



# The Solution in Energy Curing

## Energy Curing Products

			CHEMICAL				
Product Name	Description	Cas No.	Functionality	MW	Color (APHA)	AV (mg KOH/g)	Viscosity (cps @ 25°C)

## MONOFUNCTIONAL ACRYLATE

Miramer M100	CA	Caprolactone Acrylate	110489-05-9	1	344	100 max	1.5 max	67 - 82
Miramer M1080	ODA	Octyldecyl acrylate	2499-59-4 2156-96-9	1	203	50 max	0.2 max	1 - 10
Miramer M1084	IOA	Isooctyl acrylate	29590-42-9	1	184	50 max	0.2 max	1 - 10
Miramer M1110	CTFA	Cyclic trimethylolpropane formal acrylate	66492-51-1	1	200	100 max	0.3 max	10 - 20
Miramer M1122	PBA	Phenoxy benzyl acrylate	409325-06-0	1	254	100 max	0.2 max	12 - 20
Miramer M1130	TMCHA	Trimethyl cyclohexyl acrylate	86178-38-3	1	196	150 max	0.3 max	1 - 10
Miramer M1140	IBOA	Isobornyl acrylate	5888-33-5	1	208	100 max	2.0 max	15 max
Miramer M1142	OPPEA	o-phenylphenol EO Acrylate	72009-86-0	1	268	100 max	0.3 max	110 - 160
Miramer M1162	PTEA	2-(Phenylthio)ethyl acrylate	95175-38-5	1	208	100 max	0.3 max	5-15
Miramer M1182	BZA	Benzyl Acrylate	2495-35-4	1	162	100 max	0.2 max	1 - 10
Miramer M120	LA-C12,13	Lauryl Acrylate	2156-97-0 3076-04-8	1	240 254	100 max	0.5 max	5 - 15
Miramer M1220	C22A	Behenyl acrylate	18299-85-9	1	380	100 max (60°C)	0.3 max	solid
Miramer M130	IDA	Isodecyl Acrylate	1330-61-6	1	212	150 max	0.2 max	1 - 10
Miramer M140	PHEA	Phenol(EO) Acrylate	48145-04-6	1	192	100 max	0.3 max	8 - 20
Miramer M142	PHEA-2	Phenol(EO)2 Acrylate	56641-05-5	1	236	150 max	0.2 max	20 - 30
Miramer M144	PHEA-4	Phenol(EO)4 Acrylate	56641-05-5	1	324	200 max	0.5 max	20 - 50
Miramer M150	THFA	Tetrahydrofurfuryl Acrylate	2399-48-6	1	156	100 max	0.2max	2 - 10
Miramer M164	NP(EO)4A	Nonyl phenol(EO)4 Acrylate	50974-47-5	1	450	150 max	0.5 max	70 - 130
Miramer M166	NP(EO)8A	Nonyl phenol(EO)8 Acrylate	50974-47-5	1	626	100 max	0.3 max	120 - 180
Miramer M1602	NP(PO)2A	Nonyl phenol(PO)2 Acrylate	71926-19-7	1	390	150 max	0.2 max	100 - 150
Miramer M170	EOEOEA	Ethoxy ethoxy ethyl Acrylate	7328-17-8	1	188	150 max	0.3 max	3 - 10
Miramer M180	SA	Stearyl Acrylate	4813-57-4	1	324	150 max	0.3 max	solid

## DIFUNCTIONAL ACRYLATE

Miramer M200	HDDA	1,6-Hexanediol Diacrylate	13048-33-4	2	226	30 max	0.2 max	5 - 15
Miramer M202	HD(EO)nDA	1,6-Hexanediol (EO)n Diacrylate	84170-27-4	2	314	50 max	0.2 max	10 - 30
Miramer M204	BDDA	Butanediol Diacrylate	1070-70-8	2	198	200 max	0.3 max	5 - 20
Miramer M210	HPNDA	Hydroxyl pivalic acid neopentyl glycol Diacrylate	30145-51-8	2	312	100 max	0.3 max	15 - 30
Miramer M216	NPG(PO)2DA	Neopentylglycol(PO)2 Diacrylate	84170-74-1	2	328	100 max	0.2 max	10 - 30
Miramer M220	TPGDA	Tripropylene glycol Diacrylate	42978-66-5	2	300	50 max	0.2 max	15 - 20
Miramer M222	DPGDA	Dipropylene glycol Diacrylate	57472-68-1	2	242	50 max	0.2 max	5 - 30
Miramer M232	TEGDA	Tri ethylene glycol Diacrylate	1680-21-3	2	258	100 max	0.2 max	10 - 20
Miramer M240	BPA(EO)4DA	Bisphenol A (EO)4 Diacrylate	64401-02-1	2	512	100 max	0.2 max	900 - 1,300
Miramer M244	BPA(EO)3DA	Bisphenol A (EO)3 Diacrylate	64401-02-1	2	468	100 max	0.5 max	1,000 - 2,000
Miramer M2100	BPA(EO)10DA	Bisphenol A (EO)10 Diacrylate	64401-02-1	2	776	100 max	0.1 max	600 - 700
Miramer M2200	BPA(EO)20DA	Bisphenol A (EO)20 Diacrylate	64401-02-1	2	1216	100 max	0.3 max	600 - 750
Miramer M2300	BPA(EO)30DA	Bisphenol A (EO)30 Diacrylate	64401-02-1	2	1656	200 max	0.2 max	700 - 1000
Miramer M262	TCDDA	Tricyclodecane dimethanol Diacrylate	42594-17-2	2	304	200 max	1.0 max	120 - 150
Miramer M270	TTEGDA	Tetraethylene glycol Diacrylate	17831-71-9	2	302	100 max	0.3 max	5 - 30

PROPERTIES			REGISTRATION				KEY FEATURES
Refractive Index (nD25)	Surface Tension (dyne/cm)	Tg (°C)	USA (TSCA)	Europe (EINECS)	Japan (MITI)	China (IECSC)	
1.464	-	-40	o	o	o	o	OH functional, low odor, flexible and low Tg
1.437	-	-56	o	o	o	o	High flexibility, low shrinkage, low viscosity
1.434	27.0	-58	o	o	o	o	Good adhesion, High flexibility, low shrinkage, low viscosity
1.462	36.2	14	o	o	X	o	Good toughness, Good abrasion resistance, Low shrinkage
1.565	-	-	o	X	X	X	High RI, Low shrinkage, Good adhesion, Low volatility
1.453	26.3	43	o	o	X	o	Good adhesion, Low shrinkage, Low viscosity, High flexibility, Good plastic wetting, Low surface tension
1.474	30.6	72	o	o	o	o	Good adhesion, Good heat/chemical resistance, Good hardness, Good weatherability, Low shrinkage
1.577	42.0	33	o	o	o	o	High RI, low shrinkage, Good adhesion, Low volatility
1.558	40.0	-31	o	X	X	X	High RI, Low shrinkage, Good adhesion, Low viscosity
1.516	36.7	11	o	o	o	o	High RI, Low shrinkage, Good adhesion, Low viscosity
1.443	28.8	-26	o	o	o	o	Hydrophobic, flexibility, low volatility, low shrinkage
solid	-	-	o	o	o	o	Excellent flexibility, Low shrinkage, Good water resistance
1.440	28.2	-60	o	o	o	o	Hydrophobic, flexibility, low Tg, low surface tension
1.517	40.1	7	o	o	o	o	Low volatility, Low shrinkage, Good adhesion
1.508	-	-45	o	o	o	o	Low volatility, good adhesion, low shrinkage
1.500	-	-32	o	o	o	o	Low volatility, good adhesion, low shrinkage
1.456	35.9	-15	o	o	o	o	Low viscosity, good adhesion, weatherability
1.495	34.3	-28	o	o	o	o	Low skin irritation, low shrinkage, good flexibility
1.489	34.9	-45	o	o	o	o	Low skin irritation, low shrinkage, good flexibility
1.491	32.1	-20	o	X	o	o	Low odor, low volatility
1.436	29.7	-56	o	o	o	o	High flexibility, low shrinkage, good adhesion and cutting power
1.448	-	46	o	o	o	o	Hydrophobic, flexibility, low volatility, low shrinkage
1.455	35.9	43	o	o	o	o	Low volatility, low viscosity, excellent cutting power
1.460	37.8	-8	o	X	o	o	Good cutting power, low skin irritation
1.454	35.0	45	o	o	o	o	Low volatility, low viscosity, good cutting power
1.452	33.2	111	o	o	o	o	Low viscosity, good hardness, adhesion and weatherability
1.447	30.6	32	o	o	o	o	Low viscosity, good flexibility, low skin irritation
1.449	33.3	62	o	o	o	o	Low volatility, low viscosity, good cutting power
1.449	33.5	102	o	o	o	o	Low volatility, good cutting power, high Tg
1.462	38.4	46	o	o	o	o	Low volatility, hydrophilic
1.537	42.1	42	o	o	o	o	Low volatility, good hydrophobic and hydrophilic balance, good heat resistance
1.545	43.6	67	o	o	o	o	Low volatility, good chemical resistance, high RI
1.516	44.0	-7	o	o	o	o	Low odor, low volatility, low skin irritation
1.499	37.6	-37	o	o	o	o	Low odor, low volatility, low skin irritation
1.493	-	-57	o	o	o	o	Low odor, low volatility, low skin irritation
1.503	38.0	110	o	o	o	o	Good adhesion, good flexibility and toughness, low shrinkage
1.464	-	13	o	o	o	o	Soluble in alkalis, good adhesion on plastics, flexibility

