

Aqueous Additive BEN-GEL Series



BEN-GEL Series are Purified Bentonite that Clay mineral consisting of flaky crystals Montmorillonite as a main component and will swelling and thickening by Aqueous.

When shear is applied to the dispersant, the flaky crystals are arranged in parallel to the flow and the viscosity decreases, and when the dispersant is to a rest state again, the flaky crystals form a three dimensional association mechanism (Card house structure) and viscosity will increase.

In this way, it exhibits excellent quality not seen with water-soluble organic polymers, and it is used as a thickener and anti-settling agent in various aqueous systems. In addition, since the surface of flake-like crystal possesses negative electric charge, it can adsorb cationic substance, and it also acts as adsorbent.

[BEN-GEL Type]
BEN-GEL, BEN-GEL HV, BEN-GEL HVP, BEN-GEL FW, BEN-GEL Brite11k
Aqueous Bentonite

[BEN-GEL W Type]
W-100, W-100U, W-300U
Aqueous Bentonite with Polymer

[BEN-GEL SH Type]
Partial hydrophobicity
Aqueous Bentonite

[BEL-GEL Type]
BEN-GEL, BEN-GEL Flake
Aqueous Bentonite for food additives

[BEN-GEL A]
High Purity Aqueous
Bentonite

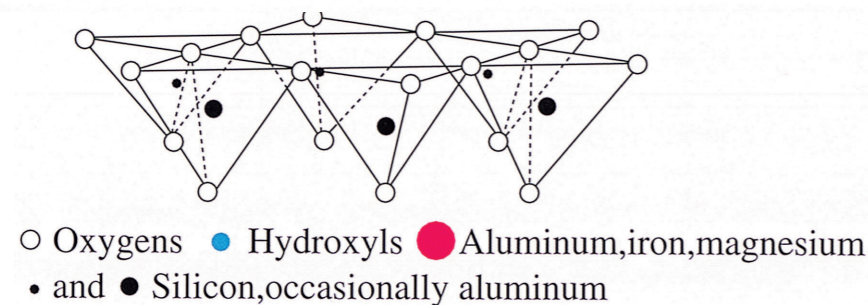
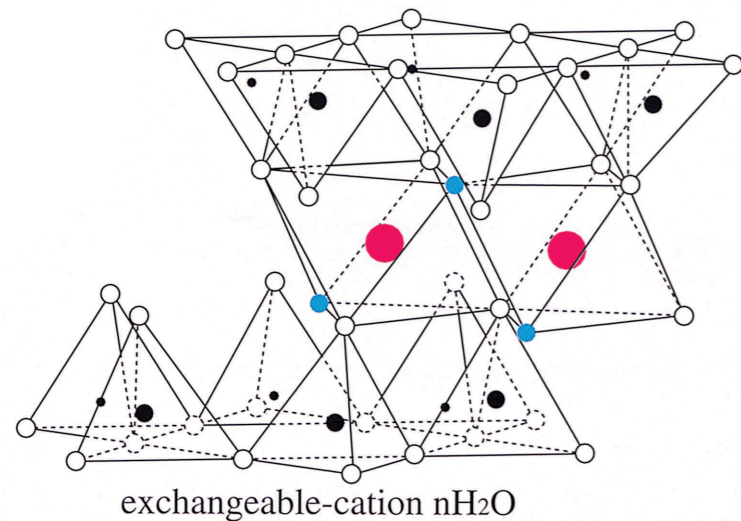


Figure 1 Crystal structure of Montmorillonite

BEN-GEL Series products List

BEN-GEL series recognition as the cosmetic raw material and food additives. Various usage for Cosmetics, Medical and food field also industrial field too.(moisture 5.0 – 10.0 %)

