UV Curable Resin

ARONIX®
ARON OXETANE®

Toagosei America Inc.

1450 West Main Street West Jefferson,
Ohio 43162
Tel : 614-879-9411
https://aronalpha.net/
hkato@toagosei.net

■ What is Aronix®?

Aronix® is the brand name for special acrylic monomers and oligomers developed by Toagosei Co., Ltd. Aronix® on the market includes special acrylates, urethane acrylates, and polyester acrylates.

・Special acrylates

Generally, this type has low viscosity, low irritation and excellent light curing. Therefore, these acrylates are effective in lowering the viscosity of acrylic oligomers and are used as a reactive diluent to improve the adhesiveness, heat-resistance, hardness, and curing of acrylic oligomers.

・Urethane acrylates

This type has urethane bonding as its major chain, so its coating film is very tough. It has good adhesiveness with various materials.

・Polyester acrylates

This type has ester bonding as its major chain and two or more acrylic unsaturated bonds in its molecule. It is easily liquidized at lower viscosities than other acrylic oligomers and has good compatibility with other polymers or oligomers.

Various curing methods are available by using these features of Aronix®. Moreover, hard to soft types can be designed for different uses and functions by bonding various molecules.

■ Curing Aronix®

The following table lists typical curing methods for Aronix®.

Curing methods		Catalyst System Sample
Radical polymerization	Heat curing : fumace,infrared, and microwave	Add catalyst (radical generator) such as benzoyl peroxide and dicumyl peroxiced.
	Normal temperature curing by redox polymerization	Add benzoylperoxide (dimethylanilin) orcumenehydroperoxide(vanazium system accelerator).
	Anaerobic curing	Add hydroperox:ide, tertiary amine,sulfonamide.
	UV curing	Add light initiator (benzoin alkylether, benzophenone, acetophenone, etc.).
	Electron-beam curing	No catalyst
Michael Addition Polymerization	Normal temperature and heat curing	Add polyamine containing primary and secondary amino groups.

■Types of Aronix®

Aronix® is classified according to the resin structure and the number of acryloyl groups as listed in the following tables.

・Special acrylates

	Grade	Chemlcal Nomenclature	General Code	Feature
Monofunctional	M-101	Phenol polyethoxylate acrylate (n≒2)		Low viscosity Low toxicity Good pliability
	M-111	Nonylphenol polyethoxylate acrylate (n≒1)		
	M-113	Nonylphenol polyethoxylnte acrylate (n≒4)		
	M-120	2-Ethylhexylcarbitol acrylate		
	M-140	N-(Acryloyloxyethyl)hexahydrophthalimide		
Bifunotional	M-211B	Bisphenol-A polyethoxylate diacrylate (n≒2)		Low viscosity Low toxicity
	M-215	THEIC (Trishydroxyethyl isocyanurate) diacylate		
	M-220	Tripropyleneglycol diacylate(n≒3)	TPGDA	
	M-225	Polypropyleneglycol diacrylate (n≒7) (PPG#400)	PPGDA	
	M-240	Tetraethyleneglycol diacrylate (n≒4) (PEG#200)	TEGDA	
	M-270	Polypropyleneglycol diacrylate (n≒12)	PPGDA	
Trifunctional	M-305	Pentaerythritol triacrylate	PETA	Low viscosity Low toxicity Good curing
	M-309	Trimethylolpropane triacrylate	TMPTA	
	M-315	THEIC (Trishydroxyethyl isocyanurate) triacrylate (n≒3)		
	M-321	Trimethylolpropane Polypropoxylate triacrylate (n≒2)		
	M-350	Trimethylolpropane polyethoxylate triacrylate (n≒ I)		
	M-360	Trimethy!olpropane polyethoxylate triacrylate (n≒2)		
Multi-functlonal	M-400	Dipentaerythritol penta- and hexa-acrylate	DPHA	Low toxicity Good curing High hardness
	M-408	Ditrimethylolpropane tetra-acrylate	DTMPTA	
	M-450	Pentaerythritol tetra-acrylate		

・Urethane acrylates

Functional group number	Grade	Features
Bifunctional	M-1100	Yellowing type and medium-hard type
	M-1200	Non-yellowing and medium-hard type

・Special acrylates

Functional group number	Grade.	Features
Monofunctional	M-5000 Series	-COOH and -OH group monomer

・Polyester acrylates

Functional group number	Grade	Features
Bifunctional	M-6000 Series	Low toxicity and low viscosity
Multi-functional	M-7000 Series	Low toxicily,high gloss and good curing
	M-8000 Series	Low toxicity,high hardness and good curing
	M-9000 Series	Heat resistance, high hardness and good curing

■ What is Aron Oxetane®?

