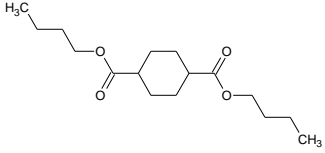
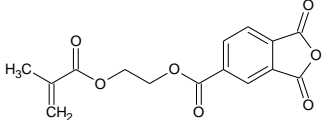
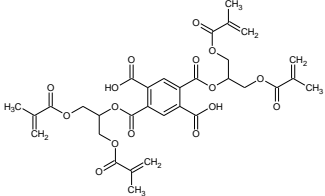
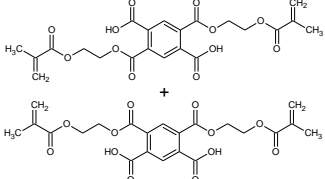


P/N	PRODUCT	CAS / TSCA Listed (Y/N)	DESCRIPTION	STRUCTURE **	FEATURES	APPEARANCE	VISCOSITY (25°C)	SUGGESTED APPLICATIONS
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FUNCTIONAL ADDITIVES

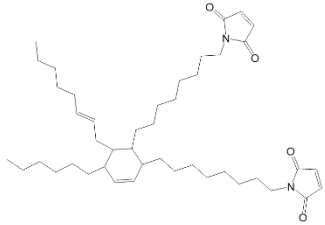
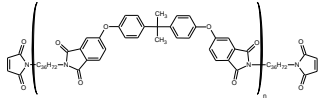
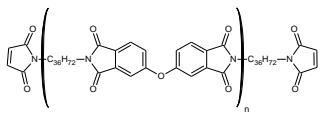
A6220	A-284	93158-39-5 (Y)	Dibutyl-1,4 Cyclohexanedicarboxylate		<ul style="list-style-type: none"> • Plasticizer • Non-phthalate • Very low viscosity 	Colorless Liquid	30	<ul style="list-style-type: none"> • For use as a plasticizer in applications where human contact is expected
R1231	A-304	70293-55-9 (N)	4-Metacryloxyethyl Trimellite Anhydride		<ul style="list-style-type: none"> • Adhesion Promoter • Versatile adhesion promoter 	White Powder/Crystals	N/A	<ul style="list-style-type: none"> • Adhesion promoter
R1251	A-675-100%	148019-46-9 (Y)	PMGDM		<ul style="list-style-type: none"> • Versatile adhesion promoter 	Light Yellow	Very viscous	<ul style="list-style-type: none"> • Adhesion promoter
R1217-M	A-478-M	Not assigned (N)	Pyromellitic Dianhydride Dimethacrylate – Mixture of Isomers		<ul style="list-style-type: none"> • Versatile adhesion promoter 	Fine White Powder	N/A	<ul style="list-style-type: none"> • Adhesion promoter
A6165	A-6165	1151654-51-1 (Y)	Soluble additive that on addition to a conductive adhesive formulation can significantly decrease the volume resistivity of the cured material	Unavailable	<ul style="list-style-type: none"> • Improves electrical conductivity in metal filed conductive paste formulations • Soluble in most resin systems • May improve thermal conductivity in some formulations 	Dark Brown Viscous Liquid	**	<ul style="list-style-type: none"> • Increases electrical conductivity of resin system

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FUNCTIONAL ADDITIVES continued....

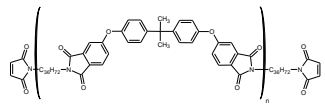
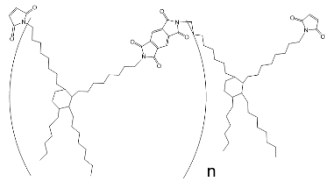
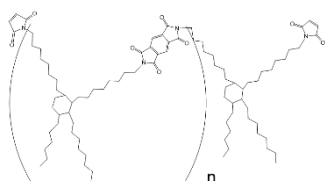
A6225	A-6225	No (N)	Antibled Additive – Silicone Mercapto Propionate (SMP)	Unavailable	<ul style="list-style-type: none"> • Excellent bleed control • Co-curable in most systems • Minimal adhesion degradation • Non-halogenated – a 'green' alternative to conventional anti-bleed and mold release materials 	Colorless Liquid	50	<ul style="list-style-type: none"> • For use as an additive to reduce resin bleed out specifically on metal surfaces
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IMIDE-EXTENDED BISMALIMIDES

