

Products Catalogue

【METHACRYLIC-MONOMERS】

mitsubishi rayon co.,ltd
Chemical Department

Classification

Alkyl Methacrylates
Methyl Methacrylate
Ethyl Methacrylate
n-Butyl Methacrylate
iso-Butyl Methacrylate
tert-Butyl Methacrylate
2-Ethylhexyl Methacrylate
Lauryl Methacrylate
Alkyl Methacrylate
Tridecyl Methacrylate
Stearyl Methacrylate

Hydroxy Alkyl Methacrylates
2-Hydroxyethyl Methacrylate
Hydroxypropyl Methacrylate

Alicyclic Methacrylates
Cyclohexyl Methacrylate
Isobornyl Methacrylate

Methacrylic Acid
Methacrylic Acid

Di / Tri Methacrylates
Ethyleneglycol Dimethacrylate
Triethyleneglycol Dimethacrylate
1, 3-Butyleneglycol Dimethacrylate
1, 6-Hexanediol Dimethacrylate
Trimethylolpropane Trimethacrylate

Amino Methacrylates
Dimethylaminoethyl Methacrylate
Diethylaminoethyl Methacrylate
Dimethylaminoethyl Methacrylate Methylchloride Salt

Heterocyclic Methacrylates
Glycidyl Methacrylate
Tetrahydrofurfuryl Methacrylate

Vinyl / Alkoxy / Aromatic Methacrylates
Allyl Methacrylate
2-Ethoxyethyl Methacrylate
2-Methoxyethyl Methacrylate
Benzyl Methacrylate

Alkyl Methacrylates i

Classification			Alkyl Methacrylates								
Chemical name of monomer			Methyl Methacrylate		Ethyl Methacrylate		n-Butyl Methacrylate		iso-Butyl Methacrylate		
Abbreviations			MMA		EMA		BMA		IBMA		
Chemical Formula			CH ₂ =C(CH ₃)COOCH ₃		CH ₂ =C(CH ₃)COO-CH ₂ CH ₃		CH ₂ =C(CH ₃)COO-CH ₂ (CH ₂) ₂ CH ₃		CH ₂ =C(CH ₃)COO-CH ₂ CH(CH ₃) ₂		
Specifications & Typical Properties			Specifications	Typical properties	Specifications	Typical properties	Specifications	Typical properties	Specifications	Typical properties	
	Color when shipped (APHA)		5 max.	5 max.	20 max.	10 max.	20 max.	5 max.	20 max.	5 max.	
	Specific Gravity (20°C/4°C)		0.942~0.946	0.944	0.910~0.916	0.914	0.893~0.899	0.896	0.884~0.890	0.887	
	Acidity (as methacrylic acid) %		0.005max	0.001	0.01max	0.001	0.005 max	0.001	0.005 max	0.001	
	Purity %	PSDB									
		Gas chromatography	99.8 min.	99.9	99.0 min.	99.8	99.5 min.	99.9	99.0 min.	99.7	
	Water when shipped (by Karl Fisher) %		0.05 max.	0.01	0.1 max.	0.02	0.1 max.	0.01	0.1 max.	0.01	
	Inhibitors	HQ ppm			300						
		MEHQ ppm			25		25 / 100		25 / 100		
		Topanol ppm	10				5				
Package & Net Weight			190kg Iron drum		180kg Iron drum		180kg Iron drum		180kg Iron drum		
General Properties	Molecular Weight		100.12		114.15		142.2		142.2		
	Refractive Index (n _D ²⁰)		1.4152		1.4157		1.4253		1.4216		
	Viscosity (20°C) mPa·s		0.56		0.62		0.92		0.88		
	Freezing Point °C		-48		below -60		below -60		-33		
	Specific Heat J/(g·°C)		1.89		1.93		1.84		1.88		
	Heat of Polymerization kJ/mol		54.4		59.1		56.6		59.9		
	Boiling Point °C/hPa		100.8/1013, 61/267, 46/133, 29/67		118/1013, 77/267, 58/133, 42/67		163.5/1013, 117/267, 102/133, 83/67		155/1013, 107/267, 87/133, 72/67		
	Solubility (20°C)	Water in %	0.99		0.64		0.3		0.3		
		In Water %	1.72		0.46		0.04		0.04		
	Flash Point °C		11		20.5		51		45		
	Toxicity (Acute oral LD ₅₀ , rats, mg/kg)		7,900		14,800		16,000		9,600		
	Tg of Polymer °C		105		65		20		48		
Uses			• Sheets, rod, pipe • Molding material • Coating • Dental material • Adhesives • Textile treatment agent • Leather treatment agent • Lube oil additives • etc.		• Coating • Molding material • Adhesives • Textile treatment agent • etc.		• Lube oil additives • Coating • Adhesives • Textile treatment agent • Paper processing agent • Paper coating • Plasticizer • Leather and metal treatment agent • etc.		• Coating • Printing ink • Adhesives • Lube oil additives • Dental material • Textile treatment agent • Paper coating • etc.		
Regulatory	CAS	No.	80-62-6		97-63-2		97-88-1		97-86-9		
	USA	TSCA	Inventoried		Inventoried		Inventoried		Inventoried		
	EU	EINECS	No.	201-297-1		202-597-5		202-615-1		202-613-0	
	CANADA	DSL/NSDL	DSL:Inventoried		DSL:Inventoried		DSL:Inventoried		DSL:Inventoried		
	AUSTRALIA	AICS	Inventoried		Inventoried		Inventoried		Inventoried		
	KOREA	ECL	No.	KE-25050		KE-25002		KE-24922		KE-25131	
	CHINA	IECSC	Inventoried		Inventoried		Inventoried		Inventoried		

