



AI generated picture

# ENERGY CURING

PRODUCT GUIDE 2024



**RAHN**

Your partner for excellence

# Contents



03 About RAHN



08 Technical Literature



12 Reactive Diluents



16 Epoxy Acrylates



16 Polyester/Polyether Acrylates



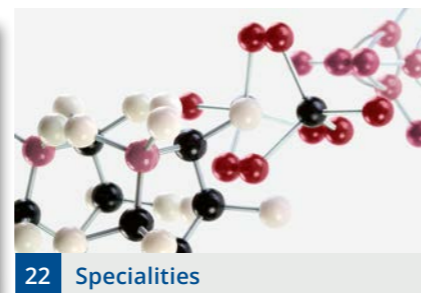
18 Urethane Acrylates



20 Oligoamines



20 Co-Resins



22 Specialities



22 Additives



24 Photoinitiators



26 Synergists



26 Polymeric Photoinitiators



28 Mechanical Data

This guide includes our most successfully used and commercially fully supported products. If your requirements cannot be met with any of these products, please contact us directly to help you find a solution.

## Worldwide support for your energy curing systems

### Energy Curing – a diverse range of applications

What is the best way to get ink to adhere to laminated paper? How do objects created with a 3D printer keep their shape, and what kind of adhesive is required for immediate curing? You can overcome these and countless other challenges using ultraviolet and electron beam curing techniques. This Product Guide contains details of our main commercially available raw materials – additives, oligomers, reactive diluents, photoinitiators and other specialty chemicals. These can be used for an extremely wide range of applications – in inks, coatings, adhesives, medical products and rapid prototyping.

### Can't find what you're looking for?

Our Product Guide lists the key features of our main products. If you can't find the specific feature you require, please get in touch with our experts. We will be happy to discuss your particular needs and find an effective solution. We run our own laboratories in Switzerland, United States and China. This has enabled RAHN-Energy Curing to develop hundreds of starting formulations during the last thirty years and more. Each of them was inspired by a particular industry challenge.

# RAHN: Swiss expertise

## all over the world



Regulatory directives and requirements are constantly changing. This makes it increasingly costly and complicated to register new products (e.g. REACH). Our competence center helps you maintain an overview of regulations worldwide. Our specialists will be happy to provide you with one-to-one advice on health & safety issues and registering products internationally.

### Your partner, not just any supplier

We have been researching, producing and supplying customized specialty chemicals for more than thirty years. Over time, we have nurtured long-standing partnerships with our customers. This kind of collaboration is the only way to find the optimum answer to the challenges that you face.

### A Swiss family-run company – in its third generation

RAHN is an independent Swiss family-run company. It is now in the hands of the third generation. Thanks to our financial independence, we are able to make swift business decisions and entertain long-term commitments.

### Profound experience in the sector

Our crucial success factors are the specialist skills and expert knowledge of our staff. They are able to advance day by day in our open and transparent culture. We have an extremely loyal team of employees, so you will continue to deal with the people you know as time passes by.

## Be inspired

Our customers create amazing results with our raw materials for digital inkjet printing – no matter whether gloss, matte, or even 3D effects. What's more, they can be used to print on almost any material. Whether, paper, glass, wood, plastic or metal, we have the right products to meet all sorts of needs and technical requirements.

### Eye-catching food packaging

Food packaging jostles for customers' attention on supermarket shelves and in the aisles. Our specially developed products with their high molecular weight ensure that the inks contain no undesirable substances that might penetrate the packaging. This keeps the food safe and lets the advantages of radiation-curing ink systems shine out for all to see.

### Shape-retaining workpieces created with 3D printing

Our customers not only use our products to create 3D effects, but also generate robust workpieces with their 3D printers. Our raw materials reduce shrinkage and ensure objects match our customers' precise specifications.

### Tap into our expertise

Would you like to know more? Our Product Flashes give details on specific products or applications whilst our Lab Reports contain the latest findings in our laboratories – e.g. for 3D printing, LED and digital or inkjet printing. You can find out more at [www.rahn-group.com/news](http://www.rahn-group.com/news).

### Use our laboratories

Would you like to work together with us to find out what works and to produce the optimum result for your project? Our laboratories are at your disposal – for training your staff as well, should you wish.



## Expertise boosts customer confidence

Specializing in UV and electron beam technology, our Energy Curing experts have an international remit. We want to be more than a supplier for our customers. Our goal is to be a reliable partner to help drive their business forward and generate measurable benefits.



## With a sustainable approach

RAHN has been promoting UV/EB curing for over 30 years, which is recognized as a green technology. Compared with conventional curing technologies, significant CO<sub>2</sub> savings can be made, reducing greenhouse gas emissions and decreasing our carbon footprint.

RAHN's new bio-based energy curable oligomers are a testament to the company's commitment to sustainability. Bio-based materials can have an improved environmental profile. In using them, one can contribute to a low carbon economy because as they grow, they take up CO<sub>2</sub>.

We have several interesting products in our range for this approach. We also have the expertise to develop customized solutions. Get in touch with RAHN.

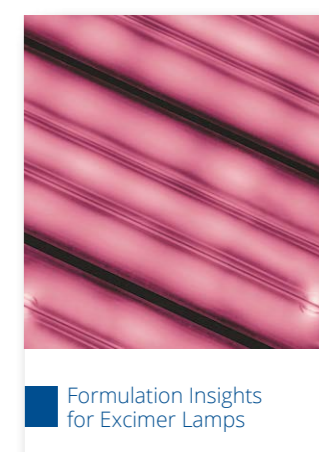
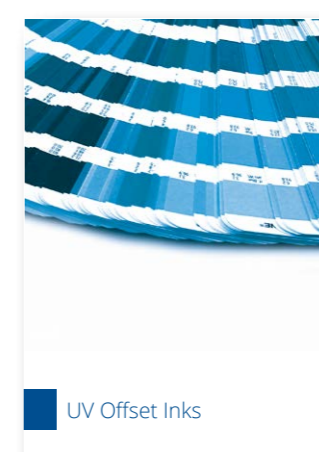
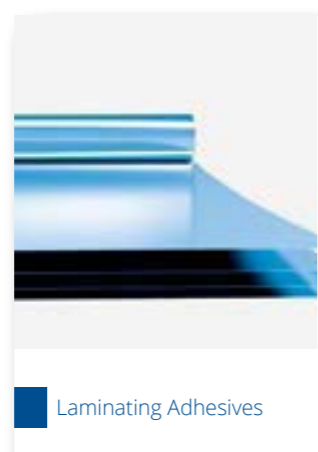
# TECHNICAL LITERATURE

Additional RAHN-documents are available. For more details click on our website at [www.rahn-group.com/energycuring](http://www.rahn-group.com/energycuring) or contact your local RAHN-Sales Representative for further information.