Product's name	shape	swelling pwr (ml/2g)	pH (2%)	viscosity (mPs-6rpm)	features	applications
BEN-GEL	Powder	35	10.1	(7%) 2,000	Purified bentonite viscousable in the middle level	waterbase paint, wax, cosmetics, glazes, stationeries, etc.
BEN-GEL HV	Flake	50	10.1	(7%) 9,200	Purified bentonite viscousable in the higher level	household cleaners, poster color
BEN-GEL HVP	Powder	42	10.1	(7%) 6,200	Purified bentonite powder of HV	waterbase paint, prevent sedimentation, Emulsion stabilizers
BEN-GEL FW	Powder	35	10.0	(7%) 1,600	Purified bentonite especially suitable for cosmetic products	waterbase cosmetics
BEN-GEL BLITE 11K	Powder	8	8.1	(10%) 50	Selected white bentonite, contains lower level of Fe2O3	building materials, hand soap, fabric softener, ceramics, etc.
BEN-GEL W-100	Powder	100*	9.6	(7%) 10	Purified bentonite with anionic polymer. Low level of Viscosity	cosmetics, bath essence, etc.
BEN-GEL W-100U	Powder	100	6.5	(1%) 1,500	Purified bentonite with anionic polymer. High level of Viscosity	prevent sedimentation, Emulsion stabilizers
BEN-GEL W-300U	Powder	100	6.5	(1%) 15,000	Purified bentonite with anionic polymer. High level of Viscosity	waterbase paint, prevent sedimentation, Emulsion stabilizers
BEN-GEL SH	Powder	92	9.8	(2%) 1,000	Purified bentonite viscousable in the higher level. Show high thixotropy *	waterbase paint, prevent sedimentation
<Food additive Grade> BEN-GEL	Powder	35	10.1	(7%) 2,000	Purified bentonite viscousable in the middle level	clarifiers(wine, vinegar, fruit spirits, etc.)
<Food additive Grade> BEN-GEL FLAKE	Flake	40	10.0	(7%) 650	Purified bentonite viscousable in the lower level	clarifiers(wine, vinegar, fruit spirits, etc.)
<Academic research> BEN-GEL A	Powder	42	9.9	(4%) 450	Purified bentonite & High purity montmorillonite	Cosmetics & Laboratory
		* Suspended particle		() Concentration		* patch work structure=flat surface structure of montmorillonite crystal flake

Above value is measured value as a guide not specific value. If you have any query please contact to our office.

How to Use

Please prepare the Pre-GEL by hi-speed mixer with water or ion exchange water.

Suitable concentration of Pre-Gel is 3 – 10%

Suggest you to hold the Pre-gel 24 hours for making stability of viscosity before using

Organic Additives

S-BEN Series & ORGANITE Series

S-BEN & Organite series are Organic Bentonite that quaternary ammonium cation denatured on the crystal surface of montmorillonite and will swelling and thickening by Organic Viscosity decreases to arrange parallel to the shearing force is applied to the dispersion flaky crystals flow, associated by hydrogen bonding of hydroxyl groups are present on the end surface of the flaky crystals when stationary dispersion again Then, as the flake-like crystalline masters form a network, the viscosity increases.

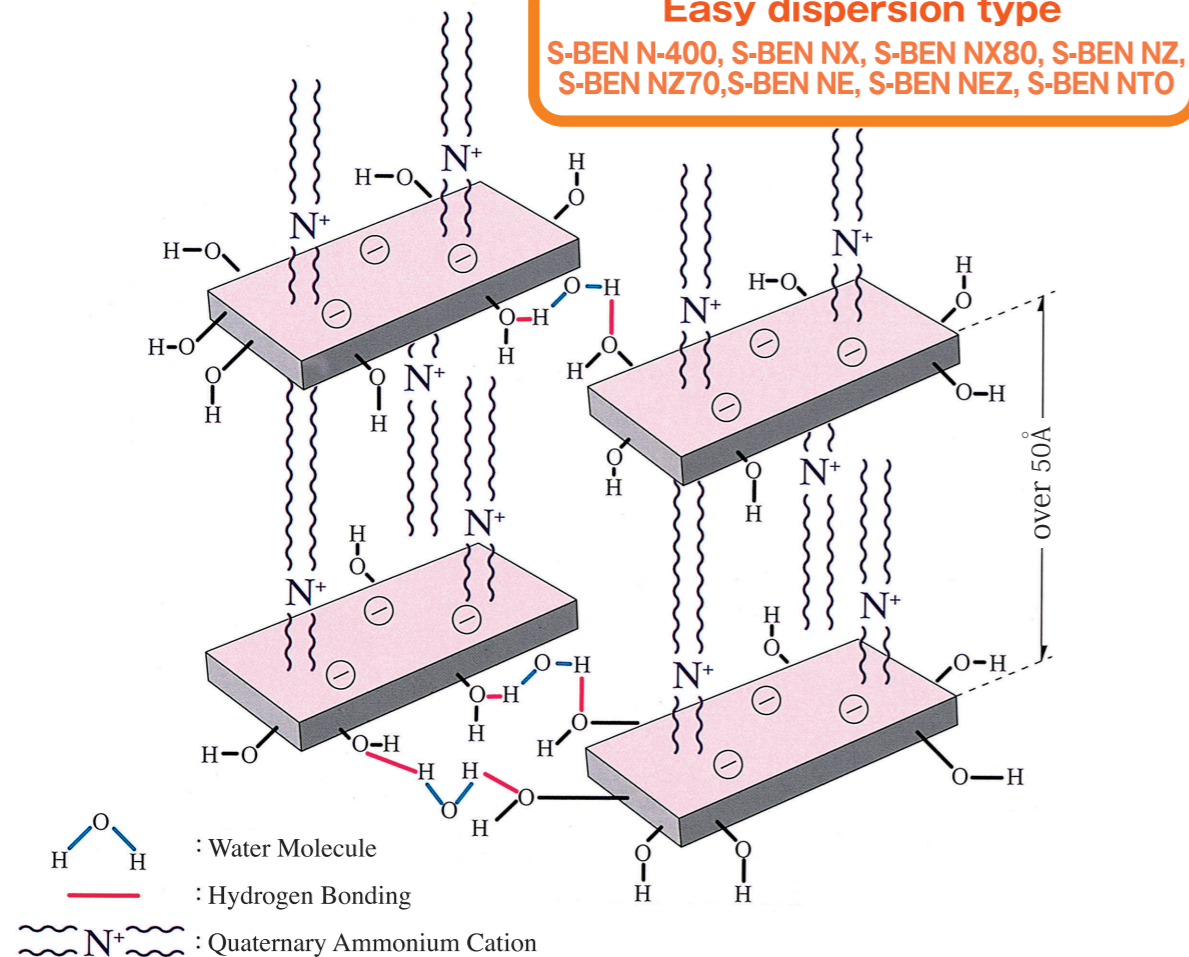
In this way, it exhibits excellent quality not seen with organic-soluble organic polymers, and it is used as a thickener and anti-settling agent in various organic systems.