# I Monomer

			CHEMICAL				
Product Name	Description	Cas No.	Functionality	MW	Color (APHA)	AV (mg KOH/g)	Viscosity (cps @ 25°C)

## DIFUNCTIONAL ACRYLATE

Miramer M280	PEG400DA	Polyethylene glycol 400 Diacrylate	26570-48-9	2	508	50 max	0.3 max	45 - 65
Miramer M282	PEG200DA	Polyethylene glycol 200 Diacrylate	26570-48-9	2	308	150 max	0.5 max	15 - 35
Miramer M284	PEG300DA	Polyethylene glycol 300 Diacrylate	26570-48-9	2	408	100 max	0.2 max	20 - 50
Miramer M286	PEG600DA	Polyethylene glycol 600 Diacrylate	26570-48-9	2	708	150 max	0.5 max	80 - 120
<b>NEW</b> Miramer M290	BPF(E0)4DA	Bisphenol F (EO)4 Diacrylate	120750-67-6	2	499	80 max	0.3 max	500-700
Miramer M2040	PPG400DA	Polypropylene glycol 400 Diacrylate	52496-08-9	2	508	150 max	0.2 max	30 - 50
Miramer M2070	PPG750DA	Polypropylene glycol 750 Diacrylate	52496-08-9	2	858	150 max	0.5 max	60 - 100
Miramer M2370	THEICDA	Tris(2-hydroxy Ethyl)isocyanurate Diacrylate	87605-70-7 40220-08-4	2	370 423	100 max	1.0 max	30,000~70,000

## TRIFUNCTIONAL ACRYLATE

Miramer M300	TMPTA	Trimethylolpropane Triacrylate	15625-89-5	3	296	50 max	0.2 max	80 - 120
Miramer M3130	TMP(E0)3TA	Trimethylolpropane(E0)3 Triacrylate	28961-43-5	3	428	50 max	0.2 max	50 - 70
Miramer M3160	TMP(E0)6TA	Trimethylolpropane(E0)6 Triacrylate	28961-43-5	3	560	80 max	0.2 max	60 - 100
Miramer M3190	TMP(E0)9TA	Trimethylolpropane(E0)9 Triacrylate	28961-43-5	3	693	200 max	0.3 max	85 - 140
Miramer M3150	TMP(E0)15TA	Trimethylolpropane(E0)15 Triacrylate	28961-43-5	3	956	100 max	0.3 max	100 - 200
Miramer M320	GPTA	Glycerine (PO)3 Triacrylate	52408-84-1	3	428	50 max	0.2 max	80 - 120
Miramer M340	PETA	Pentaerythritol Triacrylate	3524-68-3	3	298	120 max	2.0 max	1,000 - 1,800
Miramer M360	TMP(PO)3TA	Trimethylolpropane(PO)3 Triacrylate	53879-54-2	3	470	150 max	0.3 max	70 - 100
Miramer M370	THEICTA	Tris(2-hydroxy Ethyl)isocyanurate Triacrylate	40220-08-4	3	423	100 max	0.3 max	solid
Miramer M3730	THEICTA / M300 70%		40220-08-4	3	423	100 max	0.3 max	200 - 500

## MULTIFUNCTIONAL ACRYLATE

Miramer M4004	PE(E0)nTTA	Pentaerythritol (EO)n Tetraacrylate	51728-26-8	4	571	100 max	0.2 max	120 - 200
Miramer M410	DTMPPTA	Ditrimethylolpropane Tetraacrylate	94108-97-1	4	466	200 max	0.2 max	450 - 750
Miramer M420	PETTA	Pentaerythritol Tetraacrylate	4986-89-4	4	352	150 max	0.2 max	solid
Miramer M500	DPPA	Dipentaerythritol Pentaacrylate	60506-81-2	5	524	100 max	1.0 max	5,500 - 7,000
Miramer M600	DPHA	Dipentaerythritol Hexaacrylate	29570-58-9	6	578	120 max	0.2 max	4,000 - 7,000

PROPERTIES			REGISTRATION				KEY FEATURES
Refractive Index (nD25)	Surface Tension (dyne/cm)	Tg (°C)	USA (TSCA)	Europe (EINECS)	Japan (MITI)	China (IECSC)	
1.467	42.6	-25	○	○	○	○	Water solubility, high flexibility, low shrinkage, low skin irritation
1.463	40.1	14	○	○	○	○	Low odor, good flexibility
1.465	41.6	-13	○	○	○	○	Water solubility, high flexibility, low shrinkage
1.469	42.3	-41	○	○	○	○	Water solubility, high flexibility, low shrinkage
1.539	15.1		X	X	○	○	High R.I, Low Viscosity, Good Adhesion, Low shrinkage
1.450	-	-25	X	○	○	○	Low skin irritation, low shrinkage, good flexibility
1.450	-	-48	X	○	○	○	Low skin irritation, low shrinkage, good flexibility
-	-	131	○	○	○	○	Good adhesion and abrasion resistance
1.473	36.6	62	○	○	○	○	Fast cure speed, good chemical resistance, low volatility
1.469	38.1	40	○	○	○	○	Low viscosity, High reactivity, Good chemical resistance
1.470	39.6	-8	○	○	○	○	Low skin irritation, low shrinkage, good flexibility
1.470	40.2	-3	○	○	○	○	Low skin irritation, low shrinkage, good flexibility
1.471	42.0	-31	○	○	○	○	Water solubility, low skin irritation, low shrinkage
1.463	36.0	35	○	○	○	○	Good pigment wetting and hardness, fast surface cure speed
1.487	40.6	42	○	○	○	○	Good reactivity and hardness with pendant OH groups
1.461	34.0	27	○	○	○	○	High reactivity, good flexibility
1.508	-	272	○	○	○	○	High reactivity, Good scratch resistance, Good adhesion
1.482	-	62	○	○	○	○	Good adhesion, abrasion resistance, and chemical resistance
1.475	40.9	36	○	○	○	○	High reactivity, low skin irritation
1.476	36.0	42	○	○	○	○	Excellent reactivity, Good hardness, Low irritation
1.484	39.0	65	○	○	○	○	Excellent hardness, Excellent scratch resistance, Fast curing
1.490	-	68	○	○	○	○	Excellent surface hardness, Excellent scratch hardness
1.488	43.0	54	○	○	○	○	Excellent surface hardness, Excellent scratch hardness

