



# Company Profile & Product Overview [Industrial]



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## COMPANY INTRODUCTION

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Since its establishment in Nagoya, Japan in 1894, Kowa Group has grown into a multinational company actively engaged in various manufacturing and trading activities in the fields of pharmaceutical, life science and information technology, textiles, machinery, and various consumer products. During its long history Kowa has consistently strived to meet the changing needs, and with its continuing entrepreneurial initiative is determined to meet the needs of future generations.

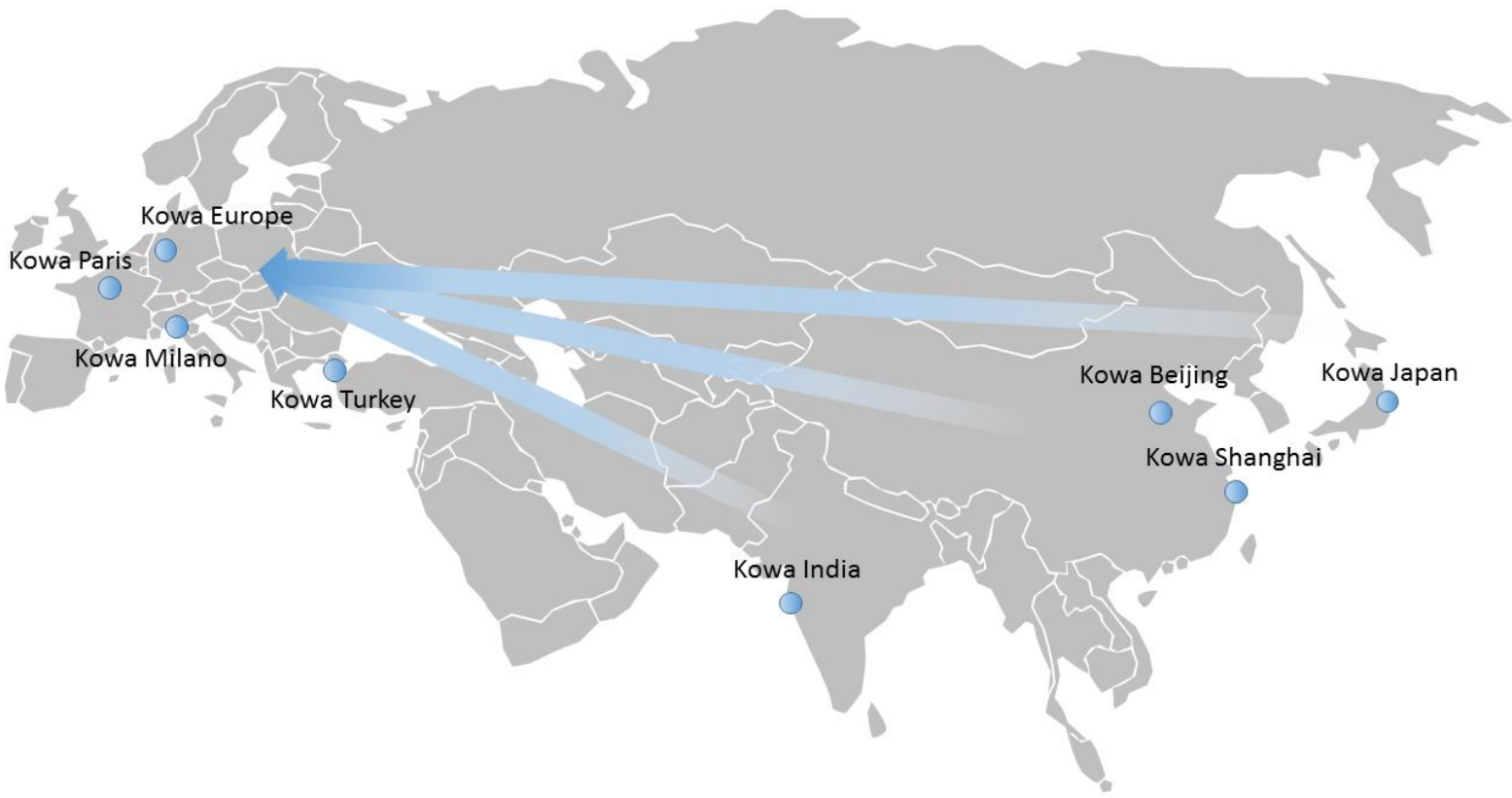


Today Kowa Europe GmbH is part of a wide distribution network connecting international supply and demand for specialty chemicals. Long-standing relationships with manufacturers in Japan are the foundation and the core of Kowa Europe's value proposition. Our strong sourcing acumen in Asia's emerging markets - China and India - create a well-balanced product portfolio that our customers in Europe profit from since over 30 years now. Our goal is not only to sell products, but to find the perfect solution for our customers.

## CORE VALUES

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**END-TO-END VALUE CHAIN**

Kowa has been a trusted partner in the Chemical Industry for many years. Our services aspire to completely fulfill

our customers demand in terms of quality, flexibility and conduct in every aspect of business by identifying key areas for improvement and relevant projects to support those improvements. We handle global tenders, technical projects, long term collaborations as well as highly specific requests with utmost care to ensure the same quality.

Our knowledge in supplying goods worldwide Kowa sets with focus on compliance with applicable laws and regulations worldwide. Legal requirements are complex and keeping up-to-date with the latest developments is crucial to ensure that we offer products to EU and non-EU customers which are safe and complete. At Kowa we have the necessary expertise for advanced compliance management in our Value Chain starting from the selection of raw materials to the supply and our products to end customers.