Alkyl Methacrylates ii

Classification				Alkyl Methacrylates					
Chemical name of monomer				tert-Butyl Methacrylate		2-Ethylhexyl Methacrylate		Lauryl Methacrylate	
Abbreviations				TBMA		EHMA		LMA	
Chemical Formula				$\text{CH}_2=\text{C}(\text{CH}_3)\text{COO}-\text{C}(\text{CH}_3)_3$		$\text{CH}_2=\text{C}(\text{CH}_3)\text{COO}-\text{CH}_2\text{CH}(\text{C}_2\text{H}_5)(\text{CH}_2)_3\text{CH}_3$		$\text{CH}_2=\text{C}(\text{CH}_3)\text{COO}-\text{CH}_2(\text{CH}_2)_{10}\text{CH}_3$	
Specifications & Typical Properties				Specifications	Typical properties	Specifications	Typical properties	Specifications	Typical properties
	Color when shipped (APHA)			20 max.	5 max.	20 max.	10 max.	20 max.	15 max.
	Specific Gravity (20°C/4°C)			0.874~0.880	0.878	0.881~0.887	0.884	0.869~0.875	0.873
	Acidity (as methacrylic acid) %			0.05 max	0.01	0.01 max	0.001	0.01 max	0.001
	Purity %	PSDB						99.0 min	99.8
		Gas chromatography		98.0 min.	99.7	99.0 min.	99.7		
	Water when shipped (by Karl Fisher) %			0.1 max.	0.01	0.1 max.	0.01	0.1 max.	0.01
	Inhibitors	HQ	ppm						
		MEHQ	ppm	200		25		1000	
Topanol		ppm							
Package & Net Weight				170kg Iron drum		180kg Iron drum		160kg Iron drum	
General Properties	Molecular Weight			142.2		198.31		254.5	
	Refractive Index (n _D ²⁰)			1.4196		1.4398		1.447	
	Viscosity (20°C) mPa·s			0.93		1.85		4.6	
	Freezing Point °C			below -60		below -60		-20	
	Specific Heat J/(g·°C)			2.01		2.01		1.97	
	Heat of Polymerization kJ/mol			54.4		-		-	
	Boiling Point °C/hPa			67/93, 52/47		229/1013, 172/267, 150.5/133, 101/67		160/9.3	
	Solubility (20°C)	Water in	%	0.3		0.14		0.09	
		In Water	%	0.05		below 0.01		below 0.01	
	Flash Point °C			29.5		100		154	
	Toxicity (Acute oral LD ₅₀ , rats, mg/kg)			8,549		13,000		over 5,000	
Tg of Polymer °C			107		-10		-65		
Uses				• Coating • Dispersion material • Textile treatment agent • Covering material • etc.		• Textile treatment agent • Dental material • Coating and covering • Dispersion material • Lube oil additives • Adhesives • Plasticizer • etc.		• Deodorant • Lube oil additives • Lacquer • Leather and textile finisher • Additives • Paper processing agent • Plasticizer • etc.	
Regulatory	CAS No.			585-07-9		688-84-6		142-90-5	
	USA TSCA			Inventoried		Inventoried		Inventoried	
	EU EINECS No.			209-548-7		211-708-6		205-570-6	
	CANADA DSL/NSDL			NDSL:Inventoried		DSL:Inventoried		DSL:Inventoried	
	AUSTRALIA AICS			-		Inventoried		Inventoried	
	KOREA ECL No.			KE-04323		KE-25009		KE-24976	
	CHINA IECSC			Inventoried		Inventoried		Inventoried	