R1155	BMI-689	682800-79-9 (Y-LVE)	A unique very low viscosity BMI resin	 <p>contains unsaturation</p>	<ul style="list-style-type: none"> • Toughener • Hydrophobic • High adhesion * • Superior thermal stability 	Yellow to Amber Liquid	1,500 ± 500	<ul style="list-style-type: none"> • Base resin or additive in thermoset formulations designed for high temperature resistance
R1232	BMI-1400	1224691-98-8 (Y)	An amorphous, low molecular weight bismaleimide oligomer that exhibits good adhesion to a variety of substrates	 <p>Where n = 1 to 10</p>	<ul style="list-style-type: none"> • Specialty formulated lower viscosity version of BMI-1700 	Amber	6,500 ± 1,000 (60°C)	<ul style="list-style-type: none"> • Film adhesives • Pre-applied adhesives • Adhesion to metal
R1203	BMI-1500	1290041-56-3 (Y)	An amorphous, low molecular weight bismaleimide oligomer that exhibits good adhesion to a variety of substrates	 <p>Where n = 1 to 10</p>	<ul style="list-style-type: none"> • Soluble in many reactive diluents • Hydrophobic • Superior thermal stability • High adhesion to various substrates 	Amber Viscous Liquid	20,000 ± 10,000 (60°C)	<ul style="list-style-type: none"> • Film adhesives • Pre-applied adhesives • Adhesion to metal

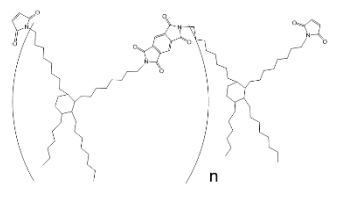
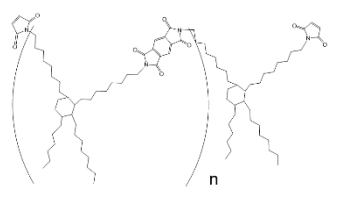
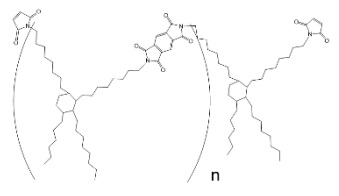
P/N	PRODUCT	CAS / TSCA Listed (Y/N)	DESCRIPTION	STRUCTURE **	FEATURES	APPEARANCE	VISCOSITY (25°C)	SUGGESTED APPLICATIONS
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IMIDE-EXTENDED BISMALEIMIDES continued....

R1191	BMI-1700	1224691-98-8 (Y)	An amorphous, low molecular weight bismaleimide oligomer that exhibits good adhesion to a variety of substrates	 <p>Where n = 1 to 10</p>	<ul style="list-style-type: none"> • Soluble in many reactive diluents • Hydrophobic • Superior thermal stability • High adhesion to various substrates 	Amber High Viscous Liquid	30,000 ± 10,000 (60°C)	<ul style="list-style-type: none"> • Film adhesives • Pre-applied adhesives • Adhesion to metal
R1316	BMI-2500	(Y)	Designed to extend the range of applications suitable for use with Designer Molecules, Inc. Imide-Extended Bismaleimide Oligomers to those in need of higher Tg and modulus.	N/A	<ul style="list-style-type: none"> • Toughener • Hydrophobic • High adhesion * • Superior thermal stability • Low pH hydrolytic resistance • Reduce resin bleed out 	Light Yellow Glassy Powder	N/A	<ul style="list-style-type: none"> • Additive to increase flexibility, hydrophobicity, thixotropy • Base resin – produces films that are tough, flexible, and have good peel strength
R1090	BMI-3000 Gel	921213-77-6 (Y)	Bismaleimide oligomer that exhibits excellent flexibility and, on cure, forms very tough hydrophobic polyimides.	 <p>Where n = 1 to 10</p>	<ul style="list-style-type: none"> • Toughener • Hydrophobic • High adhesion * • Superior thermal stability 	Red-Amber Gel	N/A	<ul style="list-style-type: none"> • Film adhesives • Pre-applied adhesives • Adhesion to metal
R1225	BMI-3000 CG	921213-77-6 (Y)	Low cost bismaleimide oligomer that exhibits excellent flexibility and, on cure, forms very tough hydrophobic polyimides.	 <p>Where n = 1 to 10</p>	<ul style="list-style-type: none"> • Low cost • Toughener • Hydrophobic • High adhesion * • Superior thermal stability 	Light Yellow Powder	N/A	<ul style="list-style-type: none"> • Film adhesives • Pre-applied adhesives • Adhesion to metal