# I Monomer

Product Name	Description	Cas No.	CHEMICAL				
			Functionality	MW	Color (APHA)	AV (mg KOH/g)	Viscosity (cps @ 25°C)

## MONOFUNCTIONAL METHACRYLATE

Miramer M1183	BZMA	<i>Benzyl Methacrylate</i>	2495-37-6	1	176	100 max	3.0 max	1 - 10
Miramer M121	LMA-C12,13	<i>Lauryl/Tridecyl Methacrylate</i>	142-90-5	1	254 268	50 max	0.2 max	5 - 15
Miramer M123	LMA-C12	<i>Lauryl Methacrylate</i>	142-90-5	1	254	100 max	0.2 max	2 - 10
Miramer M1241	LMA-C12,C14	<i>Lauryl/Tetradecyl Methacrylate</i>	142-90-5, 2549-53-3	1	254 282	50 max	0.2 max	5 - 15
Miramer M131	IDMA	<i>Isodecyl Methacrylate</i>	29964-84-9	1	226	100 max	0.2max	2 - 10
Miramer M1401	C14MA	<i>Tetradecyl Methacrylate</i>	2549-53-3	1	282	100 max	0.3 max	2 - 10
Miramer M141	PHEMA	<i>Phenoxy Methacrylate</i>	10595-06-9	1	206	100 max	0.2max	1 - 10
Miramer M151	THFMA	<i>Tetrahydrofurfuryl Methacrylate</i>	2455-24-5	1	170	150 max	0.2max	2 - 10
Miramer M161	C16MA	<i>Cetyl(C16) Methacrylate</i>	2495-27-4	1	310	100 max	0.2max	3 - 15
Miramer M181	SMA	<i>Stearyl Methacrylate</i>	32360-05-7	1	338	80 max	0.2 max	solid
Miramer M191	MPEG500MA	<i>Methoxy PEG500 Methacrylate</i>	26915-72-0	1	568	100 max	0.3 max	20 - 50
Miramer M193	MPEG600MA	<i>Methoxy PEG600 Methacrylate</i>	26915-72-0	1	668	100 max	0.3 max	40 - 100
Miramer M197	Methoxy PEG350 Methacrylate (MPEG350MA)		26915-72-0	1	418	100 max	0.3 max	10 ~ 30

## DIFUNCTIONAL METHACRYLATE

Miramer M201	HDDMA	<i>1,6-Hexanediol Dimethacrylate</i>	6606-59-3	2	254	100 max	0.2 max	1 - 10
Miramer M205	BDDMA	<i>1,4-Butanediol Dimethacrylate</i>	2082-81-7	2	226	100 max	0.2 max	2 - 8
Miramer M213	NPGDMA	<i>Neopentyl glycol Dimethacrylate</i>	1985-51-9	2	240	50 max	0.3 max	3 - 15
Miramer M221	EGDMA	<i>Ethylene glycol Dimethacrylate</i>	97-90-5	2	198	50 max	2.0 max	5 - 10
Miramer M231	DEGDMA	<i>Diethylene glycol Dimethacrylate</i>	2358-84-1	2	242	150 max	0.5 max	5 - 20
Miramer M233	TREGDMA	<i>Triethylene glycol Dimethacrylate</i>	109-16-0	2	286	150 max	0.3 max	5 - 30
Miramer M235	T4EGDMA	<i>Tetraethylene glycol Dimethacrylate</i>	109-17-1	2	330	80 max	0.4 max	8 - 15

PROPERTIES			REGISTRATION				KEY FEATURES
Refractive Index (nD25)	Surface Tension (dyne/cm)	Tg (°C)	USA (TSCA)	Europe (EINECS)	Japan (MITI)	China (IECSC)	

1.512	34.8	53	○	○	○	○	High RI, Good adhesion, Low viscosity
1.444	29.0	-60	○	○	○	○	Excellent flexibility, Good weatherability
1.444	29.0	-60	○	○	○	○	Excellent flexibility, Good weatherability
1.442	29.0	-60	○	○	○	○	Excellent flexibility, Good weatherability
1.443	26.0	-41	○	○	○	○	Good flexibility, Good weatherability
1.440	29.0	-9	○	○	○	○	Good adhesion
1.510	37.0	47	○	○	○	○	Good adhesion, Good flexibility
1.457	29.1	47	○	○	○	○	Excellent adhesion, Good chemical resistance
1.444	30.0	17	○	○	○	○	Good flexibility, Good weatherability
1.450	-	38	○	○	○	○	High flexibility, Good water resistance
1.461	-	-60	○	○	○	○	Good water solubility, Excellent wetting
1.461	-	-60	○	○	○	○	Good pigment wetting, water solubility, fast cure speed
1.456	37.0	-60	○	○	○	○	Good pigment wetting, water solubility, fast cure speed

1.456	33.4	55	○	○	○	○	Low volatility, good cutting power
1.456	32.3	55	○	○	○	○	Low volatility, good cutting power
1.451	31.3	56	○	○	○	○	High reactivity, good chemical resistance
1.453	33.1	54	○	○	○	○	High boiling point, low viscosity
1.457	34.2	58	○	○	○	○	Low viscosity, low volatility
1.459	35.0	53	○	○	○	○	Low viscosity, low volatility
1.461	35.9	53	○	○	○	○	Low viscosity, low volatility, fast cure speed

# I Monomer

			CHEMICAL				
Product Name	Description	Cas No.	Functionality	MW	Color (APHA)	AV (mg KOH/g)	Viscosity (cps @ 25°C)

## DIFUNCTIONAL METHACRYLATE

Miramer M241	BPA(EO)4DMA	<i>Bisphenol A (EO)4 Dimethacrylate</i>	41637-38-1	2	540	100 max	0.1 max	500 - 900
Miramer M245	BPA(EO)3DMA	<i>Bisphenol A (EO)3 Dimethacrylate</i>	41637-38-1	2	496	80 max	0.3 max	700 - 1200
Miramer M249	BPA(EO)2DMA	<i>Bisphenol A (EO)2 Dimethacrylate</i>	24448-20-2	2	452	100 max	0.5 max	1,000 - 1,400
Miramer M2101	BPA(EO)10DMA	<i>Bisphenol A (EO)10 Dimethacrylate</i>	41637-38-1	2	804	100 max	0.2 max	300 - 500
Miramer M2171	BPA(EO)17DMA	<i>Bisphenol A (EO)17 Dimethacrylate</i>	41637-38-1	2	1112	100 max	0.1 max	450 - 550
Miramer M2301	BPA(EO)30DMA	<i>Bisphenol A (EO)30 Dimethacrylate</i>	41637-38-1	2	1684	100 max	0.2 max	500 - 700
Miramer M251	BGDMA	<i>1,3-Butylene glycol Dimethacrylate</i>	1189-08-8	2	226	60 max	0.2 max	5 - 10
Miramer M281	PEG400DMA	<i>Polyethylene glycol 400 Dimethacrylate</i>	25852-47-5	2	598	100 max	0.2 max	30 - 50
Miramer M283	PEG200DMA	<i>Polyethylene glycol 200 Dimethacrylate</i>	25852-47-5	2	336	80 max	0.2 max	10 - 20
Miramer M2053	PPG700 (EO)6 DMA		122985-55-1	2	1114	100 max	0.3 max	80 - 120
Miramer M2181	PPG1000 (EO)15 DMA		122985-55-1	2	1890	150 max	0.5 max	180 - 260
Miramer M2183	PPG1000 (EO)3 DMA		122985-55-1	2	1330	150 max	0.5 max	100 - 140