Alkyl Methacrylates iii

Classification				Alkyl Methacrylates						
Chemical name of monomer				Alkyl Methacrylate		Tridecyl Methacrylate		Stearyl Methacrylate		
Abbreviations				SLMA		TDMA		SMA		
Chemical Formula				$\text{CH}_2=\text{C}(\text{CH}_3)\text{COOC}_n\text{H}_{2n+1}$ (n=12, 13)		$\text{CH}_2=\text{C}(\text{CH}_3)\text{COO}-\text{CH}_2(\text{CH}_2)_{11}\text{CH}_3$		$\text{CH}_2=\text{C}(\text{CH}_3)\text{COO}-\text{CH}_2(\text{CH}_2)_{16}\text{CH}_3$		
Specifications & Typical Properties				Specifications	Typical properties	Specifications	Typical properties	Specifications	Typical properties	
	Color when shipped (APHA)			20 max.	15 max.	50 max.	10 max.	40 max.	15 max.	
	Specific Gravity (20°C/4°C)			0.871~0.877	0.872	0.876~0.882	0.879	0.859~0.865 (30°C/4°C)	0.862 (30°C/4°C)	
	Acidity (as methacrylic acid) %			0.01 max.	0.001	0.01 max.	0.001	0.01 max.	0.001	
	Purity %	PSDB		99.0 min.	99.7			99.0 min.	99.8	
		Gas chromatography				98.5 min.	99.8			
	Water when shipped (by Karl Fisher) %			0.1 max.	0.01	0.1 max.	0.01	0.1 max.	0.01	
	Inhibitors	HQ	ppm							
		MEHQ	ppm	100		1000		250		
Topanol		ppm								
Package & Net Weight				180kg Iron drum		180kg Iron drum		150kg Iron drum		
General Properties	Molecular Weight			263 (average)		268.44		338.58		
	Refractive Index (n_D^{20})			1.448		1.4518		1.4503 (30°C)		
	Viscosity (20°C) mPa·s			5.06		5.81		8.21 (30°C)		
	Freezing Point °C			-19.4		below -60		19.8		
	Specific Heat J/(g·°C)			-		1.80		2.77		
	Heat of Polymerization kJ/mol			-		-		-		
	Boiling Point °C/hPa			142/2.7		222/267, 195/67, 150/13.3, 141/6.7		270/67, 252/13.3, 205/6.7		
	Solubility (20°C)	Water in	%	0.08		0.07		0.08		
		In Water	%	below 0.01		below 0.01		below 0.01		
	Flash Point °C			150		150		198		
	Toxicity (Acute oral LD ₅₀ , rats, mg/kg)			-		-		-		
	Tg of Polymer °C			-62		-46		-100		
Uses				• Lube oil additives • Coating • Textile treatment agent • Adhesives • Paper coating • etc.		• Lube oil additives • Coating • Textile treatment agent • Adhesives • etc.		• Lube oil additives • Coating • Textile treatment agent • Adhesives • Paper coating • etc.		
Regulatory	CAS		No.	142-90-5 / 2495-25-2		2495-25-2		32360-05-7		
	USA		TSCA	Inventoried		Inventoried		Inventoried		
	EU		EINECS	No.	205-570-6 / 219-671-8		219-671-8		251-013-5	
	CANADA		DSL/NSDL	DSL:Inventoried		DSL:Inventoried		DSL:Inventoried		
	AUSTRALIA		AICS	Inventoried		Inventoried		Inventoried		
	KOREA		ECL	No.	KE-24976 / KE-34182		KE-34182		KE-25142	
	CHINA		IECSC	Inventoried		Inventoried		Inventoried		

Hydroxy Alkyl Methacrylate

Classification			Hydroxy Alkyl Methacrylates				
Chemical name of monomer			2-Hydroxyethyl Methacrylate		Hydroxypropyl Methacrylate		
Abbreviations			HEMA*		HPMA		
Chemical Formula			CH ₂ =C(CH ₃)COOCH ₂ CH ₂ OH		CH ₂ =C(CH ₃)COO-CH ₂ CH(OH)CH ₃		
Specifications & Typical Properties			Specifications	Typical properties	Specifications	Typical properties	
	Color when shipped (APHA)		30 max.	10 max.	50 max.	10 max.	
	Specific Gravity (20°C/4°C)		1.069~1.075	1.072	1.024~1.030	1.027	
	Acidity (as methacrylic acid) %		0.3 max.	0.01	1.0 max.	0.003	
	Purity %	PSDB					
		Gas chromatography	97.5 min.	99.6	98.0 min.	99.9	
	Water when shipped (by Karl Fisher) %		0.3 max.	0.03	0.3 max.	0.04	
	Inhibitors	HQ ppm					
		MEHQ ppm	200 / 250		50 / 200		
		Topanol ppm					
Package & Net Weight		200kg Plastic drum		200kg Chemi drum			
General Properties	Molecular Weight		130.15		144.17		
	Refractive Index (n _D ²⁰)		1.4537		1.4489		
	Viscosity (20°C) mPa·s		6.79		9.28		
	Freezing Point °C		below -60		below -57		
	Specific Heat J/(g·°C)		1.97		1.93		
	Heat of Polymerization kJ/mol		50.0		50.7		
	Boiling Point °C/hPa		95/13.3, 87/6.7, 68/1.3		96/13.3, 87/6.7, 66/1.3		
	Solubility (20°C)	Water in %	∞		21.70		
		In Water %	∞		13.40		
	Flash Point °C		109		106		
	Toxicity (Acute oral LD ₅₀ , rats, mg/kg)		over 4,000		11,200		
	Tg of Polymer °C		55		26		
Uses			• Thermo setting coating • Textile treatment agent • Adhesives • Paper processing material • Polymer modifier • etc.		• Thermo setting coating • Textile treatment agent • Adhesives • Paper processing material • Polymer modifier • etc.		
Regulatory	CAS	No.	868-77-9		27813-02-1		
	USA	TSCA	Inventoried		Inventoried		
	EU	EINECS	No.	212-782-2		248-666-3	
	CANADA	DSL/NSDL	DSL:Inventoried		DSL:Inventoried		
	AUSTRALIA	AICS	Inventoried		Inventoried		
	KOREA	ECL	No.	KE-25025		KE-25135	
	CHINA	IECSC	Inventoried		Inventoried		