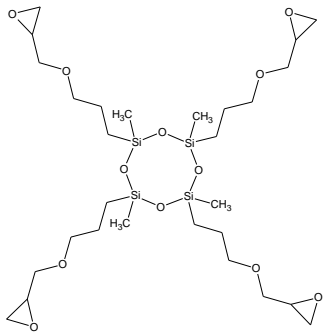
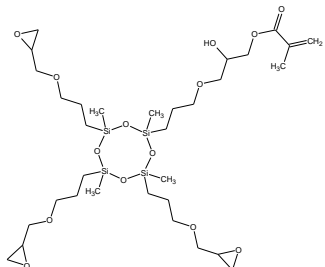
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IMIDE-EXTENDED BISMALIMIDES continued....

R1130	BMI-3000 Powder	921213-77-6 (Y)	Bismaleimide oligomer that exhibits excellent flexibility and, on cure, forms very tough hydrophobic polyimides	 Where n = 1 to 10	<ul style="list-style-type: none"> • Toughener • Hydrophobic • High adhesion * • Superior thermal stability 	Light Yellow Powder	N/A	<ul style="list-style-type: none"> • Film adhesives • Pre-applied adhesives • Adhesion to metal
R1171-P	BMI-5000 Powder	921213-77-6 (Y)	Imide-extended bismaleimide oligomer that exhibits excellent toughness in the cured state with intermediate cross-link density.	 Where n = 1 to 10	<ul style="list-style-type: none"> • Low cross-link density • Non-tacky • Film-forming • Maleimide functional oligomer • Cures to a tough thermoset • Additive to enhance toughness in thermoset compositions 	Light Yellow Powder	N/A	<ul style="list-style-type: none"> • Film adhesives • Thermally resistant adhesives
R1171-T	BMI-5000 Toluene	921213-77-6 (Y)	Imide-extended bismaleimide oligomer that exhibits excellent toughness in the cured state with intermediate cross-link density.	 Where n = 1 to 10	<ul style="list-style-type: none"> • Low cross-link density • Non-tacky • Film-forming • Maleimide functional oligomer • Cures to a tough thermoset • Additive to enhance toughness in thermoset compositions 	Dark Brown Liquid	1,000	<ul style="list-style-type: none"> • Film adhesives • Thermally resistant adhesives
R1334	BMI-6000	(Y)	A curable, low DK and Df alternative to replace both the Kapton and adhesive layers in the manufacture of FCCL materials. It can be processed in a resin system as a solid or dissolved in a solvent.	N/A	<ul style="list-style-type: none"> • Toughener • Hydrophobic • Super thermal stability • Good dielectric properties • Excellent workability • High Tg • Low CTE 	Light yellow powder	N/A	<ul style="list-style-type: none"> • Adhesive layer when laminating FCCL applications • Adhesion promoter

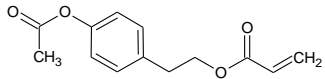
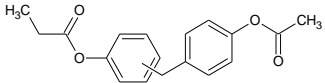
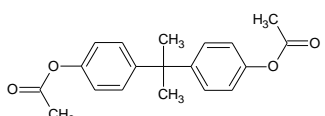
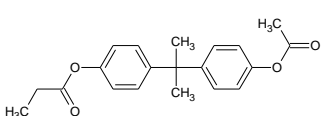
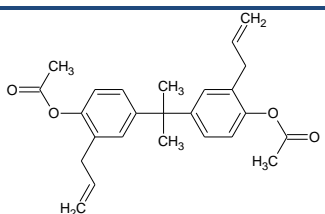
P/N	PRODUCT	CAS / TSCA Listed (Y/N)	DESCRIPTION	STRUCTURE **	FEATURES	APPEARANCE	VISCOSITY (25°C)	SUGGESTED APPLICATIONS
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CYCLOSILOXANE EPOXY HYBRIDS