Aron Oxetane® is the brand name for oxetane resin commercialized earlier by Toagosei than any other business in the world.
Falling under the category of cationic curable resins, it is chiefly used in combination with epoxy resins.

Monofunctional and bifunctional oxetane resins have very poor viscosity and make it possible to blend a larger amount of high viscosity resin to extend the range of mixing formulas. In addition, with the high reactivity of oxetane resin, it is possible to blend glycidyl ether epoxy resin, such as bisphenol-A type and novolac type resin, or epoxy modified butadiene and other resins marketed as epoxy modified polymer. Normally such resins cannot be used for cationic polymerization because of their poor reactivity. It is one of the most effective blending solutions for producing adhesives and sealing agents and ink of ink jet or 3D printer.

・Oxetane resins

Functional group number	Grade	Features
Monofunctional	OXT-101 (OXA)	Water soluble
	OXT-212 (EHOX)	Reduction of surface tension
Bifunctional	OXT-121 (XDO)	Good chemical resistance
	OXT-221 (DOX)	Good chemical resistance Good heat resistance

■ Primary Irritation Index (P.I.I.)

Huntingdon Life Sciences UK reported the following irritation ranking;
less than level 2 is generally accepted as a low-irritant oligomer.

P.I.I. Class	Description
0	non-irritant
>0-2	mildly irritanting
>2-5	moderate irritant
>5-6	moderate to servere irritant
>6	severe irritant

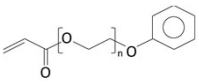
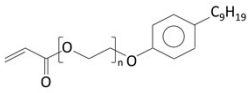
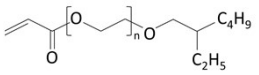
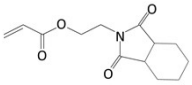
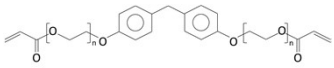
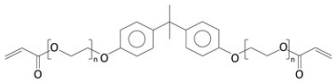
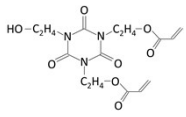
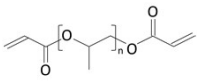
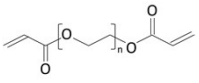
See the table for the P.I.I. of Aronix ® and Aron Oxetane ®.

■ Storage of Aronix® and Aron Oxetane®

Store in accordance with local / regional / national / international regulation.

- Keep away from ignition sources such as heat / sparks / open flame.
  Do not allow storing with oxidizable material or peroxide in same place.
- Avoid direct sunlight, and store in cool / dark / well-ventilated place (below 30℃)
- If in depository, use electrical equipment which owns explosion protection.
  Ground / Bond container and receiving equipment.
- Keep only in original container.

○Aronix®

Trade name	Type	Name of acrylate		Color (APHA)	Viscosity (mPa・s/℃)	Acid value (mgKOH/g)	Refractive index (1) (n_D^{25})	Flash point (℃)
M-101A	Monofunctional	 Phenol polyethoxylate acrylate	n ≒ 2	≦300	10-20/25	≦1.0	1.514	177
M-102			n ≒ 4	≦300	20-40/25	≦1.0	1.507	186
M-111		 Nonylphenol polyethoxylate acrylate	n ≒ 1	≦350	60-90/25	≦1.0	1.507	156
M-113			n ≒ 4	≦200	80-110/25	≦0.5	1.501	224
M-120		 2-Ethylhexyl polyethoxylate acrylate	n ≒ 2	≦150	4-7/25	≦0.3	1.450	140
M-140		 N-(Acryloyloxyethyl)hexahydrophthalimide		≦500	350-550/25	≦1.0	1.506	190
M-208	Bifunctional	 Bisphenol-F polyethoxylate(n ≒ 2) diacrylate		≦150	500-700/25	≦1.0	1.539	Polymeri-zation at 155℃
M-211B		 Bisphenol-A polyethoxylate(n ≒ 2) diacrylate		≦300	950-1,350/25	≦1.0	1.536	Polymeri-zation at 210℃
M-215		 THEIC (Trishydroxyethyl isocyanurate) diacrylate		≦100	3,500-15,000/25	≦1.3	1.515	35
M-220 (TPGDA)		 Polypropylene glycol diacrylate	n ≒ 3	≦250	8-15/25	≦1.0	1.455	157
M-225 (PPGDA)			n ≒ 7	≦200	20-40/25	≦1.0	1.450	208
M-270 (PPGDA)			n ≒ 12	≦200	65-85/25	≦1.0	1.451	Polymeri-zation at 240℃
M-240 (TEGDA)		 Polyethyleneglycol diacrylate	n ≒ 4	≦100	13-24/25	≦1.0	1.469	Polymeri-zation at 154℃