* High purity grade is available

Alicyclic Methacrylates

Classification			Alicyclic Methacrylates				
Chemical name of monomer			Cyclohexyl Methacrylate		Isobornyl Methacrylate		
Abbreviations			CHMA		IBXMA		
Chemical Formula			$\begin{array}{c} \text{CH}_2=\text{C}(\text{CH}_3)\text{COO}- \\ \text{CH}_2-\text{CH}_2 \\ \text{CH} \begin{array}{c} \diagdown \quad \diagup \\ \text{CH}_2-\text{CH}_2 \end{array} \text{CH}_2 \end{array}$		$\begin{array}{c} \text{CH}_2=\text{C}(\text{CH}_3)\text{COO} \\ \text{CH} \begin{array}{c} \diagup \quad \diagdown \\ \text{CH}_2-\text{CH}_2 \\ \diagdown \quad \diagup \\ \text{CH}_3 \quad \text{CH}_3 \end{array} \text{C}-\text{CH}_3 \end{array}$		
Specifications & Typical Properties			Specifications	Typical properties	Specifications	Typical properties	
	Color when shipped (APHA)		50 max.	10 max.	30 max.	25 max.	
	Specific Gravity (20°C/4°C)		0.963~0.968	0.966	0.976~0.996	0.986	
	Acidity (as methacrylic acid) %		0.01 max.	0.001	0.1 max.	0.003	
	Purity %	PSDB					
		Gas chromatography	98.5 min.	99.6	98.0 min.	99.9	
	Water when shipped (by Karl Fisher) %		0.3 max.	0.02	0.1 max.	0.01	
	Inhibitors	HQ	ppm				
		MEHQ	ppm	50		150	
Topanol		ppm					
Package & Net Weight			180kg Iron drum		180kg Iron drum		
General Properties	Molecular Weight		168.24		222.33		
	Refractive Index (n _D ²⁰)		1.4598		1.477 (25°C)		
	Viscosity (20°C) mPa·s		2.5		13 (25°C)		
	Freezing Point °C		below -60		below -60		
	Specific Heat J/(g·°C)		1.84		-		
	Heat of Polymerization kJ/mol		53.2		-		
	Boiling Point °C/hPa		210/1013, 60/2.7		120/8		
	Solubility (20°C)	Water in	%	0.27		0.15	
		In Water	%	below 0.01		below 0.01	
	Flash Point °C		78		117		
	Toxicity (Acute oral LD ₅₀ , rats, mg/kg)		11,000		-		
	Tg of Polymer °C		83		155		
Uses			• Optical material • Molding material • Adhesives • Covering material • etc.		• Optical material • Adhesives • Coating • etc.		
Regulatory	CAS	No.	101-43-9		7534-94-3		
	USA	TSCA	Inventoried		Inventoried		
	EU	EINECS	No.	202-943-5		231-403-1	
	CANADA	DSL/NSDL	NDSL:Inventoried		DSL:Inventoried		
	AUSTRALIA	AICS	Inventoried		Inventoried		
	KOREA	ECL	No.	KE-24953		KE-25282	
	CHINA	IECSC	Inventoried		Inventoried		