## Product Guide

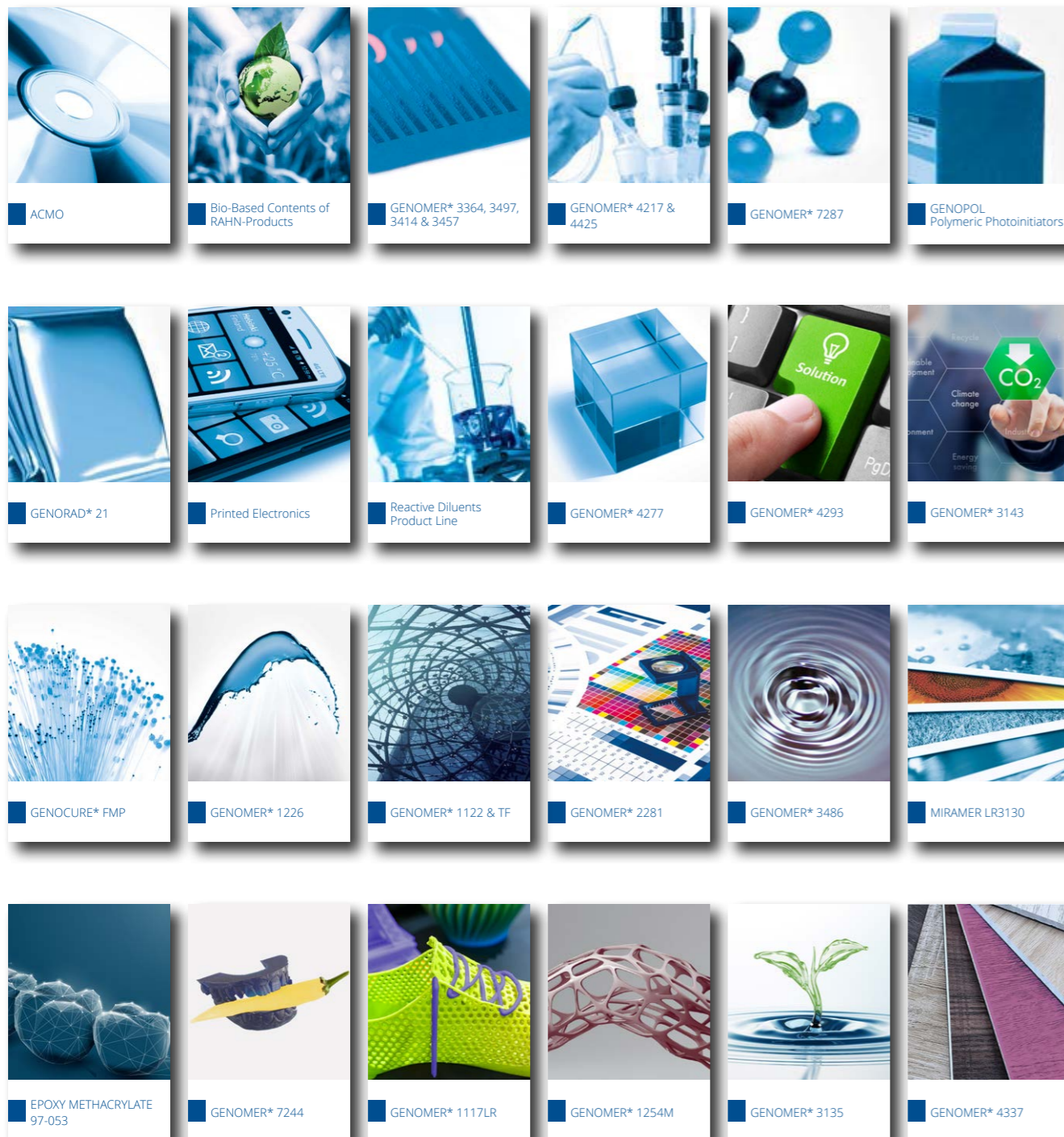
Product Guide is available on our website as PDF in English and Chinese.

## Lab Reports



## TECHNICAL LITERATURE

### Product Flash



## Identification Code

### GENOMER\* Product-code

1<sup>st</sup> digit: Product Group  
 2<sup>nd</sup> digit: Functionality  
 3<sup>rd</sup> and 4th digit: Product reference

### Dilutions

M22 = GENOMER\* 1122  
 PP = PPTTA  
 EHA = 2-Ethylhexyl-Acrylate  
 ETM = TMP(EO)3TA  
 HD = HDDA  
 TM = TMPTA  
 TP = TPGDA  
 GP = GPTA

Ask for other available dilutions

### Product Data

Color A = APHA  
 Color G = Gardner  
 2 = Literature Value

### Properties

++++ = excellent  
 +++ = good  
 ++ = moderate  
 + = low  
 • = provides the mentioned property

### HS & Registration Status

REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals (EU)  
 TSCA = Toxic Substance Control Act (USA), active inventory  
 IECS = Inventory of Existing Chemical Substances Produced or Imported in China  
 Swiss Ordinance = Swiss Ordinance on Materials and Articles, Swiss Ordinance 817.023.21, Annex 10 (Version 2.2)


R = Registered (NB non-EU customers please contact RAHN before importing the product into the EU as per REACH regulation)  
 N = Not registered / not on inventory  
 L = Yes, is listed on inventory  
 J = Special status, contact RAHN HSR  
 1 = All intentionally added substances or monomers are listed in Part A and/or in Part B.  
 2 = One or more intentionally added monomers/substances are not listed in Part A or B


### Applications / Abbreviation

Digital Inks = DIG  
 Offset Inks = OFF  
 Flexo inks = FLE  
 Screen Inks = SCR  
 Overprint Varnishes = OPV  
 Wood Coatings = WOC

Composites = COM  
 Electronics = ELE  
 Adhesives = ADH  
 Coatings on Plastics = PLA  
 3D Printing = 3DP  
 Cosmetics & Dental = DNC

### Features

 = Product featured for LED application

 = The bio content figures, in this case 85%, listed in this brochure are measured using the standard ASTM D6866 analyses. D6866 uses the measured carbon-14 content to calculate the bio-based carbon content of the product and hence shows how much of the product is derived from plant components versus petroleum-derived components. The bio-based product is therefore expressed as a percentage of the overall weight of the product in question (EN16785-1). It should also be noted that the bio-based content of a material is not an indicator of the biodegradability of the material and not all bio-based bioplastics are biodegradable.