# MONOMERS & POLYMERS

## ACRYLATE MONOMERS

	Chemical name	CAS NO	Description
<b>HEA</b>	2-Hydroxyethyl Acrylate	818-61-1	
<b>HPA</b>	2-Hydroxypropyl Acrylate	999-61-1	
<b>4-HBA</b>	4-Hydroxybutyl Acrylate	2478-10-6	OH-functional Monomer, low P.I.I. Alternative to 2-HEMA and 2-HEA. For UV paints, coatings and various applications.
<b>TBA</b>	t-Butyl Acrylate	1663-39-4	
<b>IBOA</b>	Isobornyl Acrylate	5888-33-5	Reactive diluent giving high polymer Tg., low P.I.I. and excellent UV sensitivity
<b>CHA</b>	Cyclohexyl Acrylate	3066-71-5	
<b>BZA</b>	Benzyl Acrylate	2495-35-4	High refractive index (1.517) for optical lenses
<b>PEA</b>	Phenoxyethyl Acrylate	48145-04-6	
<b>THFA</b>	Tetrahydrofurfuryl Acrylate	2399-48-6	Low viscosity, good dilution capability and excellent UV sensitivity
<b>MTA</b>	2-Methoxyethyl Acrylate	3121-61-7	
<b>INAA</b>	iso-Nonyl Acrylate	51952-49-9	Alkyl Acrylate
<b>LA</b>	Lauryl Acrylate	2156-97-0	Alkyl Acrylate
<b>STA</b>	Stearyl Acrylate	4813-57-4	Alkyl Acrylate
<b>ISTA</b>	iso-stearyl Acrylate	93841-48-6	Alkyl Acrylate
<b>OXE-10</b>	3-Ethyl-3-oxatanylmethyl Acrylate	41988-14-1	Monofunctional Acrylate (Dioxolane, Oxetane)
<b>MEDOL-10</b>	(2-Ethyl-2-methyl-1,3-Dioxolane-4-yl)-methyl Acrylate	69701-99-1	Monofunctional Acrylate (Dioxolane, Oxetane)

## METHACRYLATE MONOMERS

### MONO-FUNCTIONAL METHACRYLATES

	Chemical name	CAS NO	Description
<b>MAA</b>	Methacrylic Acid	79-41-4	
<b>MMA</b>	Methyl Methacrylate	80-62-6	
<b>n-BMA</b>	n-Butyl Methacrylate	97-88-1	Basic raw material of lube oil additives, coating, adhesives, textile treatment agent, paper processing agent, paper coating, plasticizer, leather and metal treatment agent.
<b>t-BMA</b>	t-Butyl Methacrylate	585-07-9	
<b>HEMA</b>	2-Hydroxyethyl Methacrylate	868-77-9	Functional monomer for thermoset coating, textile treatment agent, adhesives, paper processing material, polymer modifier. Tg: 55
<b>HPMA</b>	2-Hydroxypropyl Methacrylate	27813-02-1	Functional monomer for thermoset coating, textile treatment agent, adhesives, paper processing material, polymer modifier. Tg: 26
<b>AMA</b>	Allyl Methacrylate	1996-5-9	
<b>BZMA</b>	Benzyl Methacrylate	2495-37-6	
<b>CHMA</b>	Cyclohexyl Methacrylate	101-3-9	
<b>DMMA</b>	Dimethylaminoethyl Methacrylate	2867-47-2	Using various application as coating, textile treatment agent, adhesives, paper processing material, polymer modifier, lube oil additives, rubber modifier and stabilizer, ion exchange resin, Water treatment agent.
<b>EHMA</b>	Ethylhexyl Methacrylate	688-84-6	



MONO-FUNCTIONAL METHACRYLATES

Chemical name		CAS NO	Description
<b>GMA</b>	Glycidyl Methacrylate	106-91-2	Using for coating, textile treatment agent, rubber modifier, resin modifier, photo-sensitive resin.
<b>IBOMA</b>	Isobornyl Methacrylate	2495-37-6	
<b>SLMA</b>	Alkyl Methacrylate	142-90-5 2495-25-2	

DI-FUNCTIONAL METHACRYLATES

Chemical name		CAS NO
<b>1,3 BDMA</b>	1,3 Butanediol Dimethacrylate	1189-08-8
<b>1,6 HDMA</b>	1,6 Hexanediol Dimethacrylate	6606-59-3
<b>1,9 NDMA</b>	1,9 Nonanediol Dimethacrylate	65833-30-9

**NK-ESTER SERIES**

**NK-Ester** offers a variety of bi-, tri-, tetra-, multi-functional acrylates and methacrylates.

MONO-FUNCTIONAL ACRYLATES

Chemical Name	CAS	Mol.Weight	APHA	visc/ 25°C	Refr.Index	
<b>A-LEN-10</b>	Ethoxylated o-phenylphenol acrylate	72009-86-0	268	50	150	1.577
<b>AM-90G</b>	Methoxy Polyethylene Glycol 400 Acrylate	32171-39-4	454	40	28	1.460
<b>A-SA</b>	2-Acryloyloxyethyl Succinate	50940-49-3	216	100	180	1.463

BI-FUNCTIONAL ACRYLATES

Chemical Name	CAS	Mol.Weight	APHA	visc/ 25°C	Refrl.ndex	
<b>701A</b>	2-Hydroxy-1-Acryloxy-3-Methadryloxy Propane	1709-71-3	214	40	44	1.471
<b>A-200</b>	Polyethylene Glycol 200 Diacrylate	26570-48-9	308	20	22	1.464
<b>A-400</b>	Polyethylene Glycol 400 Diacrylate	26570-48-9	508	20	58	1.466
<b>A-600</b>	Polypropylene Glycol 600 Diacrlate	26570-48-9	708	30	106	1.468
<b>A-BPE-10</b>	2.2 Bis[4-(Acryloxy Polyethoxy)Phenyl]Propane(EO10mol)	64401-02-1	776	70	550	1.516
<b>A-BPE-20</b>	2.2 Bis[4-(Acryloxy Polyethoxy)Phenyl]Propane(EO20mol)	64401-02-1	1216	200	700	1.504
<b>A-BPE-30</b>	2.2 Bis[4-(Acryloxy Polyethoxy)Phenyl]Propane(EO30mol)	64401-02-1		200	750	1.493
<b>A-BPE-4</b>	2.2 Bis[4-(Acryloxy Diethoxy)Phenyl]Propane(EO4mol)	64401-02-1	512	150	1100	1.537
<b>A-DCP</b>	Tricyclodecane dimethanol Diacrylate	42594-17-2	304	100	120	1.504
<b>A-DOD-N</b>	1,10-Decanediol Diacrylate	13048-34-5	282	50	10	1.459
<b>A-NOD-N</b>	1,9-Nonanediol Diacrylate	107481-28-7	268	150	8	1.456
<b>APG-100</b>	Dipropylene Glycol Diacrylate	57472-68-1	242	150	8	1.449
<b>APG-200</b>	Tripropylene Glycol Diacrylate	42978-66-5	300	150	12	1.449
<b>APG-400</b>	Polypropylene Glycol #400 Diacrylate	52496-08-9	536	100	34	1.451
<b>APG-700</b>	Polypropylene Glycol #700 Diacrylate	52496-08-9	808	70	68	1.451
<b>A-PTMG-65</b>	Polytetramethylene Glycol	52277-33-5	758	30	140	1.464