R1362	CS-697	257284-60-9 (Y)	A polyglycidyl ether cyclosiloxane monomer		<ul style="list-style-type: none"> • Multifunctional • UV curable • Low chloride • Low viscosity • Colorless 	Colorless Liquid	200	<ul style="list-style-type: none"> • UV curable additive
R1366	CS-783	921214-21-3 (Y)	Methacrylate epoxy functional hybrid cyclosiloxane monomer		<ul style="list-style-type: none"> • Dual cure mechanism • Multifunctional • UV Curable • Low chloride • Low viscosity 	Yellow Liquid	250	<ul style="list-style-type: none"> • Hybrid cures • UV cures • B-stageable adhesives

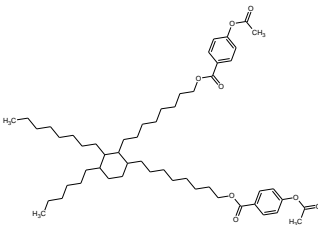
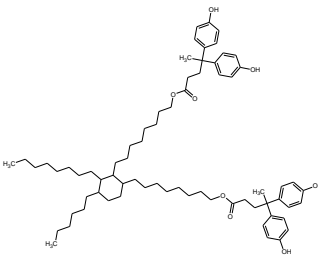
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PHENYL ESTER EPOXY CURATIVES

R1146	EC-234	926305-16-0 (Y-LVE)	Phenyl ester epoxy curative hybrid		<ul style="list-style-type: none"> • Hybrid cure • Low viscosity 	Light Yellow Liquid	40	<ul style="list-style-type: none"> • UV adhesives • B-stageable adhesives
R1170	EC-298	1044794-71-7 (Y-LVE)	Difunctional phenyl ester epoxy curative		<ul style="list-style-type: none"> • Stable • Low viscosity • Does not impede free radical cure 	Light Yellow Liquid	500	<ul style="list-style-type: none"> • Thermoset adhesives • Curative for epoxy/(meth)acrylate hybrids • Hybrid epoxy/free radical thermosets
R1227	EC-312	10192-62-8 (Y)	Difunctional phenyl ester epoxy curative		<ul style="list-style-type: none"> • Low cost • Low melting point • Thermal stability • Hydrophobic • Does not impede free radical cure 	Fine White Powder	N/A	<ul style="list-style-type: none"> • Film adhesives • Pre-applied adhesives
R1147	EC-326	N/A (Y-LVE)	Bisphenol A based acetate/propionate epoxy curative		<ul style="list-style-type: none"> • Hydrolytically resistant • Low melting point • Thermal stability • Hydrophobic • Toughener • Does not impede free radical cure 	White/Yellow Solid	2,000 ***	<ul style="list-style-type: none"> • Film adhesives • Pre-applied adhesives
R1148	EC-392	107466-61-9 (Y)	Phenyl ester epoxy curative hybrid of diallyl bisphenol A		<ul style="list-style-type: none"> • Dual cure mechanism • High cross-link density • Multifunctional • Thermal stability 	Amber Liquid	2,500	<ul style="list-style-type: none"> • B-stageable adhesives • Epoxy and BMI co-curable

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PHENYL ESTER EPOXY CURATIVES continued....