# Reactive Diluents

Product	Product Data (Typical Values)									HS & Registration				Properties						Applications				Key Features							
	Description	Functionality	Color	Acid Value (mg KOH/g)	Viscosity (mPa.s at 25 °C)	Tg (°C)	Surface Tension Dynes/cm	Molecular Weight (g/mol)	Refractive Index	REACH-Status	Active TSCA inventory	IECSC-Status	Swiss Ordinance-Status	Reactivity	Gloss	Flexibility	Hardness	Chemical Resistance	Adhesion	Digital Inks = DIG	Composites = COM	Offset Inks = OFF	Electronics = ELE		Flexo inks = FLE	Adhesives = ADH	Screen Inks = SCR	Coatings on Plastics = PLA	Overprint Varnishes = OPV	3D Printing = 3DP	Wood Coatings = WOC
<b>Monofunctionals</b>																															
GENOMER* 1117LR	CTFA	1	30 A	0,1	10	20	33,1	200	1,467	R	L	L	1	•	•	•	•	•	DIG, SCR, OPV, WOC, ELE, ADH, PLA, 3DP												TMPTA free, low shrinkage, good adhesion, high flexibility, toughness, good chemical resistance, non-yellowing
GENOMER* 1120	TMCHA	1	100 A	0,1	3	43	28	196	1,453	N	L	L	1	•	•	•	•	•	DIG, FLE, SCR, OPV, ELE, ADH, PLA, 3DP												Excellent adhesion, low viscosity, high flexibility, good plastic wetting, low surface tension
GENOMER* 1121M	IBOMA	1	20 A	0,5	8	113	29,4	222	1,477	R	L	L	1	•	•	•	•	•	COM, ELE, ADH, PLA, 3DP												Very high Tg, good cutting power, high hardness, good adhesion and moisture resistance
GENOMER* 1121Y	IBOA	1	10 A	0,1	8	80	31,7	208	1,474	R	L	L	1	•	•	•	•	•	DIG, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA, 3DP												High Tg but also good flexibility, good cutting power, good adhesion and moisture resistance
GENOMER* 1122	Aliph. Ureth. Acryl.	1	20 A	1,0	30	-3	33,3	215	1,460	R	L	L	1	•	•	•	•	•	DIG, OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA, 3DP												High flexibility and low odor, excellent adhesion on plastics
GENOMER* 1122TF*	Aliph. Ureth. Acryl.	1	25 A	3,0	35	-	-	215	1,459	R	L	L	1	•	•	•	•	•	DIG, OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA, 3DP												High flexibility and low odor, excellent adhesion on plastics, tin free
GENOMER* 1125	DCPA	1	25 A	0,5	14	110	36	204	1,508	R	L	L	1	•	•	•	•	•	DIG, FLE, SCR, ELE, ADH, PLA, 3DP												Good adhesion on plastics, excellent water resistance, high reactivity
MIRAMER M122	LA	1	150 A	0,5	15	-30 <sup>2</sup>	30	240	1,442	R	L	L	1	•	•	•	•	•	OFF, FLE, SCR, WOC, ADH												Hydrophobic, flexibility, low volatility and good adhesion
MIRAMER M130	IDA	1	100 A	0,2	7	-60 <sup>2</sup>	24,3	212	1,440	R	L	L	1	•	•	•	•	•	DIG, ADH, PLA												Hydrophobic, flexibility and adhesion, low Tg and surface tension
MIRAMER M140	PH(EO)A	1	100 A	0,1	13	5	40,1	192	1,516	R	L	L	1	•	•	•	•	•	DIG, FLE, SCR, ADH, PLA,												Good cutting power, good adhesion on plastics
MIRAMER M144	PH(EO)4A	1	20 A	0,3	35	-32	41,9	324	1,500	R	L	L	1	•	•	•	•	•	DIG, FLE, SCR, ELE, ADH, PLA												Good adhesion, good flexibility, low shrinkage
MIRAMER M164	NP(EO)4A	1	200 A	0,3	100	-28	34,3	450	1,494	R	L	L	2	•	•	•	•	•	WOC, ADH, PLA												Low volatility and low odor, good adhesion
MIRAMER M166	NP(EO)8A	1	150 A	0,5	130	-41	34,9	626	1,489	R	L	L	2	•	•	•	•	•	FLE, SCR, OPV, ELE, ADH, PLA												High flexibility and low odor, low volatility
MIRAMER M170	EOEOEA	1	150 A	0,3	10	-53	29,7	188	1,437	R	L	L	1	•	•	•	•	•	DIG, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA												High flexibility and low shrinkage, low Tg, excellent cutting power
<b>Difunctionals</b>																															
GENOMER* 1226	MPDDA	2	15 A	0,5	7	50	33	226	1,454	R	L	N	1	•	•	•	•	•	DIG, OFF, FLE, SCR, OPV, WOC, ADH, PLA, 3DP												Excellent cutting power, outstanding adhesion on plastics, low viscosity, low odor, weatherability
GENOMER* 1231	TCDDA	2	122 A	0,03	136	110	38,0	304	1,503	R	L	L	1	•	•	•	•	•	OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA, 3DP												Good adhesion, excellent flexibility and toughness, heat resistance, low polarity
GENOMER* 1254M	BPA(EO)4DMA	2	15 A	0,1	600	100	39,4	540	1,5351	R	L	L	1	•	•	•	•	•	DIG, SCR, OPV, WOC, COM, ELE, ADH, PLA, 3DP, DNC												Ethoxylated Bisphenol A Dimethacrylate, low shrinkage, low volatility, good heat resistance, high refractive index, good chemical resistance, good adhesion on various substrates
MIRAMER M200	HDDA	2	50 A	0,2	10	43 <sup>2</sup>	35,9	226	1,465	R	L	L	1	•	•	•	•	•	DIG, FLE, SCR, OPV, WOC, ADH, PLA												Excellent cutting power, outstanding adhesion on plastics, weatherability
MIRAMER M210	HPNDA	2	100 A	0,3	30	115	33,2	312	1,453	R	L	L	2	•	•	•	•	•	FLE, SCR, OPV, WOC, ELE, 3DP												Low viscosity, good hardness and adhesion
MIRAMER M216	NPG(PO)2DA	2	35 A	0,1	15	32	30,6	328	1,446	R	L	L	1	•	•	•	•	•	DIG, OFF, FLE, SCR, OPV, ELE, ADH, PLA												Low viscosity, good flexibility
MIRAMER M220	TPGDA	2	100 A	0,2	18	62 <sup>2</sup>	33,3	300	1,449	R	L	L	1	•	•	•	•	•	FLE, SCR, OPV, WOC, ADH, PLA												Low volatility, good cutting power
MIRAMER M222	DPGDA	2	100 A	0,3	15	104 <sup>2</sup>	33,5	242	1,450	R	L	L	1	•	•	•	•	•	DIG, FLE, SCR, OPV, WOC, ADH, PLA												Low volatility, good cutting power, high Tg
MIRAMER M240	BPA(EO)4DA	2	3 G	0,2	1200	60 <sup>2</sup>	42,1	512	1,537	R	L	L	1	•	•	•	•	•	OFF, FLE, SCR, OPV, WOC, COM, PLA												Good hydrophobic and hydrophilic balance, good heat resistance
MIRAMER M280	PEG400DA	2	100 A	0,3	70	-22	42,6	508	1,466	R	L	L	1	•	•	•	•	•	FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA												Water soluble, high flexibility, low shrinkage and low odor
MIRAMER M282	PEG200DA	2	100 A	0,5	25	-	40,1	308	1,464	R	L	L	1	•	•	•	•	•	FLE, SCR, OPV, WOC, ADH, PLA												Soft and flexible
MIRAMER M284	PEG300DA	2	150 A	0,5	50	-8	41,6	408	1,466	R	L	L	1	•	•	•	•	•	FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA												Water soluble, high flexibility and low shrinkage
MIRAMER M286	PEG600DA	2	150 A	0,5	85	-36	42,3	708	1,468	R	L	L	1	•	•	•	•	•	FLE, SCR, OPV, WOC, ADH, PLA												Water soluble, high flexibility and low shrinkage