## TRIFUNCTIONAL METHACRYLATE

Miramer M301	TMPTMA	<i>Trimethylolpropane Trimethacrylate</i>	3290-92-4	3	338	100 max	0.2 max	35 - 55
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PROPERTIES			REGISTRATION				KEY FEATURES
Refractive Index (nD25)	Surface Tension (dyne/cm)	Tg (°C)	USA (TSCA)	Europe (EINECS)	Japan (MITI)	China (IECSC)	
1.529	40.0	82	○	○	○	○	Fast cure speed, low volatility, good heat resistance
1.537	-	16	○	○	○	○	Fast cure speed, low volatility, good heat resistance
1.542	-	6	○	○	○	○	Good heat/chemical resistance, High RI
1.512	42.6	3	○	○	○	○	Fast cure speed, low volatility, good heat resistance
1.500	-	-	○	○	○	○	High flexibility, low odor, low skin irritation
1.492	44.0	-45	○	○	○	○	Low volatility, good chemical resistance and water solubility
1.457	30.2	-49	○	○	○	○	Low viscosity, Good cross-linking density
1.466	40.0	-21	○	○	○	○	Water solubility, good flexibility, fast cure speed
1.462	34.1	51	○	○	○	○	Water solubility, good flexibility, fast cure speed
1.454	42.6	-	○	○	○	○	High flexibility, low odor, low skin irritation
1.457	-	-	○	○	○	○	Balanced EO/PO property
1.454	-	-	○	○	○	○	Balanced EO/PO property
1.472	33.0	27	○	○	○	○	Good hardness, High cross-linking density

			CHEMICAL PROPERTIES				
Product Name	Description	Dilution (%)	Functionality	MW (GPC)	Color (AHPA)	Viscosity (cps @ 25°C)	Specific Gravity

## ALIPHATIC URETHANE ACRYLATE

Miramer PU2012NT	Aliphatic difunctional acrylate	TTEGDA 10	2	4,400	200 max	6,000(60°C)	1.11
Miramer PU210	Aliphatic difunctional acrylate	HDDA 12	2	2,600	50 max	65,000	1.13
Miramer PU214	Aliphatic difunctional acrylate	HDDA 10	2	7,300	200 max	1,800(60°C)	1.06
Miramer PU217	Aliphatic difunctional acrylate	TPGDA 20	2	4,900	50 max	75,000	1.11
Miramer PU240	Aliphatic difunctional acrylate	HDDA 20	2	2,000	50 max	7,000	1.12
Miramer PU256	Aliphatic difunctional acrylate	HDDA 5	2	5,000	50 max	65,000	1.08
<b>NEW</b> Miramer PU2030I	Aliphatic difunctional acrylate	IBOA 20	2	12,000	200 max	8,000(60°C)	1.08
<b>NEW</b> Miramer PU2034T	Aliphatic difunctional acrylate	TOL 20	2	2,500	200 max	14,000	1.06
Miramer PU2050	Aliphatic difunctional acrylate	IBOA 30	2	14,000	200 max	8,000(60°C)	1.11
Miramer PU2100	Aliphatic difunctional acrylate		2	1,400	50 max	6,000	1.10
Miramer PU2200	Aliphatic difunctional acrylate		2	2,000	50 max	12,000	1.13
Miramer PU2300C	Aliphatic difunctional acrylate	TMPTA 30	2	16,000	300 max	6,200 (60°C)	1.10
Miramer PU2410	Aliphatic difunctional acrylate	HDDA 12	2	500	100 max	200(60°C)	1.21
Miramer PU2500T	Aliphatic difunctional acrylate	TOL 15	2	3,200	50 max	13,000	1.05
Miramer PU2510	Aliphatic difunctional acrylate		2	4,900	50 max	22,000(60°C)	1.07
Miramer PU2560	Aliphatic difunctional acrylate		2	10,400	50 max	3,000(60°C)	1.07
Miramer PU320	Aliphatic trifunctional acrylate	HDDA 15	3	11,000	50 max	53,000	1.08
Miramer PU330	Aliphatic trifunctional acrylate	TPGDA 15	3	1,700	50 max	50,000	1.15
Miramer PU340	Aliphatic trifunctional acrylate		3	2,400	50 max	70,000	1.16
Miramer PU3000	Aliphatic trifunctional acrylate	IBOA 40	3	16,000	50 max	120,000	1.05
Miramer PU3200	Aliphatic trifunctional acrylate	TMPTA 50	3	1,900	50 max	2,500(60°C)	1.12
Miramer PU3201NT	Aliphatic trifunctional acrylate	HPMA 35	3	11,000	50 max	15,000	1.08
Miramer PU3210	Aliphatic trifunctional acrylate	TMPTA 50	3	4,000	50 max	8,000(60°C)	1.12
Miramer PU3280NT	Aliphatic trifunctional acrylate	TPGDA 17	3	12,800	50 max	16,000(60°C)	1.09
Miramer PU3410	Aliphatic trifunctional acrylate	PEG400DA 20	3	2,500	50 max	7,000	1.13
Miramer PU3420	Aliphatic trifunctional acrylate		3	2,500	50 max	12,000	1.13
<b>NEW</b> Miramer PU3450	Aliphatic trifunctional acrylate		3	6,700	100 max	1,600(60°C)	1.12
Miramer PU5000	Aliphatic hexafunctional acrylate		6	1,800	100 max	2,000	1.16
Miramer PU610	Aliphatic hexafunctional acrylate		6	1,800	100 max	100,000	1.19
Miramer PU614T	Aliphatic hexafunctional acrylate	TOL 20	6	1,800	200 max	800	1.19
Miramer PU6140	Aliphatic hexafunctional acrylate		6	1,500	100 max	5,700	1.16
Miramer PU620	Aliphatic hexafunctional acrylate		6	2,300	100 max	45,000	1.20
Miramer PU664	Aliphatic hexafunctional acrylate		6	2,600	100 max	70,000	1.20
Miramer PU6020T	Aliphatic hexafunctional acrylate	TOL 20	6	4,500	100 max	3,500	1.06
Miramer PU6510	Aliphatic hexafunctional acrylate		6	3,200	200 max	10,000	1.16
Miramer MU9001	Aliphatic monofunctional acrylate	IBOA 20	1	570	100 max	1,000(60°C)	1.05
Miramer MU9500	Aliphatic multifunctional acrylate		10	3,200	50 max	1,300(60°C)	1.19
Miramer MU9800	Aliphatic multifunctional acrylate		9	3,500	100 max	40,000	1.20