MULTI-FUNCTIONAL ACRYLATES

	Chemical Name	CAS	Mol.Weight	APHA	visc/ 25°C	Refr. Index
<b>A-9300</b>	Tris(2-acryloxyethyl) Isocyanulate	40220-08-4	423	100	1000	1.449
<b>A-9550</b>	Di-pentaerythritol Polyacrylate	60506-81-2		100	6500	1.489
<b>A-GLY-9E</b>	Ethoxylated glycerine triacrylate(EO9mol)	101661-95-4	811	100	190	1.473
<b>A-GLY-20E</b>	Ethoxylated glycerine triacrylate(EO20mol)	101661-95-4	1295	100	110	1.472
<b>A-TMPT</b>	Trimethylol Propane Triacrylate	15625-89-5	296	80	110	1.475
<b>AD-TMP</b>	Ditrimethylol Propane Tetraacrylate	94108-97-1	466	400	1000	1.477
<b>ATM-35E</b>	Ethoxylated Pentaerythritol tetraacrylate(EO35mol)	51728-26-8	1892	150	350	1.465
<b>A-DPH</b>	Di-pentaerythritol Polyacrylate	29570-58-9	578	150	6600	1.489

MONO-FUNCTIONAL METHACRYLATES

	Chemical Name	CAS	Mol.Weight	APHA	visc/ 25°C	Refr. Index
<b>CB-1</b>	$\beta$ -Methacryloyloxyethyl Hydrogen Phthalate	27697-00-3	278	20	3400	1.520
<b>M-90G</b>	Methoxy Polyethylene Glycol 400 Methacrylate(EO 9mol)	26915-72-0	468	30	23	1.458
<b>M-230G</b>	Methoxy Polyethylene Glycol 1000 Methacrylate(EO 23mol)	26915-72-0	1068	30	55	1.460
<b>PHE-1G</b>	Phenoxy Ethyl Methacrylate(EO 1mol)	10595-06-9	206	100	7	1.513
<b>SA</b>	2-Methacryloyloxyethyl succinate	20882-04-6	230	500	160	1.463

BI-FUNCTIONAL METHACRYLATES

	Chemical Name	CAS	Mol.Weight	APHA	visc/ 25°C	Refr. Index
<b>1G</b>	Ethylene Glycol Dimethacrylate	97-90-5	198	10	3	1.452
<b>2G</b>	Diethylene Glycol Dimethacrylate	2358-84-1	242	20	5	1.457
<b>3G</b>	Triethyleneglycol Dimethacrylate	109-16-0	286	30	9	1.460
<b>4G</b>	Polyethylene Glyco 200 Dimethacrylate	25852-47-5	330	40	14	1.461
<b>9G</b>	Polyethylene Glyco 400 Dimethacrylate	25852-47-5	536	40	35	1.466
<b>14G</b>	Polypropylene Glycol 600 Dimethacrylate	25852-47-5	736	30	64	1.468
<b>23G</b>	Polyethylene Glyco 1000 Dimethacrylate	25852-47-5	1136	30	80	1.462
<b>BPE-80N</b>	2.2 Bis[4-(Methacryloxy Ethoxy)Phenyl]Propane(EO2.3mol)	41637-38-1	452	50	1200	1.543
<b>BPE-100</b>	2.2 Bis[4-(Methacryloxy Ethoxy)Phenyl]Propane(EO2.6mol)	41637-38-1	478	500	1000	1.540
<b>BPE-200</b>	2.2 Bis[4-(Methacryloxy Diethoxy)Phenyl]Propane(EO4mol)	41637-38-1	540	200	600	1.532
<b>BPE-500</b>	2.2 Bis[4-(Methacryloxy Polyethoxy)Phenyl]Propane(EO10mol)	41637-38-1	804	150	400	1.512
<b>BPE-900</b>	2.2 Bis[4-(Methacryloxy Polyethoxy)Phenyl]Propane(EO30mol)	41637-38-1	1112	50	500	1.502
<b>BPE-1300N</b>	2.2 Bis[4-(Methacryloxy Polyethoxy)Phenyl]Propane(EO30mol)	41637-38-1	1684	50	650	1.491
<b>DCP</b>	Tricyclodecane dimethanol Dimethacrylat	43048-08-4	332	150	100	1.500
<b>DOD-N</b>	1.10-Decanediol Di Methacrylate	6701-13-9	310	100	10	1.459
<b>HD-N</b>	1.6-Hexane Diol Dimethacrylate	6606-59-3	154	100	6	1.457
<b>NOD-N</b>	1.9-Nonanediol Di Methacrylate	65833-30-9	298	150	8	1.458



## BI-FUNCTIONAL METHACRYLATES

	Chemical Name	CAS	Mol.Weight	APHA	visc/ 25°C	Refr. Index
<b>NPG</b>	Neopentyl Glycol Dimethacrylate	1985-51-9	240	20	5	1.451
<b>1206PE</b>	Ethoxylated Polypropyreneglycol Dimethacrylate(PO12/EO6)	184723-08-8	1114	150	90	1.456
<b>701</b>	2-Hydroxy 1-3dimethacryloxy Propane	1830-78-0	228	40	40	1.470
<b>9PG</b>	Polypropylene Glycol #400 Dimethacrylate	25852-49-7	536	100	27	1.450

## MULTI-FUNCTIONAL METHACRYLATES

	Chemical Name	CAS	Mol.Weight	APHA	visc/ 25°C	Refr. Index
<b>TMPT</b>	Trimethylol Propane Trimethacrylate	3290-92-4	338	30	42	1.471

## VISCOAT

The **VISCOAT**-Series is specially designed for UV appliances such as UV inkjet, UV bonding, photoresist or coatings.