\*tin free (free of intentionally added tin compounds)



## Reactive Diluents

Product	Product Data (Typical Values)									HS & Registration				Properties						Applications				Key Features						
	Description	Functionality	Color	Acid Value (mg KOH/g)	Viscosity (mPas at 25 °C)	Tg (°C)	Surface Tension Dynes/cm	Molecular Weight (g/mol)	Refractive Index	REACH-Status	Active TSCA inventory	IECSC-Status	Swiss Ordinance-Status	Reactivity	Gloss	Flexibility	Hardness	Chemical Resistance	Adhesion	Digital Inks = DIG	Offset Inks = OFF	Composites = COM	Flexo inks = FLE		Electronics = ELE	Screen Inks = SCR	Adhesives = ADH	Overprint Varnishes = OPV	Coatings on Plastics = PLA	Wood Coatings = WOC
<b>Tri- and Poly-Functionals</b>																														
<b>MIRAMER M300</b>	TMPTA	3	50 A	0,2	110	62 <sup>2</sup>	36,6	296	1,472	R	L	L	1	•	•	•	•			DIG, OFF, FLE, SCR, OPV, WOC, COM, ELE, PL1										Excellent re1ctivity, good offset properties, chemical resistance, low volatility
<b>MIRAMER M3130</b>	TMP(EO)3TA	3	15 A	0,1	60	40	38,1	428	1,469	R	L	L	1	•	•	•	•			DIG, OFF, FLE, SCR, OPV, WOC, ELE, PLA										Higher reactivity, flexibility and viscosity reduction compared to TMPTA
<b>MIRAMER LR3130</b>	TMP(EO)nTA	3	15 A	0,2	65	30	38,8	•	1,468	R	L	L	1	•	•	•	•			DIG, OFF, FLE, SCR, OPV, WOC, ELE, PLA										Similar properties to M3130 with low TMPTA residual
<b>MIRAMER M3150</b>	TMP(EO)15TA	3	20 A	0,3	190	-31	42	956	1,471	R	L	L	1			•				DIG, OFF, FLE, SCR, OPV, ADH, PLA										Good flexibility, low shrinkage, hydrophilic
<b>MIRAMER M3160</b>	TMP(EO)6TA	3	10 A	0,2	90	22	39,6	560	1,470	R	L	L	1	•	•	•				DIG, OFF, FLE, SCR, OPV, ELE, ADH, PLA										High reactivity, good flexibility, hydrophilic
<b>MIRAMER M3190</b>	TMP(EO)9TA	3	140 A	0,3	130	-3 <sup>2</sup>	40,2	692	1,469	R	L	L	1	•		•				DIG, OFF, FLE, SCR, OPV, COM, ADH, PLA										High reactivity, good flexibility, low shrinkage, hydrophilic
<b>MIRAMER M320<sup>▲</sup></b>	GPTA	3	150 A	1,0	110	33	36	428	1,461	R	L	L	1	•	•	•	•			OFF, FLE, SCR, OPV, WOC, PLA, 3DP										High reactivity, pigment wetting, good hardness and litho properties
<b>MIRAMER M340</b>	PETA	3	200 A	2,0	1800	103 <sup>2</sup>	40,6	298	1,480	R	L	L	1	•	•	•	•	•	•	OFF, FLE, SCR, OPV, WOC, COM, ELE, PLA										High reactivity and hardness with pendant OH groups, chemical resistance and low vapor pressure
<b>MIRAMER M360</b>	TMP(PO)3TA	3	150 A	0,3	110	-15 <sup>2</sup>	34	470	1,459	R	L	L	1	•		•	•	•		DIG, OFF, FLE, SCR, OPV, COM, ADH, PLA										High reactivity, good flexibility
<b>MIRAMER M410</b>	DiTMPTA	4	150 A	0,1	600	98 <sup>2</sup>	36,8	467	1,476	R	L	L	1	•	•	•	•			OFF, FLE, SCR, OPV, WOC, COM, ELE, PLA										Excellent reactivity and cross-linking
<b>MIRAMER M4004</b>	PPTTA	4	100 A	0,1	150	33	40,9	572	1,471	R	L	L	1	•	•	•	•			OFF, FLE, SCR, OPV, WOC, ELE, PLA										High reactivity, excellent scratch resistance
<b>MIRAMER M600</b>	DPHA	6	150 A	0,2	7000	35	41,1	578	1,489	R	L	L	1	•		•	•			OFF, FLE, SCR, OPV, WOC, ELE, ADH, PLA										Very high reactivity and surface hardness