Refractive Index(25°C)	PHYSICAL PROPERTIES					KEY FEATURES
	Pencil Hardness (250 $\mu$ m)	Pendulum Hardness (250 $\mu$ m)	Tensile Strength	Elongation	Reactivity	
1.482	<6B	16	•••	•••••	•••	Good adhesion and flexibility, used for nail coating
1.487	HB	40	••••	•••	••	Good exterior durability and toughness
1.480	<6B	10	•	•••	••	Good elasticity and toughness
1.485	HB	50	•••	••	•••	Good exterior durability and toughness
1.484	2H	100	•••••	••	••••	Good abrasion and scratch resistance
1.477	<6B	12	•••	••••	••	Good leveling and flexibility, especially used for flexibilizer
1.476	<6B	4	•	••••	•	Excellent adhesion and flexibility
1.498	<6B	18	••	••	••••	Excellent stain resistance
1.501	<6B	8	•••	•••••	••	Good flexibility and adhesion to substrate
1.483	3B	5	••	••••	•••	Low viscosity, good flexibility and elasticity
1.488	5B	7	••	••••	•••	Low viscosity, good flexibility and abrasion resistance
1.480	<6B	31	•••	•••••	••••	Excellent flexibility, good adhesion
1.492	3H	50	•••	••	••••	Low viscosity, non yellowing, good adhesion
1.496	2B	20	••	•••	•••	Good leveling and elasticity
1.490	3B	14	••	•••	•••••	Good chemical and abrasion resistance
1.463	<6B	5	••	••••	••	Improve flexibility and good leveling
1.478	B	24	•••••	•••	•••	Good exterior durability and toughness
1.492	H	77	•••	••	••••	Good heat resistance and abrasion resistance
1.494	HB	39	•••••	•••	••••	Good elasticity, flexibility, and exterior durability
1.490	HB	55	•••	••••	•••	Excellent toughness, good adhesion
1.491	3H	87	•	•	••••	Excellent vibration-abrasion resistance
1.473	6B	22	•••	•••••	•	Good flexibility and heat resistance
1.494	3H	76	•	•	••••	Excellent vibration-abrasion resistance
1.489	F	41	••••	••	••••	Good toughness and abrasion resistance
1.485	<6B	60	••	•••	••••	Good elasticity, good flexibility
1.486	<6B	11	••	••••	••••	Good elasticity, good abrasion resistance
1.484	<6B	85	•••	•••	••••	Good flexibility and soft feel property
1.477	5H	75	•	•	•••••	Good elasticity and scratch resistance
1.496	6H	80	•	•	•••••	High hardness, good scratch resistance
1.494	6H		•	•	•••••	Good scratch and abrasion resistance, Excellent weatherability
1.483	6H	60	•	••	•••••	Good scratch and abrasion resistance
1.493	6H	76	•	•	•••••	Good scratch and abrasion resistance
1.493	6H	70	•	•	•••••	Good elasticity and scratch resistance
1.495	3H	43	•	•	•••••	Good elasticity and scratch resistance
1.488	F	48	•	•	•••••	Good hardness and flexibility
1.492	3H		•	•	•••	Good adhesion and hardness
1.492	6H	73	•	•	•••••	Excellent scratch and abrasion resistance
1.496	6H	87	•	•	•••••	Good scratch resistance, heat resistance, and adhesion

# I Oligomer

			CHEMICAL PROPERTIES				
Product Name	Description	Dilution (%)	Functionality	MW (GPC)	Color (AHPA)	Viscosity (cps @ 25°C)	Specific Gravity

## ALIPHATIC URETHANE ACRYLATE

Miramer UA5095	Aliphatic difunctional acrylate	TOL 10	2	3,600	50 max	88,000	1.09
Miramer UA5110	Aliphatic difunctional acrylate	TOL 15	2	10,000	50 max	150,000	1.09
Miramer UA5210	Aliphatic monofunctional acrylate	NP(EO)8A 40	1	14,000	100 max	36,000	1.07
Miramer UA5216	Aliphatic difunctional acrylate	IBOA 60	2	30,000	200 max	20,000	1.06
Miramer SC2100	Aliphatic multifunctional acrylate		9	5,500	100 max	100,000	1.20
Miramer SC2152	Aliphatic multifunctional acrylate		15	20,000	50 max	6,000(60°C)	1.21
Miramer SC2153	Aliphatic multifunctional acrylate		10	3,900	50 max	2,500(60°C)	1.18
Miramer SC2404	Aliphatic difunctional acrylate	IBOA 15	2	5,200	50 max	50,000	1.05
Miramer SC2565	Aliphatic difunctional acrylate		2	5,100	50 max	5,400(60°C)	1.05

## AROMATIC URETHANE ACRYLATE

Miramer PU370	Aromatic trifunctional acrylate	TMPTA 30	3	8,000	50 max	70,000	1.14
Miramer PU460	Aromatic tetrafunctional acrylate		4	1,100	100 max	76,000	1.22
Miramer PU640	Aromatic hexafunctional acrylate		6	1,700	100 max	30,000	1.20
<b>NEW</b> Miramer PU2064	Aromatic difunctional acrylate	EOEOEA 15	2	13,000	200 max	6,000(60°C)	1.09
Miramer MU3603	Aromatic difunctional acrylate		2	5,200	100 max	4,000(60)	1.11
Miramer MU3702	Aromatic difunctional acrylate	IBOA 15	2	8,100	50 max	41,000	1.06

## URETHANE METHACRYLATE

Miramer PU2421NT	Aliphatic difunctional methacrylate		2	600	50 max	9,000	1.09
Miramer PU3701	Aromatic trifunctional methacrylate	2HEMA 5	3	15,000	50 max	60,000	1.08

## EPOXY ACRYLATE (Bisphenol A type)

Miramer PE210	Bisphenol A epoxy acrylate	-	2	520	50 max	4,500(60°C)	1.18
Miramer PE2120A	Bisphenol A epoxy acrylate	HDDA 20	2	520	150 max	10,000	1.15
Miramer PE2120B	Bisphenol A epoxy acrylate	TPGDA 20	2	520	100 max	570(60°C)	1.16
Miramer PE2120C	Bisphenol A epoxy acrylate	TMPTA 20	2	520	100 max	1,000(60°C)	1.18
Miramer PE2120S	Bisphenol A epoxy acrylate	SM 20	2	520	100 max	1,800	1.11

## EPOXY METHACRYLATE (Bisphenol A type)

Miramer PE250	Bisphenol A epoxy methacrylate	-	2	550	50 max	3,700(60°C)	1.15
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## EPOXY ACRYLATE (Novolac type)

Miramer SC6300	Phenol novolac epoxy acrylate	TMPTA 50	4	1,400	12(G) max	20,000	1.17
Miramer SC6400	Cresol novolac epoxy acrylate	TMPTA 50	4	3,000	3(G) max	50,000	1.17
Miramer SC6400C	Cresol novolac epoxy acrylate	TMPTA 50	4	5,100	12(G) max	45,000	1.17

Refractive Index(25°C)	PHYSICAL PROPERTIES					KEY FEATURES
	Pencil Hardness (250 $\mu$ m)	Pendulum Hardness (250 $\mu$ m)	Tensile Strength	Elongation	Reactivity	
1.490	H	13	••	•••••	•••••	Good boiling-water resistance and elasticity
1.489	<6B	33	••	••••••	•••••	Good boiling-water resistance and elongation
1.483	<6B	-	•	••••••	•	Good adhesion and flexibility, Low shrinkage
1.477	<6B	13	•	••••••	•	Excellent adhesion and flexibility
1.497	6H	82	•	•	••••••	High hardness, good scratch resistance and heat resistance
1.496	6H	75	•	•	••••••	Excellent scratch and abrasion resistance
1.499	6H	93	•	•	••••••	Excellent hardness and scratch resistance
1.480	5B	10	••	••••••	••••••	Excellent toughness, high elongation, improving adhesion
1.482	<6B	15	••	••••••	•••••	Good flexibility, elongation, and water resistance
1.499	2H	49	••••••	••	•••••	Good abrasion and scratch resistance
1.512	5H	59	•	•	••••••	High hardness, good scratch resistance
1.503	6H	69	•	•	••••••	High hardness, good scratch resistance
1.477	<6B	25	•	•••••	•	Excellent adhesion and flexibility
1.492	5B	15	••	•••••	••	Good flexibility and adhesion
1.495	<6B	20	••	••••••	•••••	Good flexibility, high elongation
1.483	-	-	••	••	•	Good adhesion and high gloss. Used for Nail coating.
1.474	<6B	16	•	•••••	•	Good flexibility and adhesion. Used for anaerobic adhesive.
1.557	4H	82	•	•	•••••	Monomer-free version of Bisphenol A epoxy acrylate
1.533	3H	89	•••	••	•••••	High hardness and gloss, good chemical resistance
1.534	3H	83	•••••	••	•••••	High hardness and gloss, good chemical resistance
1.539	4H	81	•••	••	•••••	High hardness and gloss, good chemical resistance
1.556	HB	11	•••	••	••	Light color, low viscosity, high refractive index
1.549	4H	22	••	••	••	Good toughness resistance
1.525	4H	60	•	•	••••••	Best heat resistance, high hardness
1.522	4H	62	•	•	••••••	Outstanding heat resistance, high hardness
1.522	4H	65	•	•	••••••	Outstanding heat resistance, high gloss