## MONOFUNCTIONAL

	Chemical name	CAS NO	Application
<b>Viscoat 150 [THFA]</b>	Tetrahydrofurfuryl acrylate	2399-48-6	UV inkjet diluent, UV bonding
<b>Viscoat 155 [CHA]</b>	Cyclohexyl acrylate	3066-71-5	Painting Resin, Adhesives
<b>Viscoat 160 [BZA]</b>	Benzyl acrylate	2495-35-4	Inks, Paintings, Adhesives
<b>Viscoat 190 [CBA, EEEA]</b>	Ethoxyethoxyethyl acrylate	7328-17-8	Adhesives, UV diluent
<b>Viscoat 192 [PEA]</b>	Phenoxyethyl acrylate	48145-04-6	Inks, Paintings, Adhesives
<b>Viscoat 200 [CTFA]</b>	Cyclic trimethylolpropane formal acrylate	66492-51-1	UV inkjet diluent, UV adhesives
<b>MEDOL-10</b>	(2-Methyl-2-Ethyl-1,3-dioxolane-4-yl) methyl acrylate	69701-99-1	UV inkjet diluent, UV bonding

## BIFUNCTIONAL

	Chemical name	CAS NO	Application
<b>Viscoat 195 [BDDA]</b>	1,4-Butanediol diacrylate	1070-70-8	Crosslinking moiety
<b>Viscoat 230 [HDDA]</b>	1,6-Hexanediol diacrylate	13048-33-4	UV paintings, UV inks, UV diluent for hardcoat
<b>Viscoat 260 [NDDA]</b>	Nonanediol diacrylate	107481-28-7	UV paintings, UV inks, UV diluent for hardcoat
<b>Viscoat 310HP [TPGDA]</b>	Tripropyleneglycol diacrylate	42978-66-5	UV diluent
<b>Viscoat 335HP [TEGDA]</b>	Tetraethyleneglycol diacrylate	17831-71-9	UV diluent
<b>Viscoat 700HV [BisEAODA]</b>	Ethoxylated (3.8) Bisphenol A diacrylate	64401-02-1	UV coatings
<b>Viscoat 540</b>	Bisphenol A diglycidyl ether, Acrylic acid added	5384-24-7	UV bonding

POLYFUNCTIONAL

	Chemical name	CAS NO	Application
<b>Viscoat 802</b>	Tripentaerythritol acrylate + pentaerythritol acrylate	1802072-44-2	Hard coating, UV paintings, Photoresists, colored inks
<b>Viscoat 295 [TMPTA]</b>	Trimethylolpropane triacrylate	15625-89-5	UV hardcoating, Dry film photoresist, UV diluent
<b>Viscoat 300 [PETA]</b>	Reactant between pentaerythritol and acrylic acid.	3524-68-3	UV hardcoating, Raw materials of Urethane oligomer
<b>Viscoat 360 [TMPTEOA]</b>	Ethoxylatedtrimethylolpropane EO3.5mol Triacrylate	28961-43-5	Hardcoating

**LIQUID ACRYLIC POLYMERS [ACTFLOW]**

ACTFLOW is a non-solvent functional and reactive acrylic polymer of low-molecular weight that have come out of molecular weight control technology. Due to environmentally sound characteristics as a non-solvent liquid polymer and excellent normal-temperature fluidity, ACTFLOW® is recommended as a plasticizer replacement, modifying agent and additive agent. Following grades are recommended for certain application:

DISPERSE AGENT

High filling capabilities for pigments or other fillers

	Type	Monomer	Functional group	Amount	Tg [°c]	Solubility parameter	Mol. Weight	Viscosity [mpas,25°C]
<b>UMM-1001</b>	MONOFUNCTIONAL HYDOXY	MA	OH	OHV=94±1	-46	10.3	1.0X10 <sup>3</sup>	6500-9500
<b>UT-1001</b>	DIFUNCTIONAL HYDROXY	2EHA	OH	OHV=58 ±3	-80	10.2	3.5X10 <sup>3</sup>	2000-4000
<b>CB-3060</b>	MULTIFUNCTIONAL CARBOXYL	HEA	COOH	AV=60±1	-80	9.5	3.0X10 <sup>3</sup>	800-1200
<b>CB-3098</b>	MULTIFUNCTIONAL CARBOXYL	2EHA	COOH	AV=98±1	-71	9.6	3.0X10 <sup>3</sup>	15000-20000
<b>CBB-3098</b>	MULTIFUNCTIONAL CARBOXYL	BA	COOH	AV=98±1	-55	10.6	3.0X10 <sup>3</sup>	20000-30000

PLASTICIZERS

Replacement of DOD and DNP

ALKOXYSYLYL GROUP

ACTFLOW NE-1000 is a non-solvent functional and reactive acrylic polymer of low-molecular weight that have come out of molecular weight control technology. Due to environmentally sound characteristics as a non-solvent liquid polymer and excellent normal-temperature fluidity, ACTFLOW® is recommended as a plasticizer replacement, modifying agent and additive agent.

ACTFLOW NE-3000 & NE-4000 are a non-solvent functional and reactive acrylic polymer of low-molecular weight that have come out of molecular weight control technology. Due to environmentally sound characteristics as a non-solvent liquid polymer and excellent normal-temperature fluidity, ACTFLOW® is recommended as a plasticizer replacement, modifying agent and additive agent.

	Type	Monomer	Functional group	Amount	Mol. Weight	Viscosity [mpas, 25°C]	Non volatile content 105°C
<b>NE-1000</b>	Monofunctional Alkoxysilyl	BA	Si(OCH <sub>3</sub> ) <sub>3</sub>	trimethoxy silyl=7±1	3.0x10 <sup>3</sup>	1000-1500	>98%
<b>NE-3000</b>	Multifunctional Alkoxysilyl	MMA	Si(OCH <sub>3</sub> ) <sub>3</sub>	trimethoxy silyl=7±1	5.0x10 <sup>3</sup>	1500-2500	70%
<b>NE-4000</b>	Multifunctional Alkoxysilyl	2EHA	Si(OCH <sub>3</sub> ) <sub>3</sub>	trimethoxy silyl=7±1	20x10 <sup>3</sup>	60000-100000	>97%
<b>NE-4001</b>	Multifunctional Alkoxysilyl	2EHA	Si(OCH <sub>3</sub> ) <sub>3</sub>	trimethoxy silyl=7±1	20x10 <sup>3</sup>	25000-55000	>98%

#### COOH-GROUP [MODIFIER FOR EPOXY RESIN]

ACTFLOW CB-series is a non-solvent functional and reactive acrylic polymer of low-molecular weight that have come out of molecular weight control technology. Due to environmentally sound characteristics as a non-solvent liquid polymer and excellent normal-temperature fluidity, ACTFLOW® is recommended as a plasticizer replacement, modifying agent and additive agent.