<sup>▲</sup>also available as toluene-free version MIRAMER M320F





# Epoxy Acrylates

Product	Product Data (Typical Values)							HS & Registration				Properties					Applications				Key Features								
	Description	Functionality	Color	Acid Value (mg KOH/g)	Viscosity (mPa.s at 25 °C)	Tg (°C)	Refractive Index	REACH-Status	Active TSCA inventory	IECSC-Status	Swiss Ordinance-Status	Reactivity	Flexibility	Hardness	Chemical Resistance	Adhesion	Pigment Wetting	Digital Inks = DIG	Offset Inks = OFF	Composites = COM		Flexo inks = FLE	Electronics = ELE	Screen Inks = SCR	Adhesives = ADH	Overprint Varnishes = OPV	Coatings on Plastics = PLA	Wood Coatings = WOC	3D Printing = 3DP
GENOMER* 2235	Aliphatic Epoxy Acrylate	2	3 G	7	1100	45	1,480	R	L	L	2	++++	+++	++	++++	+++		DIG, FLE, SCR, OPV, WOC, ADH, PLA, 3DP											High reactivity, very low viscosity, excellent chemical and stain resistance
GENOMER* 2252	Epoxy Acrylate	2	1 G	1	5400 (60°C/140°F)	105	1,560	R	L	L	1	++++	++	++++	++++	+		OFF, FLE, SCR, OPV, WOC, COM, ADH, PLA										Excellent reactivity, high scratch and chemical resistance	
GENOMER* 2253	Modified Epoxy Acrylate	2	1 G	1	30 000	-1	1,523	R	L	L	1	++++	++++	+	++++	++++		FLE, SCR, OPV, WOC, ADH, PLA, 3DP										High reactivity, high flexibility, medium viscosity, good adhesion on plastics	
GENOMER* 2259	Modified Epoxy Acrylate	2	2 G	1	25 000	85	1,533	R	L	L	1	++++	++	++++	++++	++	•	OFF, FLE, SCR, OPV, WOC, ADH, PLA										Good pigment wetting and offset properties, medium viscosity, good reactivity	
GENOMER* 2263	Epoxy Acrylate	2	1 G	4	4000 (60°C/140°F)	99	1,560	R	L	L	1	++++	++	++++	++++	+		OFF, FLE, SCR, OPV, WOC, COM, ADH, PLA, 3DP										Excellent reactivity, high scratch and chemical resistance	
GENOMER* 2280	Modified Epoxy Acrylate	2	2 G	4	5000 (60°C/140°F)	62	1,530	R	L	L	1	++++	++	++++	++++	++		OFF, FLE, SCR, OPV, WOC, COM, ADH, PLA										Excellent balance of properties, high reactivity, hardness, flexibility and toughness	
GENOMER* 2281	Modified Epoxy Acrylate	2	1 G	1	4500 (60°C/140°F)	66	1,530	R	L	L	1	++++	++	++++	++++	+++	•	OFF, FLE, SCR, OPV, WOC, COM, ADH, PLA, 3DP										Excellent balance of properties, high reactivity, hardness, flexibility, toughness, adhesion and pigment wetting and flow	
GENOMER* 2312	Epoxidized Soy Oil Acrylate	3	7 G	7	20 000	-12	1,484	R	L	L	1	++	++++	++	++++	+++	•	OFF, FLE, SCR, OPV, WOC										Excellent flexibility, low shrinkage, excellent pigment wetting	