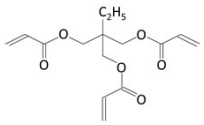
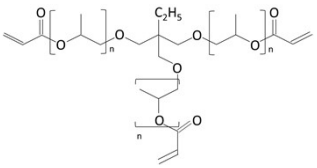
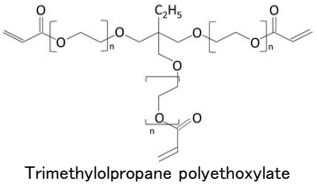
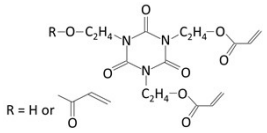
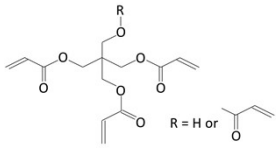
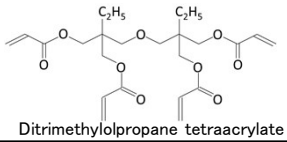
The data shown in the table are based on our internal experiments with the utmost care, but they are not necessarily guaranteed value.
(1)before curing (liquid)

○Aronix®

Trade name	Inhibitor (ppm)	Skin irritation (P.I.I.)	Registration(2)				Properties of cured film			Package	Characteristics
			U.S.A. TSCA	Japan METI	Korea ECL	China CRC	Tensile strength (MPa)	Elon-gation (%)	Tg (℃)		
M-101A	170	0.7	○	○	○	○	N/A	N/A	-8	17kg 190kg	Low odor, low skin irritation
M-102	240	0.0	○	○	○	○	N/A	N/A	-18	17kg	Low odor, low viscosity
M-111	90	2.3	○	○	○	○	0.59	250	17	17kg	Superior compatibility
M-113	130	1.1	○	○	○	○	0.10	50	-20	17kg 190kg	Low Tg
M-120	480	3.5	×	○	○	○	N/A	N/A	-65	16kg 180kg	Low viscosity, Low Tg
M-140	460/HQ	0.9	LVE	○	×	○	8.3	0-5	56	18kg	Fast curability, superior flexibility Superior adhesion to metals and plastics
M-208	770	0.0	×	○	○	○	58	5	75	18kg 200kg	Fast curability, Low skin irritation
M-211B	460	0.4	○	○	○	○	52	0-10	75	18kg 200kg	Fast curability, low skin irritation, High hardness of cured product
M-215	1,470	3.7	○	○	○	○	49	0-10	166	18kg 200kg	Contains toluene (4-9%) Contains OH groups Superior heat resistance High hardness of cured product
M-220 (TPGDA)	370	1.4	○	○	○	○	24	0-5	90	17kg 200kg	Low skin irritation Low viscosity
M-225 (PPGDA)	100	0.8	×	○	×	○	2.6	10	-8	17kg 190kg	Superior dilution ability (PPG#400)
M-270 (PPGDA)	110	0.0	×	○	×	○	0.88	5	-32	17kg 190kg	(PPG#700)
M-240 (TEGDA)	200	4.0	○	○	○	○	19	0-10	50	18kg 200kg	Low viscosity (PEG#200)

The data shown in the table are based on our internal experiments with the utmost care, but they are not necessarily guaranteed value.
(2) A circle (○) symbol represents that a reference has been confirmed. A cross (×) symbol represents that there is no reference or that the reference has not been confirmed.