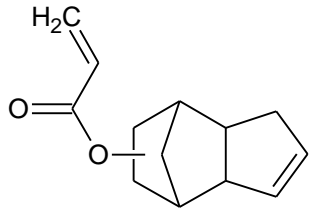
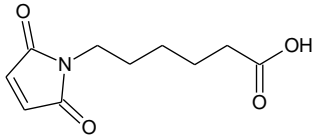
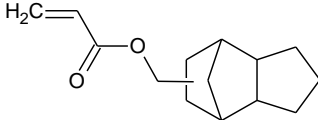
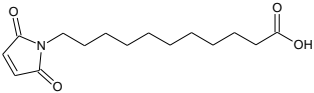
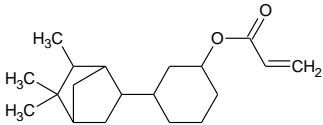
R1165	EC-861	1071523-12-0 (Y)	Phenyl acetate epoxy curative		<ul style="list-style-type: none"> • Low modulus • Toughener • Hydrolytically resistant thermosets • Hydrophobic • Thermal stability • Does not impede free radical cure 	Amber/Yellow Liquid	2,500	<ul style="list-style-type: none"> • Low stress epoxy thermosets
R1149	EC-1074	926657-64-9 (Y)	A tetra-phenol epoxy curative derived from dimerdiol		<ul style="list-style-type: none"> • Low modulus • Toughener • Hydrolytically resistant thermosets • Hydrophobic • Thermal stability 	Amber Glassy Solid	N/A	<ul style="list-style-type: none"> • Film Adhesives • Pre-applied adhesive compositions

LATENT EPOXY CATALYSTS

R1198 R1207 R1208 R1209	ECAT Series ECAT-243 ECAT-259 ECAT-353 ECAT-434	1253404-90-8 (Y)	Imidazole Epoxy Catalysts	Unavailable	<ul style="list-style-type: none"> • Good solubility in most epoxy monomers • Excellent latency characteristics • Can be used as a catalyst or curative • Turnable cures • Promotes clean, rapid monomodal cures 	Refer to TDS	N/A	<ul style="list-style-type: none"> • Electronic mold compounds • Underfills
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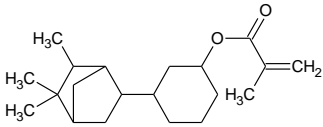
P/N	PRODUCT	CAS / TSCA Listed (Y/N)	DESCRIPTION	STRUCTURE **	FEATURES	APPEARANCE	VISCOSITY (25°C)	SUGGESTED APPLICATIONS
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MONOFUNCTIONAL MONOMERS

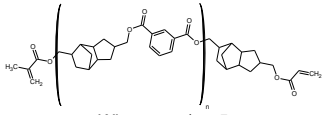
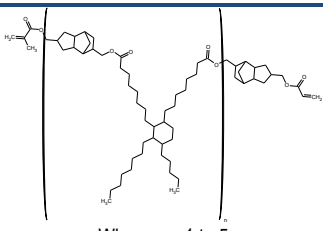
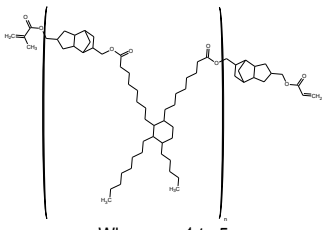
R1173	MM-204	33791-58-1 (Y)	Monofunctional acrylate monomer		<ul style="list-style-type: none"> • Low viscosity • High glass transition temperature • Low cure shrinkage • Hydrolytically resistant • Diluent for thermoset resins • High Tg 	Light Tan Liquid	50	<ul style="list-style-type: none"> • UV or peroxide cured resins, coatings, or adhesives
R1175	MM-211	55750-53-3 (Y)	An intermediate chain length, maleimide terminated carboxylic acid		<ul style="list-style-type: none"> • Flexible aliphatic backbone • Maleimide and carboxylic acid functional groups • Adhesion promoter 	White/Light Yellow Powder	N/A	<ul style="list-style-type: none"> • Intermediate for ester and amide linked maleimide monomers
R1139	MM-220	93962-84-6 (Y-LVE)	Tricyclodecane Acrylate		<ul style="list-style-type: none"> • Low weight loss on cure • Helps reduce cure shrinkage • Low viscosity 	Light Yellow Liquid	< 100	<ul style="list-style-type: none"> • UV cure coatings
R1121	MM-281	57079-01-3 (Y-LVE)	Maleimidoundecanoic Acid (MUDA)		<ul style="list-style-type: none"> • Flexible aliphatic backbone • Maleimide and carboxylic acid functional groups • Adhesion promoter 	White to Off-white Powder	N/A	<ul style="list-style-type: none"> • Intermediate for ester and amide linked maleimide monomers
R1134	MM-290	903876-45-9 (Y)	Isobornyl Cyclohexyl Acrylate		<ul style="list-style-type: none"> • Lower weight loss on cure than Isobornyl Acrylate (IBOA) • Mild, pleasant odor • Hydrolytic resistance 	Light Tan Liquid	250	<ul style="list-style-type: none"> • UV or peroxide cured resins, coatings, or adhesives