Available dilutions: GENOMER\* 2252 in TP20, TP30, TP40, TM20 and GP25

# Polyester/Polyether Acrylates

Product	Product Data (Typical Values)							HS & Registration				Properties					Applications				Key Features								
	Description	Functionality	Color	Acid Value (mg KOH/g)	Viscosity (mPa.s at 25 °C)	Tg (°C)	Refractive Index	REACH-Status	Active TSCA inventory	IECSC-Status	Swiss Ordinance-Status	Reactivity	Flexibility	Hardness	Chemical Resistance	Adhesion	Pigment Wetting	Digital Inks = DIG	Offset Inks = OFF	Composites = COM		Flexo inks = FLE	Electronics = ELE	Screen Inks = SCR	Adhesives = ADH	Overprint Varnishes = OPV	Coatings on Plastics = PLA	Wood Coatings = WOC	3D Printing = 3DP
GENOMER* 3135	Polyester Acrylate	1	50 A	2	530	16	1,457	R	•	•	1	+	++++	+	+	++		DIG, FLE, SCR, OPV, WOC, ADH, 3DP											Bio-based Polyester Acrylate, low viscosity, high flexibility, high elongation, excellent clarity, good adhesion
GENOMER* 3143	Polyester Acrylate	1	19 A	2	4 500 (60°C/140°F)	28	1,491	R	•	•	1	+	++	++	+	++		FLE, SCR, WOC, ADH, PLA, 3DP											Thermoplastic-like behaviour, high transparency and clarity, low yellowing, partly water solubility after curing
GENOMER* 3364	Polyether Acrylate	3	15 A	0,5	130	26	1,475	R	L	L	1	++	++	+++	++++	++		DIG, FLE, SCR, OPV, WOC, ADH, PLA, 3DP											High reactivity, low viscosity, good solvent resistance
POLYESTER ACRYLATE 03-849	Polyester Acrylate	3	3 G	8	20000	19	1,506	R	L	L	1	+++	++++	++	+++	++		OFF, FLE, SCR, OPV, WOC, ADH, PLA											Good reactivity, good abrasion and chemical resistance, good overall properties
GENOMER* 3414	Polyether Acrylate	4	50 A	0,5	4500	-14	1,483	R	L	L	1	++++	++++	++	++++	+++		DIG, FLE, SCR, OPV, WOC, ADH, PLA, 3DP											High reactivity, low viscosity, good solvent and scratch resistance, flexibility and adhesion, low Tg
GENOMER* 3430	Polyether Acrylate	4	1 G	1	600	-6	1,479	R	L	N	1	++++	++++	++	++++	+++	•	DIG, FLE, SCR, OPV, WOC, PLA											High reactivity in LED formulations, good flexibility, low yellowing, good adhesion
GENOMER* 3457	Polyether Acrylate	4	20 A	0,2	1250	12	1,484	R	L	•	1	++++	++	+++	++++	++		FLE, SCR, OPV, WOC, ADH, PLA, 3DP											High reactivity, high hardness, chemical resistance and adhesion
GENOMER* 3486	Polyester Acrylate	4	3 G	8	500	20	1,465	R	L	L	1	++	++	+++	++++	+++	•	FLE, SCR, OPV, WOC, ADH, PLA, 3DP											low viscosity, good surface hardness, chemical resistance, adhesion and pigment wetting
GENOMER* 3497	Polyether Acrylate	4	20 A	0,5	600	2	1,479	R	L	L	1	+++	+++	++	++++	++		DIG, FLE, SCR, OPV, WOC, ADH, PLA, 3DP											High reactivity, low viscosity, good solvent resistance.
GENOMER* 3498	Polyether Acrylate	4	20 A	0,1	600	-3	1,479	R	L	L	1	+++	++++	++	++++	++		DIG, FLE, SCR, OPV, WOC, ADH, PLA, 3DP											High reactivity, low viscosity, good solvent resistance, <0.1% TMPTA
GENOMER* 3611	Polyester Acrylate	6	10 G	8	8000	7	1,490	R	L	N	1	+++	+	++++	++++	+++	•	OFF, FLE, SCR											High reactivity, very good pigment wetting and lithographic behavior

# Urethane Acrylates

Product	Product Data (Typical Values)							HS & Registration				Properties					Applications				Key Features							
	Description	Functionality	Color	Acid Value (mg KOH/g)	Viscosity (mPa.s at 25 °C)	Tg (°C)	Refractive Index	REACH-Status	Active TSCA-inventory	IECSC-Status	Swiss Ordinance-Status	Reactivity	Flexibility	Hardness	Chemical Resistance	Adhesion	Pigment Wetting	Digital Inks = DIG	Offset Inks = OFF	Composites = COM		Flexo inks = FLE	Electronics = ELE	Screen Inks = SCR	Adhesives = ADH	Overprint Varnishes = OPV	Coatings on Plastics = PLA	Wood Coatings = WOC
<b>GENOMER* 4188/EHA</b>	Aliphatic UA	1	100 A	5	120 000	-14	1,480	R	L	L	1	+	++++	+	+	++++		ADH, SCR, PLA										High tack, high elongation and excellent adhesion
<b>GENOMER* 4212</b>	Aliphatic UA	2	1 G	2	14 000	-7	1,486	R	L	Ⓝ	1	+	++++	+	+++	+++		FLE, SCR, OPV, WOC, ADH, PLA									Good flexibility, low viscosity, low yellowing, good adhesion	
<b>GENOMER* 4215</b>	Aliphatic UA	2	2 G	1	20 000 (60°C/140°F)	-22	1,497	R	L	L	1	+++	++++	+	+++	++++		DIG, OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA, 3DP									Good adhesion to PVC and other plastics	
<b>GENOMER* 4217</b>	Aromatic UA	2	1 G	3	100 000	-36	1,490	R	L	L	1	++	++++	+	++	+++		OFF, SCR, OPV, WOC, COM, ELE, ADH, PLA									Excellent flexibility, good adhesion to difficult substrates, good for metallic inks	
<b>GENOMER* 4230</b>	Aliphatic UA	2	40 A	2	35 000	-53	1,460	R	L	L	1	+	++++	+	+	+++		OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA, 3DP									Good flexibility, non yellowing, peroxide cure	
<b>GENOMER* 4259</b>	Aliphatic UA	2	20 A	1	11 000	85	1,489	R	L	N	1	++	+	++++	++++	++		DIG, COM, ELE, PLA, 3DP									Provides exceptional hardness and toughness, low viscosity, low color	
<b>GENOMER* 4267</b>	Aliphatic UA	2	1 G	4	16 000 (60°C/140°F)	-10	1,490	R	L	L	1	++	++++	++	+++	++++		OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA, 3DP									Excellent flexibility and toughness, good adhesion	
<b>GENOMER* 4269/M22</b>	Aliphatic UA	2	1 G	3	55 000	-13	1,479	R	L	L	1	+	++++	+	+	++++		OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA, 3DP									Flexibilizer resin, good toughness, high flexibility, excellent adhesion	
<b>GENOMER* 4293</b>	Aliphatic UA	2	27 A	2	25 000 (60°C/140°F)	67	1,473	R	L	Ⓝ	1	++	++	++++	++++	++		OFF, FLE, SCR, OPV, WOC, ADH, PLA, 3DP									Thermoplastic-like behavior, shows shape-memory effect after curing, outstanding hardness, scratch and abrasion resistance, high transparency and clarity	
<b>GENOMER* 4302</b>	Isocyanurate	3	80 A	1	10 000 (60°C/140°F)	90	1,509	R	L	N	1	+++	++++	++++	++++	+++		OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA									Fast, hard and excellent chemical resistance, non yellowing, high E-modulus	
<b>GENOMER* 4312</b>	Aliphatic UA	3	1 G	1	60 000	32	1,497	R	L	L	1	+++	++++	++	+++	+++		OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA									High reactivity and good flexibility, good adhesion, abrasion and scratch resistance	
<b>GENOMER* 4312TF*</b>	Aliphatic UA	3	1 G	1	60 000	34	1,497	R	L	L	1	+++	++++	++	+++	+++		OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA									High reactivity and good flexibility, good adhesion, abrasion and scratch resistance, tin free	
<b>GENOMER* 4316</b>	Aliphatic UA	3	1 G	1	58 000	7	1,493	R	L	L	1	+++	++++	++	++	+++		OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA									High reactivity and very good flexibility, good adhesion, abrasion and scratch resistance	
<b>GENOMER* 4335</b>	Aliphatic UA hydroxy functional	3	1 G	1	50 000	17	1,491	R	L	Ⓝ	1	+++	++	++++	++++	++		SCR, WOC, PLA									Dual curable OH and acrylate groups with outstanding chemical resistance and hardness	
<b>GENOMER* 4337</b>	Aliphatic UA	3	20 A	2	7 000	87	1,4909	R	L	L	1	++	++++	+++	++++	+++		OPV, WOC, COM, PLA, 3DP									High stain resistance, excellent chemical resistance, exceptional wet-heat resistance, thermoformable, high abrasion resistance, good adhesion, outdoor durability	
<b>GENOMER* 4383/W</b>	Aliphatic UA Dispersion	3	-	1	30	74	-	R	L	N	1	++	++	+++	+++	+++		SCR, WOC, PLA									Water-based dispersion, sandable after physical drying	
<b>GENOMER* 4425</b>	Aliphatic UA	4	1 G	5	4 500	18	1,478	R	L	Ⓝ	1	+++	++	+++	++++	+++		OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA, 3DP									High reactivity, low viscosity, balance of flexibility and good hardness	
<b>GENOMER* 4515</b>	Aromatic UA	5	3 G	1	1 300	-	1,485	R	L	L	1	++++	+	+++	++++	++		DIG, FLE, SCR, OPV, WOC, PLA									High reactivity in LED formulations, good hardness and toughness	
<b>GENOMER* 4590/PP</b>	Aliphatic UA	5	2 G	1	11 000	42	1,491	R	L	N	1	+++	+	++++	++++	++		OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA									Low viscosity, excellent reactivity and hardness	
<b>GENOMER* 4622</b>	Aromatic UA	6	2 G	3	30 000	55	1,510	R	L	L	1	++++	+	++++	++++	++		DIG, OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA, 3DP									Very fast with good hardness and chemical resistance	
<b>GENOMER* 4690</b>	Aliphatic UA	6	1 G	1	80 000	55	1,497	N	L	L	1	+++	+	++++	++++	++		OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA, 3DP									Outstanding hardness, scratch and abrasion resistance and low yellowing	
<b>GENOMER* 4691</b>	Aliphatic UA	6	1 G	1	100 000	55	1,497	R	L	L	1	+++	+	++++	++++	++		OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA, 3DP									Outstanding hardness, scratch and abrasion resistance and low yellowing	