	Type	Monomer	Func. Group	Amount	Tg [°C]	Solubility parameter	Mol. Weight	Viscosity [mpas, 25°C]	Non volatile content 105°C
<b>CB-3060</b>	Multifunctional Carboxyl	HEA	COOH	AV=60±1	-80	9.5	3.0x10 <sup>3</sup>	800-1200	>98%
<b>CB-3098</b>	Multifunctional Carboxyl	2EHA	COOH	AV=98±1	-71	9.6	3.0x10 <sup>3</sup>	15000-20000	>98%
<b>CBB-3098</b>	Multifunctional Carboxyl	BA	COOH	AV=98±1	-55	10.6	3.0x10 <sup>3</sup>	20000-30000	>98%

#### COOH-GROUP [RESIN FOR POLYMER ALLOY]

ACTFLOW UT-1001 & A-1 are a non-solvent functional and reactive acrylic polymer of low-molecular weight that have come out of molecular weight control technology. They are an efficient replacement for butadiene rubber

	Type	Monomer	Func. Group	Amount	Tg [°C]	Solubility parameter	Mol. Weight	Viscosity [mpas, 25°C]	Non volatile content 105
<b>CBB-3098</b>	Multifunctional Carboxyl	BA	COOH	AV=98±1	-55	10.6	3.0x10 <sup>3</sup>	20000-30000	>98%
<b>K-009</b>	Non functional	MMA			30		25x10 <sup>4</sup>	Solid	100%

### OH-GROUP [URETHANE RESIN]

ACTFLOW UT-1001 & A-1 are a non-solvent di- and multi-functional and reactive urethane resin of low-molecular weight that have come out of molecular weight control technology. They enhance light and heat resistance by crosslinking with isocyanates.

	Type	Monomer	Func. Group	Amount	Tg [°c]	Solubility parameter	Mol. Weight	Viscosity [mpas,25°c]
<b>UT-1001</b>	Difunctional Hydroxy	2EHA	OH	OHV=58 ±3	-80	10.2	3.5x10 <sup>3</sup>	2000-4000
<b>1-A</b>	Multifunctional Hydroxy	2EHA	OH	OHV=58 ±3	-60	9.2	19x10 <sup>3</sup>	1000-2000

### CH2-GROUP

ACTFLOW HGV and BGV are a non-solvent functional and reactive acrylic macromer of low-molecular weight that have come out of molecular weight control technology and is developed as a modifying agent for resins and additive agent for UV curing applications.

	TYPE	MONOMER	FUNCTIONALGROUP	AMOUNT	MOL. WEIGHT	VISCOSITY [MPAS,25°C]	NON VOLATILE CONTENT 105°C
<b>HGV-12</b>	Multifunctional Methacryloyl	2EHA	CH2=C(CH3)	methacryoyl=2	3.0x10 <sup>3</sup>	3000-7000	>95%
<b>HGV-20</b>	Multifunctional Methacryloyl	2EHA	CH2=C(CH3)	methacryoyl=3	3.0x10 <sup>3</sup>	5000-9000	>95%
<b>BGV-20</b>	Multifunctional Methacryloyl	BA	CH2=C(CH3)	methacryoyl=3	3.0x10 <sup>3</sup>	5000-9000	>95%



## MICROSPHERES

CHEMISNOW is the brand name for a range of functional spherical fine particles developed through its unique polymerization technology. With the use of these properties, acrylic fine particles can be used for light diffusing agent, matting agent, anti-blocking agent for films, finish appearance enhancement agent, fluidity adjusting agent, and other applications.

### CROSS-LINKED PMMA MONO-DISPERSING PARTICLES

Item	Av. Particle Size $\mu\text{m}$	Degree of Cross-linking
<b>MX-80H3wT</b>	0.8	High
<b>MX-150</b>	1.5	Standard
<b>MX-180TA</b>	1.8	Standard
<b>MX-300</b>	3.0	Standard
<b>MX-500</b>	5	Standard
<b>MX-500H</b>	5	High
<b>MX-1000</b>	10	Standard
<b>MX-1500H</b>	15	High
<b>MX-2000</b>	20	Standard
<b>MX-3000</b>	30	Standard

### CROSS-LINKED PMMA MIDDLE-DISPERSING PARTICLES

Item	Av. Particle Size $\mu\text{m}$	Degree of Cross-linking
<b>MZ-10HN</b>	10	Ultrahigh
<b>MZ-12H</b>	12	Ultrahigh
<b>MZ-16H</b>	16	Ultrahigh
<b>MZ-20HN</b>	20	Ultrahigh
<b>MZ-30</b>	30	Ultrahigh

### CROSS-LINKED PMMA WIDE-DISPERSING PARTICLES

Item	Av. Particle Size $\mu\text{m}$	Degree of Cross-linking
<b>MR-1HG</b>	1	High
<b>MR-2G</b>	1	Standard
<b>MR-5C</b>	6	None
<b>MR-7GC</b>	6	Standard

### CROSS-LINKED PMMA WIDE-DISPERSING HEAT RESISTANT PARTICLES

Item	Av. Particle Size $\mu\text{m}$	Degree of Cross-linking
<b>KMR-3TA</b>	3	Ultrahigh

### NON-CROSS-LINKED PMMA PARTICLES

Item	Av. Particle Size um	Electrostatic Propensity
MP-300	0.1	-
MP-1451	0.15	-
MP-2200	0.35	-
MP-1000	0.4	-
MP-2701	0.4	+
MP-5000	0.4	-
MP-5500	0.4	+

### CROSS-LINKED STYRENE MONO-DISPERSING PARTICLES

Item	Av. Particle Size um	Degree of Cross-linking
SX-130H	1.3	Standard
SX-350H	3.5	Standard
SX-500H	5	Standard

### CROSS-LINKED STYRENE MONO-DISPERSING PARTICLES

Item	Av. Particle Size um	Degree of Cross-linking
SGP-70C	20	Low
SGP-150C	55	Standard

### CROSS-LINKED STYRENE MONO-DISPERSING HEAT RESISTANT PARTICLES

Item	Av. Particle Size um	Degree of Cross-linking
KSR-3TA	3	Standard

### BELLPEARL SERIES

BellPearl Series are non-toxic, high performance phenolic resins with perfectly spherical shape. They are part of KOWA's Microsphere series which is characterized with high molecular weight and low cross-linking density.

S TYPE A hot melt self-curing type. Soluble in solvents. Used as binder resins for moldings. Also used as thermo-setting resin.

R TYPE Does not melt with heat. Cured type. Insoluble in solvents. Used as reactive organic filler to, for instance, improve thermal resistance of matrix.

C TYPE Amorphous carbon particulates obtained by carbonizing R-type Bellpearl. Used as filler to improve electric conductivity and frictional properties of matrix.