Methacrylic Acid

Classification			Methacrylic Acid	
Chemical name of monomer			Methacrylic Acid	
Abbreviations			MAA	
Chemical Formula			CH ₂ =C(CH ₃)COOH	
Specifications & Typical Properties			Specifications	Typical properties
	Color when shipped (APHA)		30 max.	5 max.
	Specific Gravity (20°C/4°C)		1.012~1.018	1.015
	Acidity (as methacrylic acid) %		-	-
	Purity %	PSDB		
		Gas chromatography	98.5 min.	99.9
	Water when shipped (by Karl Fisher) %		0.3 max.	0.01
	Inhibitors	HQ ppm		
		MEHQ ppm	250	
Topanol ppm				
Package & Net Weight		200kg Plastic drum		
General Properties	Molecular Weight		86.09	
	Refractive Index (n _D ²⁰)		1.432	
	Viscosity (20°C) mPa·s		1.35	
	Freezing Point °C		15	
	Specific Heat J/(g·°C)		2.10	
	Heat of Polymerization kJ/mol		66.2	
	Boiling Point °C/hPa		161/1013, 124/267, 106.6/133, 60/13.3	
	Solubility (20°C)	Water in %	∞	
		In Water %	∞	
	Flash Point °C		73	
	Toxicity (Acute oral LD ₅₀ , rats, mg/kg)		1,060	
	Tg of Polymer °C		228	
Uses			• Coating • Adhesives • Textile treatment agent • Rubber modifier • Leather treatment agent • Paper processing • Ion exchange resin • etc.	
Regulatory	CAS No.		79-41-4	
	USA	TSCA	Inventoried	
	EU	EINECS No.	201-204-4	
	CANADA	DSL/NSDL	DSL:Inventoried	
	AUSTRALIA	AICS	Inventoried	
	KOREA	ECL No.	KE-24906	
	CHINA	IECSC	Inventoried	

Di / Tri Methacrylates i

Classification			Di / Tri Methacrylates						
Chemical name of monomer			Ethyleneglycol Dimethacrylate		Triethyleneglycol Dimethacrylate		1, 3-Butyleneglycol Dimethacrylate		
Abbreviations			EDMA		3EDMA		BDMA		
Chemical Formula			$\text{CH}_2=\text{C}(\text{CH}_3)\text{COO}-\text{CH}_2$ $\text{CH}_2=\text{C}(\text{CH}_3)\text{COO}-\text{CH}_2$		$\text{CH}_2=\text{C}(\text{CH}_3)\text{CO}(\text{OC}_2\text{H}_4)_3$ $\text{CH}_2=\text{C}(\text{CH}_3)\text{COO}$		$\text{CH}_2=\text{C}(\text{CH}_3)\text{COOCH}_2\text{CH}_2$ $\text{CH}_2=\text{C}(\text{CH}_3)\text{COOCH}(\text{CH}_3)$		
Specifications & Typical Properties			Specifications	Typical properties	Specifications	Typical properties	Specifications	Typical properties	
	Color when shipped (APHA)		20 max.	10 max.	100 max.	30 max.	50 max.	10 max.	
	Specific Gravity (20°C/4°C)		1.048~1.054	1.052	1.075~1.081	1.078	1.012~1.018	1.014	
	Acidity (as methacrylic acid) %		0.05 max.	0.01	0.5 max.	0.01	0.01 max.	0.001	
	Purity %	PSDB							
		Gas chromatography	98.0 min.	99.0	95.0 min.	99.8	96.0 min.	99.0	
	Water when shipped (by Karl Fisher) %		0.3 max.	0.01	0.3 max.	0.02	0.2 max.	0.02	
	Inhibitors	HQ	ppm	100					
		MEHQ	ppm			200		200	
Topanol		ppm							
Package & Net Weight			200kg Iron drum		200kg Chemi drum		200kg Iron drum		
General Properties	Molecular Weight		198.22		286.33		226.28		
	Refractive Index (n _D ²⁰)		1.4554		1.4600		1.4535		
	Viscosity (20°C) mPa·s		3.20		10.20		4.40		
	Freezing Point °C		-40		-55		below -60		
	Specific Heat J/(g·°C)		1.84		1.89		1.84		
	Heat of Polymerization kJ/mol		-		-		-		
	Boiling Point °C/hPa		97/5.3		162/2.7		110/4.0		
	Solubility (20°C)	Water in %	0.70		2.22		0.69		
		In Water %	0.18		1.91		0.08		
	Flash Point °C		118		164		130		
	Toxicity (Acute oral LD ₅₀ , rats, mg/kg)		3,300		10,837		-		
	Tg of Polymer °C		-		-		-		
Uses			• Cross linking agent • Plastisol • Rubber modifier • Leather treatment agent • Paper processing material • Ion exchange resin • Dental material • Optical material • Modifier • Coating and covering material • Adhesives • etc.		• Cross linking agent • Plastisol • Acrylic sheet and rod modifier • Rubber modifier • Ion exchange resin • Dental material • Resin modifier • etc.		• Cross linking agent • Resin modifier • Rubber modifier • Sheet modifier • Adhesives • Textile treatment agent • FRP modifier • etc.		
Regulatory	CAS No.		97-90-5		109-16-0		1189-08-8		
	USA TSCA		Inventoried		Inventoried		Inventoried		
	EU EINECS No.		202-617-2		203-652-6		214-711-0		
	CANADA DSL/NSDL		DSL:Inventoried		DSL:Inventoried		DSL:Inventoried		
	AUSTRALIA AICS		Inventoried		Inventoried		Inventoried		
	KOREA ECL No.		KE-24996		KE-24994		KE-25129		
	CHINA IECSC		Inventoried		Inventoried		Inventoried		