P/N	PRODUCT	CAS / TSCA Listed (Y/N)	DESCRIPTION	STRUCTURE **	FEATURES	APPEARANCE	VISCOSITY (25°C)	SUGGESTED APPLICATIONS
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MONOFUNCTIONAL MONOMERS continued....

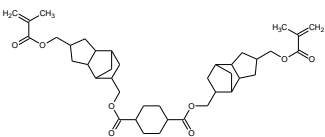
R1197	MM-304	N/A (N)	Isobornyl Cyclohexyl Methacrylate		<ul style="list-style-type: none"> • Very low color • Lower weight loss on cure than Isobornyl Methacrylate (IBOMA) • Mild, pleasant odor • Hydrolytic resistance 	Colorless Liquid	80	<ul style="list-style-type: none"> • Dental • Reactive diluent
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POLYESTER ACRYLATE METHACRYLATES

R1096	PEAM-645	921213-39-0 (Y)	Polyester acrylate/methacrylate	 <p>Where n = 1 to 5</p>	<ul style="list-style-type: none"> • High Tg • High modulus • Low CTE • High adhesion I • Thermal stability 	Amber Liquid	6,500	<ul style="list-style-type: none"> • Low CTE thermosets
R1111	PEAM-1044	921214-61-1 (Y)	Polyester acrylate/methacrylate	 <p>Where n = 1 to 5</p>	<ul style="list-style-type: none"> • Low warpage • Hydrophobic • High adhesion * • Thermal stability 	Amber Liquid	(40°C)	<ul style="list-style-type: none"> • Low stress coatings
R1144	PEAM-1769	921214-61-1 (Y)	Polyester acrylate/methacrylate	 <p>Where n = 1 to 5</p>	<ul style="list-style-type: none"> • Ultra-low modulus • Hydrophobic • High adhesion * • High thermal stability • Adhesion to metals • Flexibilizer 	Amber Liquid	4,500	<ul style="list-style-type: none"> • Low stress coatings

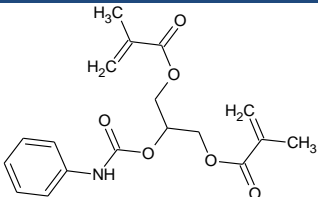
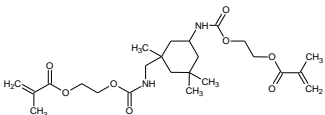
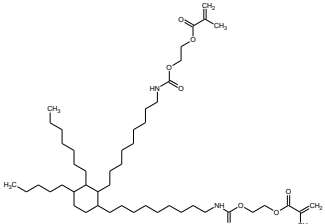
P/N	PRODUCT	CAS / TSCA Listed (Y/N)	DESCRIPTION	STRUCTURE **	FEATURES	APPEARANCE	VISCOSITY (25°C)	SUGGESTED APPLICATIONS
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POLYESTER METHACRYLATES

R1188	PEM-665	N/A (N)	Methacrylate terminated polyester oligomer		<ul style="list-style-type: none"> • Low color • Low cure shrinkage • Thermal stability • Tough 	Light Yellow Tint Liquid	6,500 (50°C)	<ul style="list-style-type: none"> • Dental
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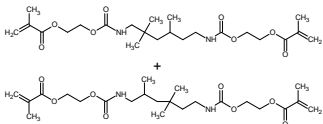
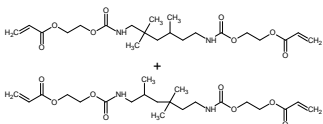
P/N	PRODUCT	CAS / TSCA Listed (Y/N)	DESCRIPTION	STRUCTURE **	FEATURES	APPEARANCE	VISCOSITY (25°C)	SUGGESTED APPLICATIONS
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FUNCTIONAL URETHANES