○Aronix®

Trade name	Type	Name of acrylate		Color (APHA)	Viscosity (mPa・s/℃)	Acid value (mgKOH/g)	Refractive index (1) (n_D^{25})	Flash point (℃)
M-309 (TMPTA)	TMPTA (Multifunctional)	 Trimethylolpropane triacrylate		≦200	60-110/25	≦1.0	1.480	167
M-310		 Trimethylolpropane polypropoxylate triacrylate	n ≒ 1	≦160	60-110/25	≦1.0	1.466	Polymeri-zation at 190℃
M-321 (POTMPTA)			n ≒ 2	≦300	70-170/25	≦2.0	1.457	Polymeri-zation at 230℃
M-350 (EOTMPTA)		 Trimethylolpropane polyethoxylate triacrylate	n ≒ 1	≦100	45-65/25	≦0.4	1.476	Polymeri-zation at 178℃
M-360			n ≒ 2	≦200	65-90/25	≦0.5	1.476	Polymeri-zation at 200℃
M-313	THEIC (Multifunctional)	 THEIC (Trishydroxyethyl isocyanurate) diacrylate and triacrylate	Di(%) 30-40	≦100	20,000-36,000/25	≦1.0	1.509	Polymeri-zation at 180℃
M-315			Di(%) 3-13	≦500 (when melting)	600-1,200/50	≦1.0	Solid	Polymeri-zation at 164℃
M-306 (PETA)	PETA	 Pentaerythritol triacrylate and tetraacrylate	Tri(%) 65-70	≦150	400-650/25	≦2.0	1.490	Polymeri-zation at 190℃
M-305 (PETA)			Tri(%) 55-63	≦100	180-800/25	≦1.0	1.490	Polymeri-zation at 190℃
M-450 (PETTA)			Tri(%) < 10	≦200	60-100/50	≦1.0	Solid	199
M-408 (DTMPTA)	DTMPTA (Multifunctional)	 Ditrimethylolpropane tetraacrylate		≦300	470-670/25	≦1.0	1.490	Polymeri-zation at 170℃

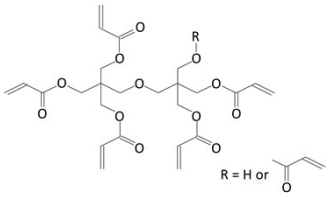
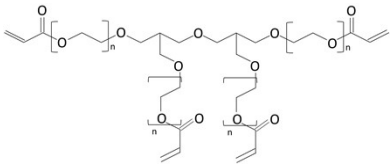
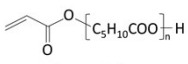
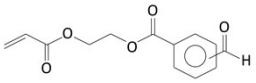
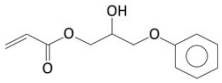
The data shown in the table are based on our internal experiments with the utmost care, but they are not necessarily guaranteed value.
(1)before curing (liquid)

○Aronix®

Trade name	Inhibitor (ppm)	Skin irritation (P.I.I.)	Registration(2)				Properties of cured film			Package	Characteristics
			U.S.A. TSCA	Japan METI	Korea ECL	China CRC	Tensile strength (MPa)	Elon-gation (%)	Tg (℃)		
M-309 (TMPTA)	100	3.2	○	○	○	○	23	0-5	≧250	18kg 200kg	Superior compatibility
M-310	430	1.1	○	○	○	○	17	0-5	120	18kg	Low skin irritation
M-321 (POTMPTA)	450	1.6	○	○	○	○	25	5	50	18kg 200kg	
M-350 (EOTMPTA)	290	1.0	○	○	○	○	44	3	N/A	18kg 200kg	Fast curability
M-360	960	2.1	○	○	○	○	28	5	53	18kg	
M-313	550	0.0	○	○	○	○	35	0-5	≧250	18kg 200kg	Superior adhesion to plastics
M-315	1,270	0.1	○	○	○	○	69	0-10	≧250	18kg 200kg	Wax form, Superior heat resistance Solvent-diluted product available
M-306 (PETA)	1,000	N/A	○	○	○	○	N/A	N/A	≧250	18kg 200kg	Fast curability For urethane modification
M-305 (PETA)	610	2.8	○	○	○	○	38	0-5	≧250	18kg 200kg	For general purpose product Fast curability
M-450 (PETTA)	360	0.4	○	○	○	○	N/A	N/A	≧250	18kg 200kg	Wax form Fast curability
M-408 (DTMPTA)	210	0.0	○	○	○	○	N/A	N/A	≧250	18kg 200kg	Superior reactivity and compatibility

The data shown in the table are based on our internal experiments with the utmost care, but they are not necessarily guaranteed value.
(2) A circle (○) symbol represents that a reference has been confirmed. A cross (×) symbol represents that there is no reference or that the reference has not been confirmed.