Available dilutions: GENOMER\* 4188/M22, GENOMER\* 4215/M22.

\*diluted in 20% Toluene for measuring purposes only

♦ tin free (free of intentionally added tin compounds)

56



10



## Oligoamines

Product	Product Data (Typical Values)							HS & Registration				Properties					Applications				Key Features							
	Description	Functionality	Color	Amine Value (mg KOH/g)	Viscosity (mPa.s at 25 °C)	Tg (°C)	Refractive Index	REACH-Status	Active TSCA inventory	IECSC-Status	Swiss Ordinance-Status	Reactivity	Flexibility	Hardness	Chemical Resistance	Adhesion	Pigment Wetting	Digital Inks = DIG	Offset Inks = OFF	Composites = COM		Flexo inks = FLE	Electronics = ELE	Screen Inks = SCR	Adhesives = ADH	Overprint Varnishes = OPV	Coatings on Plastics = PLA	Wood Coatings = WOC
<b>GENOMER* 5142</b>	Acrylated Amine Synergist	<1	2 G	220	20	-	1,450	R	L	L	1	n/a	n/a	n/a	n/a	n/a		DIG, FLE, SCR, OPV, WOC, ADH, PLA										Improves cure speed and surface cure. Low viscosity, high amine value, excellent compatibility
<b>GENOMER* 5161</b>	Acrylated Amine Synergist	<1	2 G	230	80	-	1,470	R	L	N	1	n/a	n/a	n/a	n/a	n/a		DIG, FLE, SCR, OPV, WOC, ADH, PLA										Improves cure speed and surface cure. Low viscosity, high amine value, excellent compatibility
<b>GENOMER* 5271</b>	Amine Acrylate	2	2 G	140	1200	-48	1,482	R	L	L	1	++++	++++	++	+	++++		FLE, SCR, OPV, WOC, ADH, PLA										Excellent surface cure, low odor, excellent adhesion and low viscosity
<b>GENOMER* 5275</b>	Amine Acrylate	2	1 G	150	3700	-48	1,486	R	L	L	1	++++	++++	++	+	++++		DIG, FLE, SCR, OPV, WOC, ADH, PLA										Excellent surface cure, low odor, excellent adhesion
<b>GENOMER* 5695</b>	Acrylated Oligoamine	6	1 G	85	8000	-27	1,489	R	L	L	1	++++	++++	++	++	++++		FLE, SCR, OPV, WOC, ADH, PLA, 3DP										High reactivity in LED formulations, good surface cure, good adhesion, low yellowing