It can also be used as a functional Nanofiller by flaking and dispersing flake crystals of organic bentonite to the Nano level in the resin.

S-BEN Type
S-BEN, S-BEN C, S-BEN E, S-BEN W, S-BEN WX
Size of flaky crystals smaller than 0.5 μ when dispersion

Organite Type
Organite, Organite T
Size of flaky crystals smaller than 2.0 μ when dispersion

Easy dispersion type
S-BEN N-400, S-BEN NX, S-BEN NX80, S-BEN NZ, S-BEN NZ70, S-BEN NE, S-BEN NEZ, S-BEN NTO



S-BEN & Organite Series products list

S-BEN & Organite series are organic additives for Paint, Ink, Cosmetic and Caulking. (configuration :fine powder / moisture under 3.0 %)

Product's name	suitable polarity	Bulk Density (g/cm ³)	TG 1000°C(%)	swelling pwr (ml/2g)*1	features	applications
S-BEN	Low	0.30±0.05	29.9	47.0 (3%)	refined organo-clay viscousable in the middle level, a standard item	paints, ink, greases, wax, adhesives, etc.
S-BEN C	Middle	0.30±0.05	29.6	38.5 (3%)	refined organo-clay viscousable in the common level & suitable for insulating paint	Insulating Paint
S-BEN E	Low ~Mid	0.35±0.05	25.6	36.0 (3%)	refined organo-clay viscousable in the common level	Greases, PVC paste
S-BEN W	Low	0.25±0.05	37.2	45.0 (3%)	refined organo-clay viscousable in the common level	cosmetics, ester resin, etc.
S-BEN WX	Low ~Mid	0.40±0.10	39.0	54.0 (0%)	refined organo-clay viscousable in the higher level	paints, ink, greases, wax, adhesives, etc.
ORGANITE	Low	0.25±0.05	28.9	45.0 (1%)	refined organo-clay viscousable in the middle level, a standard item	sealants, adhesives, paints, epoxy resin, etc.
ORGANITE T	Low ~Mid	0.27±0.05	26.6	36.0 (3%)	refined organo-clay viscousable in the middle level, a standard item	PVC paste, Lubricant
S-BEN N-400	Low	0.25±0.05	39.3	52.0 (1%)	refined organo-clay viscousable in the common level, good gels for non-polar materials with activator	paints, ink, greases, wax, adhesives, etc.
S-BEN NX	Low ~High	0.30±0.10	41.8	39.2 (0%)	refined organo-clay viscousable in the common level, good gels for non-polar materials with activator	paints, ink
S-BEN NX80	Low ~High	0.25±0.05	49.9	37.0 (0%)	Easily dispersion without polarity activator.	paints, ink, greases, sealant& adhesives, etc.
S-BEN NTO	Low ~Mid	0.30±0.05	33.4	34.5 (1%)	Suitable for Mineral split Easily dispersion without polarity activator.	paints, ink, greases, sealant, adhesives & Caulking Material, etc.
S-BEN NZ	Low ~High	0.30±0.10	37.9	50.0 (0%)	refined organo-clay viscousable in the common level, good gels for non-polar materials with activator	High Quality Paint / Ink/ Adhesive / Acrylic urethane enamel / Lubricating Grease / Caulking agent / Epoxy resins & Sealant
S-BEN NZ70	Low ~High	0.25±0.05	51.4	35.0 (0%)	Easily dispersion without polarity activator. Suitable for Keton	High Quality Paint / Ink/ Adhesive / Acrylic urethane enamel / Lubricating Grease / Caulking agent / Epoxy resins & Sealant
S-BEN NE	Mid ~High	0.25±0.05	45.3	42.0 (0%)	Easily dispersion without polarity activator. Suitable for vegetable oil	High Quality Paint / Ink/ Adhesive / Acrylic urethane enamel / Lubricating Grease / Caulking agent / Epoxy resins & Sealant
S-BEN NEZ	Mid ~High	0.25±0.05	37.5	55.0 (0%)	Easily dispersion without polarity activator. Suitable for Keton	High Quality Paint / Ink/ Adhesive / Acrylic urethane enamel / Lubricating Grease / Caulking agent / Epoxy resins & Sealant