○Aronix®

Trade name	Type	Name of acrylate		Color (APHA)	Viscosity (mPa・s/℃)	Acid value (mgKOH/g)	Refractive index (1) (n_D^{25})	Flash point (℃)
M-403 (DPHA)	DPHA Multi-functional	 Dipentaerythritol pentaacrylate and hexaacrylate	Penta(%) 50-60	≦300	Solid or 7,500-9,500/25	≦5.0	N/A	Polymeri-zation at 200℃
M-400 (DPHA)			Penta(%) 40-50	≦200	Solid or 5,000-7,000/25	≦2.5	1.494	Polymeri-zation at 180℃
M-402 (DPHA)			Penta(%) 30-40	≦100	Solid or 5,000-7,400/25	≦0.5	1.494	Polymeri-zation at 176℃
M-404 (DPHA)			Penta(%) 30-40	≦100	4,500-7,000/25	≦1.0	N/A	Polymeri-zation at 170℃
M-406 (DPHA)			Penta(%) 25-35	≦200	Solid or 6,800-9,800/25	≦1.0	N/A	Polymeri-zation at 170℃
M-405 (DPHA)			Penta(%) 10-20	≦150	3,700-5,700/25	≦0.2	1.493	Polymeri-zation at 175℃
M-460	Multi-functional	 Diglycerol monoethoxylate tetraacrylate		≦200	200-500/25	≦1.0	N/A	Polymeri-zation at 180℃
M-5300	Mono-functional	 ω-Carboxy-polycaprolactone monoacrylate	n ≒ 2	N/A	80-180/25	140-260	1.468	158
M-5400		 Phthalic acid monohydroxyethyl acrylate		N/A	4,000-7,000/25	190-220	1.530	140
M-5700		 2-Hydroxy-3-phenoxypropyl acrylate		≦100	140-190/25	≦0.5	1.530	133
M-510	Multi-functional	Modified polybasic acid-modified acrylic oligomer		≦100	3,500-6,500/25	80-120	N/A	170
M-520				≦100	Solid or 11,500-16,500/25	20-40	N/A	Polymeri-zation at 160℃
M-1100	Urethane (Bifunctional)	Non-disclosure		N/A	70,000-130,000/50	N/A	1.512	Polymeri-zation at 190℃
M-1200				N/A	120,000-220,000/50	N/A	1.489	Polymeri-zation at 160℃

The data shown in the table are based on our internal experiments with the utmost care, but they are not necessarily guaranteed value.
(1)before curing (liquid)

○Aronix®

Trade name	Inhibitor (ppm)	Skin irritation (P.I.I.)	Registration(2)				Properties of cured film			Package	Characteristics
			U.S.A. TSCA	Japan METI	Korea ECL	China CRC	Tensile strength (MPa)	Elon-gation (%)	Tg (℃)		
M-403 (DPHA)	460	N/A	○	○	○	○	N/A	N/A	≧250	18kg 200kg	For urethane
M-400 (DPHA)	510	0.4	○	○	○	○	N/A	N/A	≧250	18kg 200kg	For general purpose product
M-402 (DPHA)	430	N/A	○	○	○	○	N/A	N/A	≧250	18kg 200kg	Excellent water fighting property for lithographic ink Solvent-diluted product available
M-404 (DPHA)	490	N/A	○	○	○	○	N/A	N/A	≧250	18kg 200kg	Excellent water fighting property for lithographic ink Hard to crystallize
M-406 (DPHA)	490	N/A	○	○	○	○	N/A	N/A	≧250	18kg 200kg	Excellent water fighting property for lithographic ink High viscosity type
M-405 (DPHA)	430	N/A	○	○	○	○	N/A	N/A	≧250	18kg 200kg	Excellent water fighting property for lithographic ink
M-460	1,740	N/A	×	○	×	×	N/A	N/A	N/A	18kg	Fast curability
M-5300	550	2.0	×	○	○	○	N/A	N/A	N/A	18kg 200kg	COOH group as secondary functionality
M-5400	310	4.7	×	○	×	○	39	5	N/A	18kg 200kg	COOH group as secondary functionality Fast curability
M-5700	540	0.9	○	○	○	○	1.2	200-300	17	18kg 200kg	OH group as secondary functionality Flexible
M-510	450	4.8	×	○	○	○	N/A	N/A	N/A	18kg	COOH group as secondary functionality High acid value
M-520	850	N/A	×	○	○	×	N/A	N/A	N/A	18kg	COOH group as secondary functionality
M-1100	N/A	1.1	○	○	○	○	25	50	47	18kg	Yellowing type Superior adhesion to polyvinyl chloride
M-1200	N/A	1.3	○	○	○	○	25	50	35	18kg	Non-yellowing type Superior adhesion to polyvinyl chloride