# I Oligomer

			CHEMICAL PROPERTIES				
Product Name	Description	Dilution (%)	Functionality	MW (GPC)	Color (AHPA)	Viscosity (cps @ 25°C)	Specific Gravity

## EPOXY ACRYLATE (Modified type)

Miramer PE110	Phenyl epoxy acrylate	-	1	220	50 max	170	1.15
Miramer PE2100P	Modified epoxy acrylate	PHEA 50	2	2,500	100 max	16,000	1.15
Miramer PE220	Aliphatic alkyl epoxy acrylate	-	2	750	100 max	1,200	1.20
Miramer PE230	Aliphatic alkyl epoxy acrylate	-	2	400	100 max	650	1.18
Miramer PE2310	Modified epoxy acrylate	-	2	1,400	6(G) max	1,800(60°C)	1.10
Miramer PE240	Fatty acid Modified epoxy acrylate	-	2	600	50 max	40,000	1.14
Miramer PE310	Soybean oil epoxy acrylate	-	4	2,200	10(G) max	30,000	1.06
Miramer EA2235	Modified epoxy acrylate	-	2	860	100 max	1,300	1.18
Miramer EA2255	Modified epoxy acrylate	-	2	840	50 max	800(60°C)	1.09
Miramer EA2259	Modified epoxy acrylate	-	2	840	50 max	490(60°C)	1.12
Miramer EA2280	Modified epoxy acrylate	-	2	1,600	50 max	2,600(65.5°C)	1.13
Miramer ME2010	Modified epoxy acrylate	IBOA 40	2	6,000	50 max	3,800(60°C)	1.01
Miramer ME2100	Modified epoxy acrylate	-	2	3,000	1.5(G) max	3,700(60°C)	1.18

## POLYESTER ACRYLATE

Miramer PS1000	Tetrafunctional polyester acrylate	-	4	15,600	1G (max)	1930(60°C)	1.13
Miramer PS3010	Trifunctional polyester acrylate	-	3	1,800	200 max	35,000	1.16
Miramer PS4040	Tetrafunctional polyester acrylate	-	4	1,300	200 max	5,000	1.12
Miramer PS420	Tetrafunctional polyester acrylate	-	4	1,800	1G (max)	450	1.08
Miramer PS4500	Tetrafunctional polyester acrylate	-	4	3,500	Dark	3,500(60°C)	1.03
Miramer PS460	Tetrafunctional polyester acrylate	-	4	3,700	1G (max)	32,000	1.16
Miramer PS4610	Tetrafunctional polyester acrylate	-	4	3,700	1G (max)	8,000	1.14
Miramer PS610	Hexafunctional polyester acrylate	-	6	5,400	1G (max)	26,000	1.18
Miramer PS6300	Hexafunctional polyester acrylate	-	6	3,000	200 max	35,000	1.18
Miramer PS643	Hexafunctional polyester acrylate	-	6	4,000	Dark	8,000	1.14
<b>NEW</b> Miramer PS6400	Hexafunctional polyester acrylate	-	6	7,000	Dark	20,000	1.09

## HIGH REFRACTIVE INDEX ACRYLATE

Miramer HR2582	Monofunctional Urethane acrylate	-	1	650	150 max	6,000(40°C)	1.16
Miramer HR3200	Tetrafunctional Urethane acrylate	-	4	900	100 max	1,300(60°C)	1.20
Miramer HR3700	Difunctional Urethane acrylate	-	2	800	150 max	50,000	1.18
Miramer HR3800	Trifunctional Urethane acrylate	-	3	1,600	150 max	1,400(60°C)	1.19
Miramer HR3940	Trifunctional Urethane acrylate	-	3	1,000	100 max	65,000	1.15
Miramer HR6022	Bisfluorene Diacrylate	PBA 35	2	550	100 max	10,000	1.18
Miramer HR6040	Bisfluorene Diacrylate	OPPEA 15 PBA 15	2	550	100 max	12,000	1.18
Miramer HR6042	Bisfluorene Diacrylate	OPPEA 40	2	550	100 max	20,000	1.18
Miramer HR6060	Modified Bisphenol Fluorene Diacrylate	-	2	730	150 max	80,000	1.18
Miramer HR6100	Modified Bisphenol Fluorene Diacrylate	-	2	900	150 max	11,000	1.17
Miramer HR6200	Modified Bisphenol Fluorene Diacrylate	-	2	1,350	100 max	2,500	1.17

Refractive Index(25°C)	PHYSICAL PROPERTIES					KEY FEATURES
	Pencil Hardness (250 $\mu$ m)	Pendulum Hardness (250 $\mu$ m)	Tensile Strength	Elongation	Reactivity	

1.525	B	15	••	•••••	•••	Improving flexibility, good adhesion
1.553	6B	26	••	•••	•••	Good adhesion and chemical resistance
1.484	F	39	••	••	••••	Good reactivity, recommended for wood primer or isolator
1.480	B	20	••	•••	••••	Partially water-soluble, good flexibility
1.518	H	23	•••	••	•••••	Good flexibility and chemical resistance
1.539	2H	74	••••	•••	••••	Good flexibility, wetting and flow
1.490	<6B	12	••	••	••••	Good pigment wetting and improving flow and leveling
1.482	F	30	••	•••	••••	High reactivity, good flexibility and adhesion
1.536	2H	66	•••	••	•••••	Good flexibility, wetting and flow
1.529	2H	55	••••	••	••••	Good flexibility, wetting and flow
1.524	2H	52	••	••	•••••	Improving flexibility, good abrasion resistance
1.538	HB	118	•••	•••	•••••	Excellent adhesion, improving flexibility
1.531	2H	4	••	•••	••••	High impact resistance and good flexibility

1.498	H	22	•	•	••	Good adhesion, cure response. Recommended for offset inks
1.511	H	20	••	••	••••	High hardness, good abrasion resistance
1.498	5H	-	•	•	•••••	Good heat resistance and adhesion
1.466	H	31	••	•••	•••	Low viscosity, good toughness and adhesion
1.503	2B	13	•	•	•••	Good pigment wetting and special lithographic properties
1.490	H	58	••	••	••••	High reactivity and gloss
1.485	5H	59	••	••	•••••	High reactivity and gloss, low viscosity
1.490	6H	57	••	••	•••••	High reactivity, good scratch resistance
1.489	5H	-	•	•	•••••	High reactivity, hardness and good scratch resistance
1.489	5H	50	•	•	•••••	High reactivity, Good pigment wetting
1.485	H	40	•	•	•••••	High reactivity, Good pigment wetting and flow properties

1.595	HB	-	•	•	••••	non-halogen type, high refractive index
1.565	4H	56	••••	••	••••	non-halogen type, high hardness
1.585	3H	-	•	•	••••	non-halogen type, low viscosity
1.573	3H	-	•	•	••••	non-halogen type, high hardness
1.533	HB	38	••••	•••	•••••	non-halogen type, Elasticity, Flexibility
1.600	F	38	•	•	•••••	non-halogen type, high refractive index
1.600	H	41	•	•	•••	non-halogen type, high refractive index
1.600	2H	40	••	••	•••••	non-halogen type, high refractive index
1.584	H	20	•••	••	••••	High refractive, Elasticity
1.562	H	5	••••	•••	•••••	Elasticity, Flexibility
1.530	4B	47	••	••	•••	Elasticity, Flexibility

# I Oligomer

Product Name	Description	Dilution (%)	CHEMICAL PROPERTIES				
			Functionality	MW (GPC)	Color (AHPA)	Viscosity (cps @ 25°C)	Specific Gravity