## **WATER-SOLUBLE POLYACRYLATES**

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JURYMER AT AND ET SERIES are the aqueous solutions of polyacrylic esters used as film-forming agents for eyeliners, eye shadows, mascara and water nail enamel, as well as pigment dispersants and binders. These products are self-emulsifying and include no surfactants or emulsifiers.

## **ACRYLIC RESIN POWDER**

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DIANAL LP acrylic resin powder for plastisols, does not contain halogen atoms, and no dehydrohalogenation occurs during baking. The alkyl methacrylate copolymer requires less heat than PVC plastisols.



# SPECIALTIES

## POLYETHELENE OXIDE

ALKOX High molecular weight (100,000 - 8,000,000) Polyethylene Glycol. Viscosity thickener for paints and pigment. Dispersing agents for fabrics, coatings and fluorescent lamps.

Grade	Mol. Weight [*1000]	Viscosity [mPas]	Conc. [%]
<b>R-150</b>	100-170	80-200	10
<b>R-400</b>	180-250	400-800	10
<b>R-1000</b>	250-300	2000-4000	10
<b>E-20</b>	300-400	20-40	2
<b>E-30</b>	400-500	40-100	2
<b>E-40</b>	500-600	100-200	2
<b>E-45</b>	650-800	300-600	2
<b>E-60</b>	1000-1200	2000-4000	2
<b>E-75</b>	2000-2500	40-70	0,5
<b>E-100</b>	2500-3000	90-105	0,5
<b>E-160</b>	3500-4000	150-170	0,5
<b>E-240</b>	4500-5000	200-250	0,5
<b>E-300</b>	6000-7000	300-350	0,5

## POLYISOCYANATE

**Duranate** is produced in standard, special-purpose, and function-specific versions for applications ranging from paints and coatings to adhesives, films, inks, resins, and other fields.

### STANDARD GRADE

Grade	Type	Solid Content [wt/%]	NCO Content [wt/%]	Viscosity [25°C, mPas]	Solvent	Special Properties
<b>22A 75X</b>	Biuret	75	16,5	210	PMA Xylene	Adhesion
<b>22A 100</b>	Biuret	100	22	10000		Adhesion
<b>24A 100</b>	Biuret	100	23,5	1800		High NCO High Adhesion Low viscosity
<b>TKA 90SB</b>	Isocyanurate	90	20	600	Solvent naphta n-Butyl acetate	High weatherability Resin compatibility
<b>TKA 100</b>	Isocyanurate	100	21,7	2600		High weatherability Resin compatibility
<b>TPA 100</b>	Isocyanurate	100	23,1	1400		High weatherability Resin compatibility

LOW VISCOCITY GRADE

Grade	Type	Solid Content [wt/%]	NCO Content [wt/%]	Viscosity [25°C, mPas]	Solvent	Special Properties
<b>TLA 100</b>	Isocyanurate	100	23,5	500		High NCO High weatherability Low viscosity
<b>TUL 100</b>	Isocyanurate	100	23	300		High NCO High weatherability Low viscosity

FAST DRYING GRADE

Grade	Solid Content [wt/%]	NCO Content [wt/%]	Viscosity [25°C, mPas]	Solvent	Special Properties
<b>MFA</b>	75	13,7	250	Xylene	High weatherability High cross-linking

BLOCKED GRADE

Grade	Solid Content [wt/%]	NCO Content [wt/%]	Viscosity [25°C, mPas]	Solvent	Special Properties
<b>MF K60X</b>	60	6,5 (blocked)	250	Xylene n-Butanol	Low temp. curing Storage stability
<b>SBN 70D</b>	70	10,1 (blocked)	3000	DPM	Low temp. curing Low coloration

HIGH-FLEXURE GRADE

Grade	Solid Content [wt/%]	NCO Content [wt/%]	Viscosity [25°C, mPas]	Solvent	Special Properties
<b>E402 80B</b>	80	7,3	350	Butyl acetate	Elasticity
<b>E402 100</b>	100	9	6000		Elasticity

## WATER-DISPERSIBLE GRADE

Grade	Solid Content [wt/%]	NCO Content [wt/%]	Viscosity [25°C, mPas]	Solvent	Special Properties
<b>X4412</b>	100	17,4	2600		Chemical resistance Mechanical properties
<b>X4402.01</b>	100	17,4	600		Easy incorporation low viscosity
<b>WL72 100</b>	100	21,2	600		High NCO Low viscosity

## POLYCARBONATE DIOL

DURANOL enhances durability, hydrolysis resistance and chemical resistance, and contributes to improved performance of polyurethane products. DURANOL offers a wide variety of applications such as paint, leather, elastomer, and adhesive as a raw material of high-function polyurethane resins.

GRADE	Appearance	Melting Point [°C]	Mol. Weight	OH value [mgKOH/g]	Viscosity [mPas]		
					25°C	50°C	75°C
<b>T5652</b>	viscous liquid	<-5	2000	51-61	60400	10000	3250
<b>T5651</b>	viscous liquid		1000	100-120	8160	1450	530
<b>T5658J</b>	viscous liquid		800	130-150	4400	860	200
<b>T5650E</b>	viscous liquid		500	200-250	1560	200	70
<b>G3452</b>	viscous liquid	<-5	2000	51-61	243000	31340	7870
<b>G3450J</b>	viscous liquid		800	130-150	19700	3340	890
<b>T6002</b>	white solid	40-50	2000	51-61	solid	8920	3070
<b>T6001</b>	white solid		1000	100-120	solid	1240	470
<b>G4672</b>	liquid-solid	5-15	2000	46-56	98000	18470	5670
<b>T4671</b>	liquid-solid		1000	100-120	13370	2230	760
<b>T4692</b>	white solid	50-60	2000	51-61	solid	20820	6070
<b>T4691</b>	white solid		1000	100-120	solid	2940	980

## 1,2 ALKANEDIOL

Chemical name	CAS NO	Description
<b>1,2 Butanediol</b>	584-03-2	Ink jet ink
<b>1,2 Hexanediol</b>	6920-22-5	Ink jet ink / cosmetic preservative
<b>1,2 Octanediol</b>	1117-86-8	Ink jet ink