Di / Tri Methacrylates ii

Classification				Di / Tri Methacrylates			
Chemical name of monomer				1, 6-Hexanediol Dimethacrylate		Trimethylolpropane Trimethacrylate	
Abbreviations				HXMA		TMPMA	
Chemical Formula				CH₂=C(CH₃)COO(CH₂)₆ — CH₂=C(CH₃)COO —		CH ₃ CH ₂ C- [CH ₂ =C(CH ₃)COOCH ₂] ₃	
Specifications & Typical Properties				Specifications	Typical properties	Specifications	Typical properties
	Color when shipped (APHA)			100 max.	10 max.	50 max.	20 max.
	Specific Gravity (20°C/4°C)			0.996~1.003	1.002	1.062~1.068	1.065
	Acidity (as methacrylic acid) %			0.03 max.	0.001	0.01 max.	0.001
	Purity %	PSDB				95.0 min.	98.4
		Gas chromatography		97.0 min.	99.3		
	Water when shipped (by Karl Fisher) %			0.1 max.	0.01	0.2 max.	0.02
	Inhibitors	HQ	ppm				
		MEHQ	ppm	60		60	
Topanol		ppm					
Package & Net Weight			200kg Iron drum		200kg Chemi drum		
General Properties	Molecular Weight			254.33		338.41	
	Refractive Index (n _D ²⁰)			1.4570		1.4750	
	Viscosity (20°C) mPa·s			4.00		57.00	
	Freezing Point °C			below -10		-32.5	
	Specific Heat J/(g·°C)			-		1.76	
	Heat of Polymerization kJ/mol			-		-	
	Boiling Point °C/hPa			128/2.7		185/6.7	
	Solubility (20°C)	Water in	%	0.61		0.49	
		In Water	%	below 0.02		0.02	
	Flash Point °C			145		174	
	Toxicity (Acute oral LD ₅₀ , rats, mg/kg)			-		6,028	
	Tg of Polymer °C			-		-	
Uses				• Cross linking agent • Coating modifier • Adhesives • Rubber modifier • Ion exchange resin • etc.		• Cross linking agent • Rubber modifier • Adhesives • Plastisol • Resin modifier • etc.	
Regulatory	CAS No.			6606-59-3		3290-92-4	
	USA TSCA			Inventoried		Inventoried	
	EU EINECS No.			229-551-7		221-950-4	
	CANADA DSL/NSDL			NDSL:Inventoried		DSL:Inventoried	
	AUSTRALIA AICS			Inventoried		Inventoried	
	KOREA ECL No.			2002-3-2119		KE-25014	
	CHINA IECSC			Inventoried		Inventoried	

10

Amino Methacrylates

Classification		Amino Methacrylates					
Chemical name of monomer		Dimethylaminoethyl Methacrylate		Diethylaminoethyl Methacrylate		Dimethylaminoethyl Methacrylate Methylchloride Salt	
Abbreviations		DMMA		DEMA		DMCMA	
Chemical Formula		$\text{CH}_2=\text{C}(\text{CH}_3)\text{COO}-\text{CH}_2\text{CH}_2\text{N}(\text{CH}_3)_2$		$\text{CH}_2=\text{C}(\text{CH}_3)\text{COO}-\text{CH}_2\text{CH}_2\text{N}(\text{CH}_2\text{CH}_3)_2$		$[\text{CH}_2=\text{C}(\text{CH}_3)\text{COO}-\text{CH}_2\text{CH}_2\text{N}(\text{CH}_3)_3]^+\text{Cl}^-$	
Specifications & Typical Properties		Specifications	Typical properties	Specifications	Typical properties	Specifications	Typical properties
	Color when shipped (APHA)	20 max.	10 max.	30 max.	10 max.	100 max.	30 max.
	Specific Gravity (20°C/4°C)	0.930~0.936	0.934	0.918~0.924	0.921	1.108~1.114	1.111
	Acidity (as methacrylic acid) %	-	-	-	-	0.2 max.	0.10
	Purity %	PSDB				79 min.	80.6
		Gas chromatography	98.5 min.	99.7	98.5 min.	99.6	
	Water when shipped (by Karl Fisher) %	0.2 max.	0.02	0.1 max.	0.05	21 max.	19.3
	Inhibitors	HQ ppm					
		MEHQ ppm	2000	2000		2000	
		Topanol ppm					
Package & Net Weight		180kg Iron drum		180kg Iron drum		200kg Chemi drum	
General Properties	Molecular Weight	157.22		185.27		207.73	
	Refractive Index (n_D^{20})	1.4414		1.4454		1.4802	
	Viscosity (20°C) mPa·s	1.34		1.80		108.00	
	Freezing Point °C	below -60		below -60		15	
	Specific Heat J/(g·°C)	1.84		1.84		-	
	Heat of Polymerization kJ/mol	-		-		-	
	Boiling Point °C/hPa	186/1013, 97.5/53, 87.5/33, 68.5/13.3		114/40		-	
	Solubility (20°C)	Water in %	∞	1.50	∞	∞	
		In Water %	∞	1.33	∞	∞	
	Flash Point °C	65		94		-	
Uses	Toxicity (Acute oral LD ₅₀ , rats, mg/kg)	2,659		4,696		over 2,000	
	Tg of Polymer °C	18		16~24		-	
		• Coating • Textile treatment agent • Adhesives • Paper processing material • Polymer modifier • Lube oil additives • Rubber modifier and stabilizer • Ion exchange resin • Water treatment agents • etc.		• Coating • Polymer modifier • etc.		• Water treatment agents • Paper processing material • etc.	
	CAS No.	2867-47-2		105-16-8		5039-78-1	
	USA TSCA	Inventoried		Inventoried		Inventoried	
	EU EINECS No.	220-688-8		203-275-7		225-733-5	
	CANADA DSL/NSDL	DSL:Inventoried		DSL:Inventoried		DSL:Inventoried	
	AUSTRALIA AICS	Inventoried		Inventoried		Inventoried	
	KOREA ECL No.	KE-24960		KE-24955		KE-34584	
	CHINA IECSC	Inventoried		Inventoried		Inventoried	