## LOW REFRACTIVE INDEX ACRYLATE

Miramer LR2000	Fluoro difunctional acrylate	-	2	2,500	300 max	7,500	1.49
Miramer LR2100	Aliphatic difunctional acrylate	-	2	6,110	200 max	27,000	1.02
Miramer LR6000	Fluoro hexafunctional acrylate	-	6	3,500	300 max	7,000	1.44
Miramer LR6100	Aliphatic hexafunctional acrylate	HDDA 20	6	5,850	200 max	5,300	1.03

## SILICONE ACRYLATE

Miramer SIU100	Silicone Urethane methacrylate		2	5,500	100 max	20,000	1.07
Miramer SIU1000	Silicone Urethane acrylate		1	530	100 max	25	1.09
Miramer SIU1004	Silicone Urethane acrylate		6	1,100	100 max	4,000	1.17
Miramer SIU2400	Silicone Urethane acrylate	TPGDA 10	10	8,000	100 max	40,000	1.09
Miramer SIP900	Silicone Polyester acrylate		2	3,200	8(G) max	200	1.06

## MELAMINE ACRYLATE

Miramer SC9610	Melamine acrylate	-	> 3	1,500	100 max	2,500	1.22
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## WATER SOLUBLE ACRYLATE

Miramer WS2100	Water Soluble acrylate		2	750	100 max	1,200	1.20
Miramer WS2600	Water Soluble acrylate	H <sub>2</sub> O 10	2	-	100 max	7,200	1.12
Miramer WS2601	Water Soluble acrylate	H <sub>2</sub> O 7.5	2	-	100 max	2,000	1.13
Miramer WS4000	Water Soluble acrylate	H <sub>2</sub> O 10	4	-	100 max	25,000	1.15
Miramer WS6000	Water Soluble acrylate	H <sub>2</sub> O 10	6	-	100 max	42,000	1.15

## WATER BORNE ACRYLATE

Miramer WB2100	PU dispersion acrylate / Solid 40%	H <sub>2</sub> O 60	2	-	White	< 200	1.03
<b>NEW</b> Miramer WB2210	PU dispersion acrylate / Solid 40%	H <sub>2</sub> O 60	2	-	White	< 200	1.05
Miramer WB3100	PU dispersion acrylate / Solid 40%	H <sub>2</sub> O 60	4	-	White	< 200	1.06
<b>NEW</b> Miramer WB2810	PU dispersion acrylate / Solid 35%	H <sub>2</sub> O 65	2	-	White	< 200	1.06
Miramer WB3300	PU dispersion acrylate / Solid 35%	H <sub>2</sub> O 65	4	-	White	< 200	1.06
Miramer WB3500	PU dispersion acrylate / Solid 35%	H <sub>2</sub> O 65	2	-	White	< 200	1.06

## BUTADIENE ACRYLATE

Miramer MB1000	Aliphatic difunctional acrylate	IBOA 25	2	30,000	5(G) max	50,000	0.94
Miramer MB2000	Aromatic difunctional acrylate	IBOA 30	2	6,500	50 max	1,250(60°C)	0.95
<b>NEW</b> Miramer MB2200	Aliphatic monofunctional acrylate	LA10	1	14,800	200 max	10,500(60°C)	0.89

## DENDRITIC ACRYLATE

Miramer SP1106	Dendritic acrylate		18	1,630	200 max	400	1.17
Miramer SP1108	Dendritic acrylate		13	3,000	200 max	500	1.16



Refractive Index(25°C)	PHYSICAL PROPERTIES					KEY FEATURES
	Pencil Hardness (250 $\mu$ m)	Pendulum Hardness (250 $\mu$ m)	Tensile Strength	Elongation	Reactivity	
1.383	4B	25	••	•••	•	Low refractive index and surface energy
1.441	<6B	15	•	•	•	Flexible and low surface energy
1.391	H	29	••	•	••••	Good hardness and low refractive index
1.450	5B	29	•	•	•••	Good cure speed and low surface energy
1.455	<6B	19	••	•••	••	Especially recommended for adhesive
1.499	-	-	•	•	••	Low viscosity, good wettability and adhesion
1.482	5H	-	•	•	••••	Fast cure response, good hardness
1.472	6H	-	•	•	•••••	Good wettability and slipness, anti-finger coatings
1.450	-	-	•	•	••	Best wettability and slipness
1.516	6H	94	•	•	•••••	High reactivity, good hardness, low viscosity, good levelling
1.484	F	39	••	••	••••	High reactivity, recommended for wood primer or isolator
1.473	< 6B	5	•	•	••••	Excellent flexibility, general coatings
1.472	H	39	•	•	••••	Especially recommended for wood primer or isolator
-	B	20	•	•	•••	Good water solubility, general coatings
-	H	39	•	•	•••	Partially water soluble, good hardness
-	6B	13	•	•	••	Urethane dispersion, excellent flexibility
-	2B	42	•••	••	•••	Urethane dispersion, good pigment wetting
-	F	45	••	•	••••	Urethane dispersion, good reactivity and hardness
-	3B	35	•••	•••	••••	Tack free type, good outdoor resistance
-	H	60	•••••	••	•••••	Tack free type, good hardness and adhesion
-	F	46	•••	••	•••••	Tack free type, High gloss and chemical resistance
1.504	<6B	12	•	••••	•	Good adhesion and flexibility, Hydrolytic stability
1.487	<6B	4	•	••••	••	Good adhesion and flexibility, Hydrolytic stability
1.488	<6B	-	•	••••	•	Good adhesion and flexibility, Hydrolytic stability
1.477	3H	42	•	•	••••	Good adhesion and high abrasion resistance
1.480	5H	47	••••	•	•••••	Low viscosity, Excellent hardness, good chemical resistance

# I Oligomer & Other Specialties

			CHEMICAL PROPERTIES			
Product Name	Description	Dilution (%)	Functionality	Appearance	Color (Gardener)	Viscosity (cps @ 25°C)

## ADHESION PROMOTER

Miramer SC1400	Phosphate methacrylate		1.5	liquid	100 max	1,100
Miramer SC6610	Alkali strippable polyester acrylate		1	liquid	50 max	10,000
Miramer SC6631	Alkali strippable polyester methacrylate		1	liquid	100 max	3,500
Miramer PS2500	Difunctional polyester acrylate	NPG(PO)2DA 25-35	2	liquid	2(G) max	6,000 (60°C)

## ACRYLIC ACRYLATE

Miramer SC9211	Acrylic acrylate oligomer	HDDA 60	2	liquid	50 max	26,000
Miramer SC9235	Acrylic acrylate oligomer	Mono-functional monomer 60%	1	liquid	100 max	20,000

## CAPROLACTONE ACRYLATE

Miramer SC1010	Caprolactone methacrylate		1	liquid	100 max	20 - 40
Miramer SC1020	Caprolactone acrylate		1	liquid	100 max	60 - 90
Miramer SC1030	Caprolactone methacrylate	TOL 30	1	liquid	100 max	15 - 35
Miramer SC1033	Caprolactone methacrylate	TOL 20	1	liquid	100 max	20 - 40

## OLIGO AMINE ACRYLATE

Miramer AS1000	Amino acrylate		3.5	liquid	100 max	150 - 350
Miramer AS3000	Amino acrylate		2.5	liquid	1(G) max	70 - 100

## AMINE SYNERGIST

Miramer AS2010	Acrylated Amine Synergist		2	liquid	1(G) max	900 - 1,500
Miramer AS5142	Acrylated Amine Synergist		1	liquid	2 max	15 - 30

Product Name	Description	Cas No.	Appearance	Softening Point	Melting Point	WPE (g/eq)
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## SUCROSE BENZOATE (INERT RESIN)