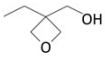
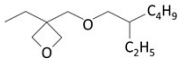
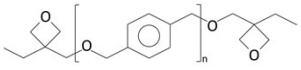
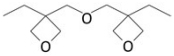
The data shown in the table are based on our internal experiments with the utmost care, but they are not necessarily guaranteed value.
(2) A circle (○) symbol represents that a reference has been confirmed. A cross (×) symbol represents that there is no reference or that the reference has not been confirmed.

○Aronix®

Trade name	Type	Name of acrylate	Color (APHA)	Viscosity (mPa・s/℃)	Acid value (mgKOH/g)	Refractive index (1) (n_D^{25})	Flash point (℃)
M-6100	Polyester (Bifunctional)	Non-disclosure	≦150	200-450/25	≦8.0	1.508	152
M-6250			≦300	300-700/25	≦1.0	1.510	159
M-6500			≦700	300-500/25	≦15.0	1.509	190
M-7100	Polyester (Multifunctional)	Non-disclosure	≦300	8,000-13,500/25	≦15.0	1.510	Polymeri-zation at 160℃
M-7300K			≦100	2,000-3,000/25	≦1.0	1.504	Polymeri-zation at 188℃
M-8030			≦200	560-960/25	≦7.0	1.487	162
M-8060			≦250	5,000-12,000/25	≦16.0	1.495	Polymeri-zation at 140℃
M-8100			≦500	8,000-12,000/25	≦20.0	1.495	12
M-8530			≦300	350-600/25	≦10.0	1.480	Polymeri-zation at 170℃
M-8560			≦300	3,400-7,400/25	≦20.0	1.486	Polymeri-zation at 160℃
M-9050			≦500	6,000-14,000/25	≦10.0	1.499	Polymeri-zation at 150℃

The data shown in the table are based on our internal experiments with the utmost care, but they are not necessarily guaranteed value.
(1)before curing (liquid)

○Aron Oxetane®

Trade name	Type	Name of acrylate	Purity (%)	Viscosity (mPa・s/℃)	Boiling point (℃/kPa)	Refractive index(1) (nD25)	Flash point (℃)	Spcific gravity (/℃)
OXT-101 (OXA)	Monofunctional	 3-Ethyl-3-hydroxymetyl-oxetane	≧98	17-22/25	105/0.93	1.449	112	1.024/20
OXT-212 (EHOX)		 3-Ethyl-3-[(2-ethylhexyloxy)methyl]oxetane	≧95	3-6/25	133/1.33	1.438	130	0.890/25
OXT-121 (XDO)	Bifunctional	 n=1-3 1,4-Bis[[(3-ethyloxetane-3-yl) methoxy]methyl]benzene (main substance)	≧95	Solid or 150-185/25	N/A	1.510	220	1.070/25
OXT-221 (DOX)		 3-Ethyl-3-[[(3-ethyloxetane-3-yl) methoxy]methyl]oxetane	≧98	9-14/25	119/0.67	1.452	144	0.998/25

The data shown in the table are based on our internal experiments with the utmost care, but they are not necessarily guaranteed value.
(1)before curing (liquid)