Heterocyclic Methacrylates

Classification				Heterocyclic Methacrylates			
Chemical name of monomer				Glycidyl Methacrylate		Tetrahydrofurfuryl Methacrylate	
Abbreviations				GMA		THFMA	
Chemical Formula				$\begin{array}{c} \text{CH}_2=\text{C}(\text{CH}_3)\text{COO}- \\ \text{CH}_2-\text{CH}-\text{CH}_2 \\ \text{Q} \quad \diagup \end{array}$		$\begin{array}{c} \text{CH}_2=\text{C}(\text{CH}_3)\text{COO}- \\ \text{CH}_2-\text{CH}_2 \\ \text{CH}_2-\text{CH}-\text{CH}_2 \\ \text{O} \quad \diagup \quad \diagdown \end{array}$	
Specifications & Typical Properties				Specifications	Typical properties	Specifications	Typical properties
	Color when shipped (APHA)			30 max.	10 max.	100 max.	15 max.
	Specific Gravity (20°C/4°C)			1.071~1.080	1.074	1.037~1.043	1.041
	Acidity (as methacrylic acid) %			Chlorine 1.0 max.	Chlorine 0.2	0.1 max.	0.03
	Purity %	PSDB					
		Gas chromatography		97.0 min.	98.5	98.5 min.	99.2
	Water when shipped (by Karl Fisher) %			0.1 max.	0.03	0.3 max.	0.12
	Inhibitors	HQ	ppm				
		MEHQ	ppm	50 / 100		1000	
Topanol		ppm					
Package & Net Weight			200kg Iron drum		200kg Chemi drum		
General Properties	Molecular Weight			142.16		170.21	
	Refractive Index (n _D ²⁰)			1.4495		1.4591	
	Viscosity (20°C) mPa·s			2.53		2.84	
	Freezing Point °C			below -60		below -60	
	Specific Heat J/(g·°C)			1.76		1.89	
	Heat of Polymerization kJ/mol			-		-	
	Boiling Point °C/hPa			189/1013, 75/13.3		81~85/5.3, 75/4.0	
	Solubility (20°C)	Water in	%	2.04		2.04	
		In Water	%	2.50		2.10	
	Flash Point °C			86		106	
	Toxicity (Acute oral LD ₅₀ , rats, mg/kg)			500		3,945	
	Tg of Polymer °C			46		60	
Uses				• Coating • Textile treatment agent • Rubber modifier • Resin modifier • Photo-sensitive resin • etc.		• Coating • Cross linking agent • Rubber modifier • etc.	
Regulatory	CAS	No.	106-91-2		2455-24-5		
	USA	TSCA	Inventoried		Inventoried		
	EU	EINECS	No.	203-441-9		219-529-5	
	CANADA	DSL/NSDL	DSL:Inventoried		DSL:Inventoried		
	AUSTRALIA	AICS	Inventoried		Inventoried		
	KOREA	ECL	No.	KE-25148		KE-25279	
	CHINA	IECSC	Inventoried		Inventoried		