Miramer SB	Sucrose Benzoate	12738-64-6	flake	100		
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## EPOXY DILUENT

Mirate BGE	n-Buthyl glycidyl ether	2426-08-6	liquid			145 - 155
Mirate LGE	Lauryl glycidyl ether	68609-97-2	liquid			275 - 300
Mirate BDGE	1,4-Buthanediol diglycidyl ether	2425-79-8	liquid			120 - 140
Mirate TMPGE	Trimethylolpropane triglycidyl ether	3454-29-3	liquid			130 - 150
Mirate HDGE	1,6-Hexanediol diglycidyl ether	16096-31-4	liquid			140 - 155
Mirate PPDGE	Polypropyleneglycol diglycidyl ether	26142-30-3	liquid			300 - 330

## POWDER COATING ADDITIVE

Benzoin	2-Hydroxy-1,2-diphenyl ethanone	119-53-9	Pure white crystal / powder		134 - 138	
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			PHYSICAL PROPERTIES					KEY FEATURES
Specific Gravity	MW (GPC)	Refractive Index(25°C)	Pencil Hardness (250 $\mu$ m)	Pendulum Hardness (250 $\mu$ m)	Tensile Strength	Elongation	Reactivity	

1.28	500	1.467	-	-	-	-	-	Improving adhesion to metal, glass and plastic (A.V = 270)
1.16	250	1.477	H	-	-	-	•	Low color and good compatibility (A.V = 200)
1.22	244	1.521	-	-	-	-	-	Low viscosity, improving adhesion to difficult substrates (A.V=200)
-	-	1.514	-	-	-	-	-	Excellent adhesion, low acid value

1.07	50,000	1.469	F	39	-	-	•	Enhancing adhesion to difficult substrates
1.10	50,000	1.468	-	-	-	-	•	Enhancing adhesion to difficult substrates

1.09	244	1.460	-	-	-	-	-	220~230 OH Value(mgKOH/g)
1.10	344	1.464	-	-	-	-	-	156~166 OH Value(mgKOH/g)
-	700	1.478	-	-	-	-	-	53~59 OH Value(mgKOH/g)
-	472	1.474	-	-	-	-	-	91~99 OH Value(mgKOH/g)

1.11	1,320	1.468	-	-	-	-	-	Very good reactivity. Low residual odor.
1.07	640	1.461	-	-	-	-	-	Good reactivity combined with good diluting power

1.08	1,920	1.481	-	-	--	-	-	High efficiency, excellent adhesion to plastic substrates
0.99	-	1.450	-	-	-	-	-	High efficiency (No surface migration of amine)

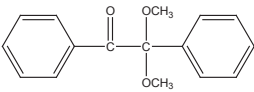
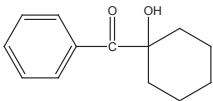
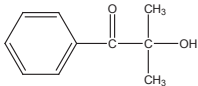
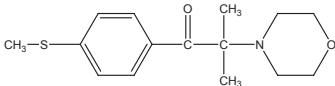
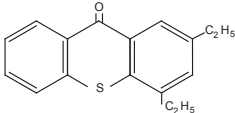
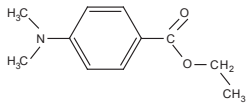
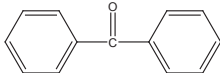
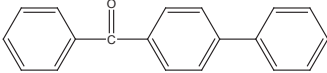
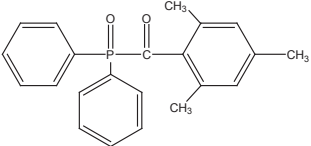
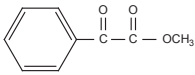
Purity	Viscosity (CPS)	Hyd-cl (%)	Color (APHA)	Moisture	KEY FEATURES
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			50 Max		Maintaining gloss compared with inorganic fillers
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	2 - 24	0.2 Max	30 Max	0.3 Max	Best glycidyl ether for viscosity reduction with good retention of physical property
	5 - 20	0.1 Max	30 Max	0.1 Max	General purpose diluent. Low toxicity and vapor pressure
	15 - 25	0.3 Max	50 Max	0.2 Max	Best dilution efficiency of di-functional glycidyl ether diluents
	110 - 130	0.1 Max	50 Max	0.1 Max	Tri-functional glycidyl ether.
	15 - 30	0.2 Max	100 Max	0.2 Max	Good flexibility for electrical Potting and electrical casting.
	40 - 70	0.05 Max	50 Max	0.1 Max	Imparts flexibility, elongation and improved impact resistance

99.8% min		-			Anti-crater agent / Intermediate for pharmaceutical compound
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# I Other Specialties

PHOTOINITIATOR		PRODUCT DATA
Product Name	Chemical Name	Structure
Micure BK-6	Benzil dimethyl ketal	
Micure CP-4	Hydroxy cyclohexyl phenyl ketone	
Micure HP-8	Hydroxy dimethyl acetophenone	
Micure MS-7	Methyl-[4 methylthio phenyl]-2-morpholine propanone	
Micure DETX	2,4-Diethylthioxanthone	
Micure EPD	Ethyl-4-dimethylaminobenzoate	
Micure BP	Benzophenone	
Micure PBZ	4-Phenylbenzophenone	
Micure TPO	2, 4, 6-Trimethylbenzoyl-diphenyl Phosphine	
Micure MBF	Methyl benzoylformate	

					KEY FEATURES
Appearance	Melting Point	CAS No.	Purity	Absorption (nm)	
White crystalline powder	64-67	24650-42-8	99.5% min	220, 255 and 325	General initiator also used for unsaturated polyester resin
Pure white powder	46-49	947-19-3	99.0% min	208 and 245	Highly recommended for non-yellowing application
Light yellowish liquid	-	7473-98-5	97.0% min	265 - 280 & 320 - 335	Non-yellowing, Liquid (easy to make photoinitiator blends)
Beige powder	72-76	71868-10-5	99.0% min	320 - 325	Recommended for pigmented inks and coatings
Yellow powder	66-70	82799-44-8	97.0% min	261 & 384	Thioxanthone derivative type-II initiator, Good initiating performance and solubility
White powder	62-64	10287-53-3	97.0% min	310	A highly soluble, low odor and toxicity amine synergist
Pure white flake	47-49	119-61-9	99.0% min	210 & 255	Fast surface cure speed, moderate price among type-II initiators
White powder	99-103	2128-93-0	99.0% min	290	Benzophenone derivative, useful for longer wavelength absorbance, better initiating performance than benzophenone
Yellowish crystal	87-93	75980-60-8	97.0% min	400	Recommended for inks and coatings that heavily pigmented or containing TiO <sub>2</sub> (White pigment)
Light yellowish liquid	-	15206-55-0	99.0% min	255, 325	Non-yellowing, Excellent surface cure

# I Selection Guide

Low yellow index	PU256, PU320, PU2100, PU2200
DBTL-free	PU2012NT, PU3280NT, PU3201NT, PU2421NT
Good abrasion resistance	PU240, PU2410, PU330, PU3200, PU3210, PU3280NT, PU370, PS3010
Good adhesion property	PU2300C, PU2560, UA5216, MU3603, PU3701, PE110, SIU100, SC1400, SC6610, SC6631, PS2500, SC9211, SC9235
Good elasticity	PU214, PU2500T, PU340, PU3410
Good boiling water resistance	UA5095, UA5110
Good heat resistance	SC6300, SC6400, SC6410, SC9610
Good pigment wetting	PS4500, PS643, SP1106, SP1108

## Elongation vs Tensile

Product Name	Tensile strength	Elongation
PU2012NT	4560	83
PU256	7000	50
PU2300C	360	82
PU2560	-	-
PU3201NT	3280	91
UA5216	3000	326
MU3603	500	32
MU3702	600	78
PU3701	372	70
PE230	1500	7
PU2050	3320	270
MB1000	1110	140
MB2000	-	-