solvent: toluene, (·%) =methanol rate

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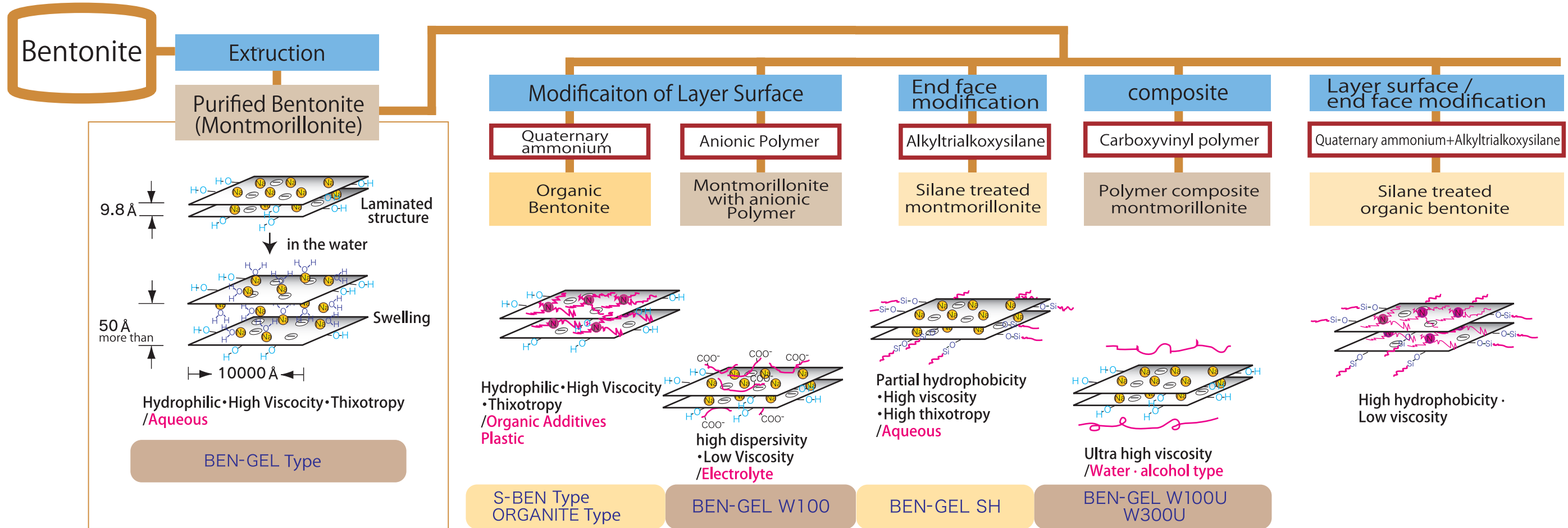
How to Use

For a proper shear force (Mixing speed is few thousand to 10 thousand rpm) and humidification (room to 70 temperature) and a saturated hydrocarbon solvent such as mineral spirit in order to demonstrate the optimum gel effect, prepare a Pre-Gel with 50 to 150 wt% polar additive based on bentonite .