○Aronix®

Trade name	Inhibitor (ppm)	Skin irritation (P.I.I.)	Registration(2)				Properties of cured film			Package	Characteristics
			U.S.A. TSCA	Japan METI	Korea ECL	China CRC	Tensile strength (MPa)	Elon-gation (%)	Tg (℃)		
M-6100	540	4.0	○	○	○	○	49	10-30	29	18kg	
M-6250	350	2.3	○	○	○	○	9.8	30	45	18kg 200kg	
M-6500	600	0.8	×	○	○	○	5.9	20	40	18kg	Low skin irritation
M-7100	430	0.5	○	○	○	○	49	5-10	105	18kg 200kg	High gloss Fast curability, high hardness
M-7300K	400	1.5	×	○	×	○	26	≦1	≧250	18kg 200kg	Fast curability, high hardness Superior heat resistance
M-8030	270	3.0	○	○	○	○	29	5-10	≧250	18kg 200kg	Superior compatibility Superior heat resistance
M-8060	380	3.5	○	○	○	○	39	5-10	≧250	18kg 200kg	Superior compatibility Superior heat resistance
M-8100	500	1.9	○	○	○	○	39	5-10	163	18kg 200kg	Contains toluene (6-15%)
M-8530	400	0.0	○	○	○	○	48	5-10	N/A	18kg 200kg	Low skin irritation Fast curability
M-8560	490	1.1	○	○	○	○	51	≦1	N/A	18kg 200kg	Low skin irritation Fast curability
M-9050	630	3.4	×	○	×	○	57	5	≧300	18kg 200kg	Superior heat resistance

The data shown in the table are based on our internal experiments with the utmost care, but they are not necessarily guaranteed value.
(2) A circle (○) symbol represents that a reference has been confirmed. A cross (×) symbol represents that there is no reference or that the reference has not been confirmed.

○Aron Oxetane®

Trade name	Skin irritation (P.I.I.)	Registration(2)				Properties of cured film			Package	Characteristics
		U.S.A. TSCA	Japan METI	Korea ECL	China CRC	Spcific gravity	Curing shrinkage (%)	Tg (℃)		
OXT-101 (OXA)	0.2	○	○	○	○	1.108	7.6	46	18kg 190kg	high diluency, high cure response
OXT-212 (EHOX)	3.1	LVE Consent order	○	○	×	0.922	3.8	-60	15kg 170kg	high diluency, low surface tension
OXT-121 (XDO)	2.6	LVE	○*	×	×	1.104	3.3	94	18kg	high cross-link, high cure response
OXT-221 (DOX)	1.0	○ SNUR	○	○	○	1.056	5.5	51	15kg 190kg	high cross-link, high cure response

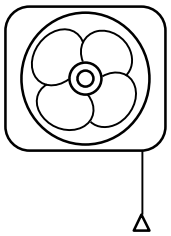
The data shown in the table are based on our internal experiments with the utmost care, but they are not necessarily guaranteed value.
(2) A circle (○) symbol represents that a reference has been confirmed. A cross (×) symbol represents that there is no reference or that the reference has not been confirmed.

■ Handling Aronix® and Aron Oxetane®

Aronix® and Aron Oxetane® are low-or medium-level skin irritant; fumes from the liquid at heating or UV curing may cause skin problems.
(See Primmy Irritation Index.)
Symptoms includes itching, red rash, and blisters. Therefore, take the following precautions when handling Aronix® and Aron Oxetane®, especially for users with skin allergies.

1.Ventilate the room fully.

The liquid has a high boiling point and is not volatile, so fumes at room temperature do not cause skin problems. However, fumes generated by heating or UV curing may cause skin problems.



2. Wear appropriate protection.

(1) Wear protective gloves, aprons, and goggles, and do not handle with bare hands.
(2) When wearing protective gloves, do not touch the skin with contaminated gloves.
(3) Use natural rubber gloves. The liquid penetrates vinyl gloves.
(4) Exposed parts such as arms, should be protected by applying protective cream.

3. Wash skin immediately if it comes into contact with the liquid.

The liquid is clear and the user may be unaware of the initial contact. But if the liquid is not washed off, it may cause skin problems. Wash the liquid off immediately with Aronix® cleaner or Soap and water. Solvent may facilitate Penetration of the liquid Through the skin, so do not use it.

4. Other precautions

- If skin problems occur, consult a doctor immediately and take medical care.
- Problems are limited to skin and do not affect other parts of the body.
- Cured material is not harmful.