## THIOCARBOXYLIC ACIDS & CHAIN TRANSFER AGENT

	Chemical name	CAS NO
<b>TDPA</b>	3,3' -Thiodipropionic Acid	111-17-1
<b>DTDPA</b>	Dithiodipropionic Acid	1119-62-6
<b>BMPA</b>	$\beta$ -Mercaptopropionic Acid	107-96-0
<b>EHMP</b>	2-Ethylhexyl 3-Mercaptopropionate	50448-95-8
<b>PEMP</b>	Pentaerithritol tetrakis (3-mercaptopropionate)	7575-23-7
<b>DPMP</b>	[Dipentaerythritol-hexakis-(3-mercaptopropionate)]	25359-71-1
<b>TMMP</b>	[Trimethylolpropane-tris-(3-mercaptopropionate)]	33007-83-9
<b>M3MP</b>	Methyl-3-methoxypropionate	3852-09-3
<b>NONP</b>	n-Octyl 3-mercaptopropionate	71849-93-9
<b>STMP</b>	Stearyl 3-mercaptopropionate	31778-15-1
<b>TEMPIC</b>	Tris[2-(3-mercaptopropionyloxy)ethyl]Isocyanurate	36196-44-8

### CHAIN TRANSFER AGENT

	Chemical name	CAS NO
<b>AMSD</b>	$\alpha$ Methyl Styrene Dimer	6362-80-7

### HYDRAZIDES

Product name	Chemical Name	CAS NO	Description
<b>ADH</b>	Adipic Acid di-hydrazide	1071-93-8	Cross linking, curing agent
<b>CDH</b>	Carbodihydrazide	497-18-7	Cross linking, curing agent
<b>SUDH</b>	Succinic acid di-hydrazide	4146-43-4	Cross linking, curing agent
<b>IDH</b>	Isophthalic acid di-hydrazide	2760-98-7	Cross linking, curing agent. Insoluble in water
<b>SDH</b>	Sebacic acid di-hydrazide	925-83-7	Cross linking, curing agent. Insoluble in water
<b>GDH</b>	Glutamic acid di-hydrazide	1508-67-4	Cross linking, curing agent
<b>MDH</b>	Malonic acid di-hydrazide	3815-86-9	Cross linking, curing agent
<b>N-12</b>	1,12-Dodecanedicarboxylic acid di-hydrazide	4080-98-2	Cross linking, curing agent. Insoluble in water
<b>TBZ-HCL</b>	tert-Butylhydrazine hydrochloride	7400-27-3	



## ALLYL COMPOUNDS

	Chemical name	CAS NO
<b>AGE</b>	Allyl Glycidyl Ether	106-92-3
<b>Neoallyl T-20</b>	Trimethylolpropane Diallyl Ether	682-09-7
<b>Neoallyl P-30</b>	Pentaerythritol Triallyl Ether	1471-17-6 2590-16-1 1471-18-7
<b>Neoallyl E-10</b>	Glycerol Monoallyl Ether	123-34-2
<b>DAP Monomer</b>	Diallyl Phthalate Monomer	131-17-9
<b>DAP Prepolymer</b>	Diallyl Phthalate Prepolymer	25053-15-0
<b>DAP 100 monomer</b>	Diallyl Isophthalate	1087-21-4
<b>ISO DAP</b>	Diallyl isophthalate prepolymer	25035-78-3
<b>DADMAC</b>	Diallyl Dimethyl Ammonium Chloride	7398-69-8
	Allyl Chloride	107-05-1
	Allyl Alcohol	
<b>AG</b>	Allyl Glycol	111-45-5
<b>AA</b>	Allyl Acrylate	999-55-3
<b>AMA</b>	Allyl Methacrylate	96-05-9
<b>SAS</b>	Sodium Allyl Sulfonate	2495-39-8

## VINYL ETHERS

	Chemical name	CAS NO
<b>HEVE</b>	2-Hydroxy Ethyl Vinyl Ether	764-48-7
<b>HBVE</b>	4-Hydroxy Butyl Vinyl Ether	17832-28-9
<b>DEGV</b>	Diethyleneglycol Mono Vinyl Ether	929-37-3
<b>NPVE</b>	n-Propyl Vinyl Ether	764-47-6
<b>IPVE</b>	Iso-Propyl Vinyl Ether	926-65-8
<b>NBVE</b>	n-Butyl Vinyl ether	111-34-2
<b>IBVE</b>	Isobutyl Vinyl Ether	109-53-5
<b>EHVE</b>	2-Ethylhexyl Vinyl Ether	103-44-6
<b>CHVE</b>	Cyclohexyl Vinyl Ether	2182-55-0
<b>CHMVE</b>	1,4-Cyclohexanedimethanol Monovinyl Ether	114651-37-5
<b>BDVE</b>	1,4-Butanediol Divinyl Ether	3891-33-6
<b>CHDVE</b>	1,4-Cyclohexanedimethanol Divinyl Ether	17351-75-6
<b>TEGVE</b>	Triethyleneglycol Divinyl Ether	765-12-8

## GLYCOL ETHERS

	Chemical name	CAS NO
<b>AGE</b>	Allyl Glycidylether	106-92-3
<b>BGE</b>	Butyl Glycidylether	2426-08-6
<b>EHGE</b>	2-Ethylhexyl Glycidylether	2461-15-6
<b>HDGE</b>	1,6 Hexandiol Diglycidylether	16096-31-4
<b>SGE</b>	Stearyl Glycidylether	16245-97-7
<b>CGE</b>	Cetyl Glycidylether	15965-99-8
<b>PGE</b>	Phenyl Glycidylether	
	Cresyl glycidylether	
<b>NPGE</b>	Neopentyl Glycol Diglycidylether	
<b>TMPGE</b>	Trimethylol propane polyglycidyl ether	
<b>PGGE</b>	Polypropylene glycol Diglycidyl ether	
<b>EGGE</b>	Polyethyleneglycol diglycidyl ether	
<b>GGE</b>	Glycerol polyglycidyl ether	

## ACRYLAMIDE & DEVIVATES

	Chemical name	CAS NO
	Acrylamide	79-06-1
<b>MBAA</b>	N,N-Methylenebis Acrylamide	110-26-9
<b>NMAA</b>	N-Methylol Acrylamide	924-42-5
<b>MMAA</b>	N-Methoxymethyl Acrylamide	3644-11-9
<b>EMAA</b>	N-Ethoxymethyl Acrylamide	13036-41-4
<b>NBMA</b>	N-Butoxymethyl Acrylamide	1852-16-0
<b>IBMA</b>	N-isoButoxymethyl Acrylamide	16669-59-3
<b>TBAA</b>	N-t-Butyl Acrylamide	107-58-4
<b>DMAA</b>	N,N Dimethyl Acrylamide	2680-03-7
<b>DAAM</b>	Diaceton Acrylamide	2873-97-4

