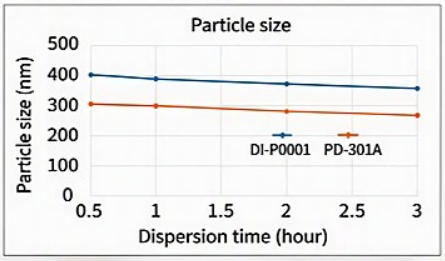
General Properties

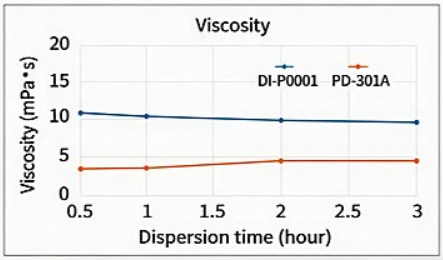
Product Name	OLFINE DI-P0001
Appearance	Colorless to pale yellow transparent liquid
Active ingredient (%)	Approx. 20※1
Ionicity	Anionic
Acid value	210
Molecular weight	Approx. 10,000–30,000
Viscosity (mPa・s)	< approx. 1,000
pH	Approx. 9.0
Remarks	Basic formulation; good balance of hydrophilic and hydrophobic components

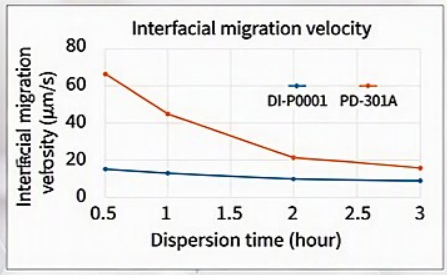
※1 The remaining component is water.

Dispersion, Sedimentation, and Redispersibility Data

DI-P0001 disperses white pigment at low viscosity and, compared with our acetylene-based dispersant (PD-301A), provides superior sedimentation stability and redispersibility.







Redispersibility

	Immediately after dispersion①	Immediately after heating②	Immediately after redispersion③
DI-P0001	43.5	17.2	35.4
PD-301A	36.1	4.3	15.1

① Immediately after ink preparation;
② Supernatant after heating at 60°C for 3 days;
③ Supernatant of a sample shaken 50 times after heating at 60°C for 3 days. Solids content was measured.

<Dispersion conditions>
Pigment: Titanium dioxide (CR-50-2, Ishihara Sangyo) 40 wt% Dispersant amount: 10 wt% relative to pigment
Dispersing equipment: Paint shaker Media: Zirconia beads (Φ1.0 mm)
Dispersion time: 0.5 hr, 1 hr, 2 hr, 3 hr

Applications

Water-based inkjet inks, water-based paints, functional coating agents