Vinyl / Alkoxy / Aromatic Methacrylates i

Classification				Vinyl / Alkoxy / Aromatic Methacrylates			
Chemical name of monomer				Allyl Methacrylate		2-Ethoxyethyl Methacrylate	
Abbreviations				AMA		ETMA	
Chemical Formula				$\text{CH}_2=\text{C}(\text{CH}_3)\text{COO}-\text{CH}_2\text{CH}=\text{CH}_2$		$\text{CH}_2=\text{C}(\text{CH}_3)\text{COO}-\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$	
Specifications & Typical Properties				Specifications	Typical properties	Specifications	Typical properties
	Color when shipped (APHA)			50 max.	5 max.	20 max.	10 max.
	Specific Gravity (20°C/4°C)			0.930~0.936	0.933	0.964~0.970	0.967
	Acidity (as methacrylic acid) %			0.05 max.	0.01	0.05 max.	0.002
	Purity %	PSDB					
		Gas chromatography		99.0 min.	99.9	98.0 max.	99.9
	Water when shipped (by Karl Fisher) %			0.1 max.	0.01	0.5 max.	0.02
	Inhibitors	HQ ppm					
		MEHQ ppm		250		100	
		Topanol ppm					
Package & Net Weight			180kg Chemi drum		180kg Iron drum		
General Properties	Molecular Weight			126.16		158.2	
	Refractive Index (n _D ²⁰)			1.4373		1.4128	
	Viscosity (20°C) mPa·s			1.09		3.50	
	Freezing Point °C			below -60		below -60	
	Specific Heat J/(g·°C)			1.89		-	
	Heat of Polymerization kJ/mol			-		62.0	
	Boiling Point °C/hPa			144/1013		122/133	
	Solubility (20°C)	Water in %		0.50		1.70	
		In Water %		0.12		1.30	
	Flash Point °C			37.5		73.5	
	Toxicity (Acute oral LD ₅₀ , rats, mg/kg)			70		8300 (mouse)	
	Tg of Polymer °C			52		-31	
Uses				• Cross linking agent • Resin modifier for improving surface hardness • Resin modifier for improving thermoplastic • Rubber modifier • etc.		• Coating • Paper processing material • Adhesives • etc.	
Regulatory	CAS No.			96-05-9		2370-63-0	
	USA TSCA			Inventoried		Inventoried	
	EU EINECS No.			202-473-0		219-135-3	
	CANADA DSL/NSDL			DSL:Inventoried		NDSL:Inventoried	
	AUSTRALIA AICS			Inventoried		Inventoried	
	KOREA ECL No.			KE-25269		-	
	CHINA IECSC			Inventoried		Inventoried	

13

Vinyl / Alkoxy / Aromatic Methacrylates ii

Classification			Vinyl / Alkoxy / Aromatic Methacrylates				
Chemical name of monomer			2-Methoxyethyl Methacrylate		Benzyl Methacrylate		
Abbreviations			MTMA		BZMA		
Chemical Formula			$\text{CH}_2=\text{C}(\text{CH}_3)\text{COO}-\text{CH}_2\text{CH}_2\text{OCH}_3$		$\text{CH}_2=\text{C}(\text{CH}_3)\text{COO}-\text{CH}-\text{CH}_2-\text{C}_6\text{H}_5$		
Specifications & Typical Properties			Specifications	Typical properties	Specifications	Typical properties	
	Color when shipped (APHA)		20 max.	10 max.	30 max.	15 max.	
	Specific Gravity (20°C/4°C)		0.992~0.998	0.995	1.036~1.042	1.040	
	Acidity (as methacrylic acid) %		0.1 max.	0.003	0.05 max.	0.03	
	Purity %	PSDB					
		Gas chromatography	98.0 max.	99.7	98.0 min.	99.0	
	Water when shipped (by Karl Fisher) %		0.1 max.	0.06	0.1 max.	0.03	
	Inhibitors	HQ	ppm				
		MEHQ	ppm	100		200	
		Topanol	ppm				
Package & Net Weight		180kg Iron drum		200kg Iron drum			
General Properties	Molecular Weight		144.17		176.22		
	Refractive Index (n _D ²⁰)		1.4278		1.5144		
	Viscosity (20°C) mPa·s		3.40		2.68		
	Freezing Point °C		below -60		below -60		
	Specific Heat J/(g·°C)		-		-		
	Heat of Polymerization kJ/mol		-		53.1		
	Boiling Point °C/hPa		113/133		160/213, 115/21.3		
	Solubility (20°C)	Water in	%	2.30		0.30	
		In Water	%	1.80		0.14	
	Flash Point °C		66.5		115		
	Toxicity (Acute oral LD ₅₀ , rats, mg/kg)		-		3,633		
	Tg of Polymer °C		-2		54		
Uses			• Coating • Textile treatment agent • Adhesives • Ink • etc.		• Polymer modifier • Optical material • Coating modifier • Textile treatment agent • etc.		
Regulatory	CAS No.		6976-93-8		2495-37-6		
	USA	TSCA	Inventoried		Inventoried		
	EU	EINECS No.	230-241-9		219-674-4		
	CANADA	DSL/NSDL	NDSL:Inventoried		DSL:Inventoried		
	AUSTRALIA	AICS	Inventoried		Inventoried		
	KOREA	ECL No.	-		KE-25170		
	CHINA	IECSC	Inventoried		Inventoried		