## METHACRYLAMIDE & DEVIVATES

	Chemical name	CAS NO
	Methacrylamide	79-39-0
<b>NMMA</b>	N-Methylol Methacrylamide	923-02-4
<b>NMMM</b>	N-Methoxymethyl Methacrylamide	3644-12-0
<b>NBMM</b>	N-Butoxymethyl Methacrylamide	5153-77-5
<b>IBMM</b>	Iso-Butoxymethyl Methacrylamide	4548-27-0

## CATIONIC AGENT

	Chemical name	CAS NO
<b>GTA80</b>	Glycidyltrimethylammonium Chloride	
<b>DADMAC</b>	Diallyldimethylammonium Chloride	
<b>DMAMC</b>	2-(Acryloyloxy) ethyltrimethylammonium Chloride	44992-01-0

## PHOSPHATES

Chemical name	CAS NO
Ethyl Acid Phosphate	598-02-7
Methyl Acid Phosphate	12789-45-6
Isopropyl Acid Phosphate	52933-00-3
Butyl Acid Phosphate	107-66-4
Dibutyl Pyrophosphate	28901-77-1
Butoxyethyl acid phosphate	39454-62-1
2-Ethyl Hexyl Acid Phosphate	12645-31-7
Isodecyl Acid Phosphate	56572-86-2
Lauryl Acid Phosphate	12751-23-4
Tridecyl Acid Phosphate	77031-08-4
Stearyl Acid Phosphate	39471-52-8
Oleyl Acid Phosphate	37310-83-1
Di-2-ethylhexyl acid phosphate	298-07-7
Tetracosyl acid Phosphate	100683-84-9/100683-85-0
Ethyleneglycol acid phosphate	52012-13-2
2-Hydroxyethylmethacrylate acid phosphate	52628-03-2
Tris-Acryloyloxyethyl Phosphate	35057-49-9

## SOLVENTS

Chemical name	CAS NO
4-chlorobenzo trifluoride	98-56-6
Benzotrifluoride	98-08-8
Dimethyl carbonate	616-38-6
methyl propylene tri glycol	25498-49-1

## SULFONATE

	Chemical name	CAS NO	Description
<b>SMAS</b>	Sodium Methallyl Sulfonate	1561-92-8	Reactive co-monomer for acrylic fiber, reforming monomer for various polymers
<b>SVS</b>	Sodium Vinyl Sulfonate (aqueous solution)	3039-83-6	25% aqueous solution
<b>SAS</b>	Sodium Allyl Sulfonate	2495-39-8	
<b>ATBS</b>	Acrylamido Tertiary Butyl Sulfonic Acid (2-Acrylamido-2-Methyl Propane Sulfonic Acid)	15214-89-8	
<b>ATBS Sodium salt</b>	Sodium 2-acrylamide-2-methyl-1-propane sulfonate	5165-97-9	mixture with Water

A laboratory setting with a pipette dispensing liquid into test tubes containing various colored liquids. The background is a solid blue color. The text "OTHERS & COMMODITIES" is centered in a white box.

## OTHERS & COMMODITIES

## ACTIVATED CARBON

**Philippine-Japan Active Carbon Corp. (PJAC)**, established in 1972 and 100% owned by Kowa Company, is a leading manufacturer of granular coconut shell based steam-activated carbon.

- Available from mesh size
- High adsorption capacity, high hardness and low ash content.
- Consistent quality from batch to batch
- pH 6-8 grades produced by acid wash process
- Custom-made products
- PJAC plant certifications include ISO 9001, NSF 42 and NSF 61.

### ACID WASCHED ACTIVATED CARBON

Grade name	Mesh	Iodine Adsorption
PJA2050F-1100	20 x 50	1100 mg/g Min
PJA3070F-1100	30 x 70	1100 mg/g Min
PJA3580F-1100	35 x 80	1100 mg/g Min

### GAS SERIES

PJAC G-Series is characterized by high adsorption capacity, high hardness characteristics and low pressure drop. It is excellent in applications, such as catalyst support, solvent recovery, air purification and adsorption of various kinds of gases.

### WATER SERIES GW

Grade name	Mesh	Iodine Adsorption
PJ820W	8 x 20	1000 Min or 1100 Min
PJ830W	8 x 30	1000 Min or 1100 Min
PJ1230W	12 x 30	1000 Min or 1100 Min
PJ1240W	12 x 40	1000 Min or 1100 Min

## ANTI-MICROBIAL AGENT

Zeomic is the world's first silver-base inorganic antimicrobial agent commercialized by Sinanen Zeomic in 1984. Compared to organic antimicrobial agents, Zeomic boasts excellent safety, sustainability and heat resistance

Physical Properties	
<b>Appearance</b>	White fine powder, odorless
<b>Absolute specific gravity</b>	2.1( - )
<b>Bulk specific gravity</b>	0.4 - 0.8(g/cm <sup>3</sup> )
<b>Heat resistance</b>	800(°C)
<b>Acid resistance</b>	pH3
<b>Alkali resistance</b>	pH13
<b>Mean diameter</b>	2 - 3µm (general grade)
<b>pH (1wt% water)</b>	8.0±1.0 (*insoluble in water)

## EMERGING MARKET PRODUCTS

Next to Europe, US and Japan, Kowa has subsidiaries in the emerging markets with offices in Beijing, Shanghai, and Mumbai, where we actively manage suppliers, carefully enlarge our portfolio and manage the entire supply chain and commercial transaction. Currently our REACH-registered products are as follows.

	Chemical Name	CAS NO
<b>SPAN80</b>	Sorbitane Monooleate	1338-43-8
<b>SPAN85</b>	Sorbitane Trioleate	26266-58-0
<b>DC12</b>	1,12-Dodecanedioic Acid	693-23-2
<b>DC12 refined</b>	Dodecanedioic Acid (refined)	693-23-2
	1,12-Dodecanediol	5675-51-4
<b>DC11</b>	Undecanedioic Acid	1852-04-6
<b>DBE</b>	Dibasic Ester	106-65-0
<b>1,6-HDO</b>	1,6-Hexanediol	629-11-8
<b>1,5-HPO</b>	1,5-Pentanediol	111-29-5
<b>DOA</b>	Dioctyl Adipate	103-23-1
<b>DE</b>	Diiethylene Glycol Monoethylether 99%	111-90-0
	Zirconium Oxychloride	7699-43-6
	Zirconium Carbonate	57219-64-4
	Sebacic Acid	111-20-6



REMARKS

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