R1216	U-347	1371570-15-8 (N)	Phenyl glycerol urethane dimethacrylate (PGDMA)		<ul style="list-style-type: none"> • Low cure shrinkage • Colorless • Good refractive index • Not bisphenol A based 	Clear Colorless Liquid	9,500	<ul style="list-style-type: none"> • Dental • Moisture resistant coatings
R1230	U-483	Not assigned (N)	IPDI urethane dimethacrylate		<ul style="list-style-type: none"> • Low viscosity • Low cure shrinkage • Colorless • Not bisphenol A based 	Clear Colorless Liquid	5,000	<ul style="list-style-type: none"> • Dental • Moisture resistant coatings • Light cure coatings
R1095	U-793	869488-57-3 920758-62-9 902742-80-9 (Y)	Urethane resin functionalized with a methacrylate and an epoxy	Unavailable	<ul style="list-style-type: none"> • Low color • Low cure shrinkage • Thermal stability • Tough 	Light Yellow Tint Liquid	6,500 (50°C)	<ul style="list-style-type: none"> • Dental
R1102	U-835	869488-57-3 1003557-45-6 1003612-76-7 (Y-LVE)	Urethane resin functionalized with acrylate and methacrylate end groups	Unavailable	<ul style="list-style-type: none"> • Low modulus • Hydrophobic • Excellent hydrolytic resistance • High adhesion * • Adhesion to metals • Flexibilizer 	Light Yellow Liquid	20,000	<ul style="list-style-type: none"> • Dental • Moisture resistant coatings
R1238	U-847	86499-57-3 (N)	DDI urethane dimethacrylate monomer		<ul style="list-style-type: none"> • Low modulus • Low color • Low cure shrinkage • Hydrophobic • Flexibilizer 	Light Yellow Liquid	2,500	<ul style="list-style-type: none"> • Dental • Moisture resistant coatings

P/N	PRODUCT	CAS / TSCA Listed (Y/N)	DESCRIPTION	STRUCTURE **	FEATURES	APPEARANCE	VISCOSITY (25°C)	SUGGESTED APPLICATIONS
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FUNCTIONAL URETHANES continued....

R1228	U-471	72869-86-4 (Y)	TMDI urethane dimethacrylate monomer		<ul style="list-style-type: none"> • Low color • Low cure shrinkage 	Slight Yellow Liquid	8,000	<ul style="list-style-type: none"> • Dental
R1266	U-443	TBD (N)	TMDI urethane diacrylate monomer		<ul style="list-style-type: none"> • Excellent Curing Properties 	Clear, Colorless, Oil	5,500	<ul style="list-style-type: none"> • Light-cured coating resins

FORMULATED PRODUCTS

R1267	DMI-2550	Mixture (Y)	A BMI-based coating for dispense applications	Mixture	<ul style="list-style-type: none"> • Low modulus • Hydrophobic • Excellent hydrolytic resistance • Low stress • Adhesion to metals • Flexibilizer 	Yellow to Dark Amber Liquid	700 ± 100	<ul style="list-style-type: none"> • Die top coating applications
R1303	DMI-3006	Mixture (Y)	Modified polyimide based negative type photoresist	Mixture	<ul style="list-style-type: none"> • Low modulus • Very high electrical reliability • UV cured-low thermal req'rmts • Low cure shrinkage • High heat resistance • Good electrical properties 	Amber liquid	250	<ul style="list-style-type: none"> • Wafer buffer coating

ALL DATA PROVIDED FOR REFERENCE ONLY AND MAY VARY BY TEST METHOD

* Various substrates

** Many of the structures are an idealized representation of a statistical distribution

*** Supercooled

**** Storage at < 25°C will result in precipitation of some solids. The fully liquid state can be regenerated by warming to 40°C until all solids dissolve

LVE Material manufactured under Low Volume Exemption (LVE) in compliance with Section 5(h)(4) of the Toxic Substances Control Act (TSCA), 15 U.S.C.

TO PLACE AN ORDER, REQUEST SAMPLES, OR TO SPEAK WITH US ABOUT DEVELOPING A PRODUCT FOR YOUR CHEMICAL NEEDS, CONTACT US AT 858-348-1122.