Easy dispersion type no need to prepare the Pre-Gel and it's available direct addition.

Figure 2 Association Mechanism of Organophilic Bentonite In an organic solvent system

HOJUN Outline of Additives



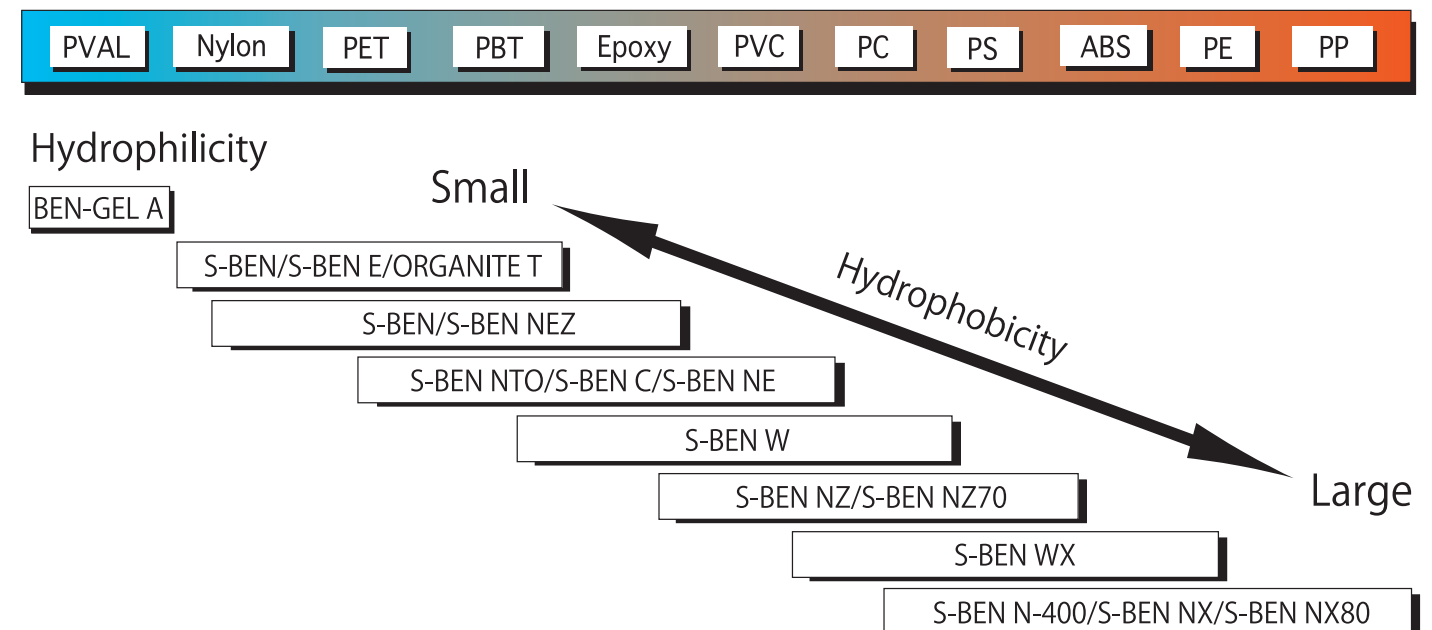
HOJUN Selection table of Additives

Rheology Control Agent

Acidic / Alkalinity	Electrolyte aqueous solution	Aqueous solution	Highly polar organic solvent	Medium polar organic solvent	Low polarity organic solvent
1N-sulfur, 0.5N-NaOH	Seawater, Artificial urine, cement, Bath additive	Distilled water, Tap water, Ion exchanged water	EG, PG, PEG, methanol, Glycerin	ethanol, Butanol, MEK, MIBK, acetone, PC, IPA	polyester, Polyurethane, Epoxy, Alkyd, Phthalic ester, ether, Vegetable oil
					Aromatic compound benzene, toluene, Xylene, styrene, MS
					Aliphatic compound Hexane, mineral oil, MS (Odorless)
					S-BEN ORGANITE
					S-BEN W S-BEN N-400
					S-BEN NTO/S-BEN C/S-BEN E/S-BEN WX/ORGANITE T
					S-BEN NX/S-BEN NX80/S-BEN NZ/S-BEN NZ70
					S-BEN NE/S-BEN NEZ
					BEN-GEL W-100U
					BEN-GEL W-300U

Selection chart of polymer additives

* If you need more details, please contact to our office



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