## Co-Resins

Product	Product Data (Typical Values)							HS & Registration				Properties					Applications				Key Features								
	Description	Functionality	Color	Acid Value (mg KOH/g)	Viscosity (mPa.s at 25 °C)	Tg (°C)	Refractive Index	REACH-Status	Active TSCA inventory	IECSC-Status	Swiss Ordinance-Status	Reactivity	Flexibility	Hardness	Chemical Resistance	Adhesion	Pigment Wetting	Digital Inks = DIG	Offset Inks = OFF	Composites = COM		Flexo inks = FLE	Electronics = ELE	Screen Inks = SCR	Adhesives = ADH	Overprint Varnishes = OPV	Coatings on Plastics = PLA	Wood Coatings = WOC	3D Printing = 3DP
<b>GENOMER* 6043/M22</b>	Modified Polyester Resin	n/a	1 G	5	30 000	-14	1,495	R	L	L	1	+	++++	+	+	++++		SCR, ADH											Flexibilizer resin for PSA, low yellowing, excellent adhesion
<b>GENOMER* 6050/TM</b>	Modified Polyester Resin	n/a	2 G	4	125 000	19	1,508	R	L	L	1	++	++++	++	+	++++	•	OFF, FLE, SCR, OPV, ADH, PLA										Excellent adhesion on plastics, good offset behavior	
<b>GENOMER* 6058</b>	Sucrose Benzoate	n/a	30 A	0,3	-	68	1,577	R	L	L	1	+	+	+++	+	++		OFF, FLE, SCR, OPV, WOC, ADH, PLA										Maintains gloss compared with inorganic fillers, good adhesion on plastics	
<b>GENOMER* 6083/HD</b>	Inert Resin	n/a	2 G	2	110 000	51	1,485	R	L	L	1	+	++	+++	++	++++	•	SCR, OPV, WOC, ADH, PLA										Excellent adhesion on plastics, pigment wetting, high Tg	

Available dilutions: GENOMER\* 6050/GP, GENOMER\* 6083/TP, GENOMER\* 6083/ETM



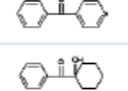


















## Specialities

Product	Product Data (Typical Values)							HS & Registration				Properties					Applications				Key Features								
	Description	Functionality	Color	Acid Value (mg KOH/g)	Viscosity (mPa.s at 25 °C)	Tg (°C)	Refractive Index	REACH-Status	Active TSCA inventory	IECSC-Status	Swiss Ordinance-Status	Reactivity	Flexibility	Hardness	Chemical Resistance	Adhesion	Pigment Wetting	Digital Inks = DIG	Offset Inks = OFF	Composites = COM		Flexo inks = FLE	Electronics = ELE	Screen Inks = SCR	Adhesives = ADH	Overprint Varnishes = OPV	Coatings on Plastics = PLA	Wood Coatings = WOC	3D Printing = 3DP
<b>ACMO</b>	Acryloyl Morpholine	1	10 A	-	12	145	1,512	R	L / SNUR	L	1	n/a	n/a	n/a	n/a	++++		DIG, FLE, SCR, WOC, ELE, ADH, PLA, 3DP											Very high Tg, water soluble, good thermal stability, good adhesion
<b>GENOMER* 7151</b>	Carboxyfunctional Polyester Acrylate	1	2 G	210	7000	37	1,530	N	L	L	1	++	+	+++	+	++++		SCR, WOC, ELE, ADH											Good adhesion on metal and glass
<b>GENOMER* 7287</b>	Speciality Resin	2	40 A	2	12	-28	1,457	R	L	L	1	++	+++	++	++++	+++		DIG, FLE, SCR, OPV, WOC, PLA											Provides superior matting properties, low viscosity and reasonable reactivity, easy incorporation of matting agent
<b>GENOMER* 7302</b>	Speciality Resin	3	1 G	3	110	31	1,486	R	L	L	2	+++	++	n/a	n/a	++		OPV, WOC, ELE, ADH, PLA, 3DP											Low oxygen inhibition, enhanced surface cure, UV LED, low viscosity, low odor
<b>GENOMER* 7311</b>	Water Soluble Acrylate Resin	3	40 A	0,2	1200	-40	1,477	R	L	L	1	+++	++++	++	+	+++		FLE, SCR, OPV, ADH, PLA, 3DP											Water solubility, good reactivity, excellent flexibility, high gloss and low yellowing
<b>DMAA</b>	Dimethyl Acrylamide	1	80 A	-	1	110	1,472	R	L	L	1	+++	++	n/a	n/a	++		DIG, SCR, ELE, ADH, PLA, 3DP											Low viscosity, very good optical clarity, water soluble and very good moisture vapor transition rate. Very good oxygen penetration and water holding capacity

## Additives

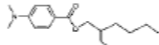


Product	Product Data (Typical Values)				HS & Registration				Properties				Applications				Key Features											
	Description	Color	Acid Value (mg KOH/g)	Viscosity (mPa.s at 25 °C)	REACH-Status	Active TSCA inventory	IECSC-Status	Swiss Ordinance-Status	Retain Reactivity	Retain Color	Retain Viscosity	Adhesion	Digital Inks = DIG	Offset Inks = OFF	Composites = COM	Flexo inks = FLE		Electronics = ELE	Screen Inks = SCR	Adhesives = ADH	Overprint Varnishes = OPV	Coatings on Plastics = PLA	Wood Coatings = WOC	3D Printing = 3DP				
<b>GENORAD* 16</b>	In-can Stabilizer	3 G	15	1200	R	L	L	1	•		•		DIG, OFF, FLE, SCR, WOC, ELE															Highest performance stabilizer for grinding and storage, works anaerobically, no effect on reactivity
<b>GENORAD* 18</b>	In-can Stabilizer	4 G	7	2000	R	L	L	1	•		•		OFF, FLE, SCR, WOC, ELE															High performance stabilizer for grinding and storage, works anaerobically, no effect on reactivity
<b>GENORAD* 20</b>	In-can Stabilizer	1 G	2	1000	R	L	L	1	•	•	•		DIG, OPV, WOC, COM, ELE, ADH, PLA, 3DP															Excellent stabilizer in clear coatings
<b>GENORAD* 21</b>	In-can Stabilizer	10 G	-	2000	R	L	L	1	•		•		DIG, OFF, FLE, SCR, ELE															In-can stabilizer for UV-curable metallic inks
<b>GENORAD* 22</b>	In-can Stabilizer	2 G	30	20	R	L	L	1	•		•		DIG, OFF, FLE, SCR, WOC, ELE															Premium stabilizer for grinding and storage, works anaerobically, no effect on reactivity, especially suitable for UV inkjet inks
<b>GENORAD* 23</b>	In-can Stabilizer	6 G	2	140	R	L	L	1	•		•		DIG, OFF, FLE, SCR, WOC, ELE, ADH															Excellent all-purpose in-can stabilizer, acts as a polymerization inhibitor and improves shelf-life of UV curable formulations.
<b>GENORAD* 24</b>	In-can Stabilizer	dark	0,2	3500	R	L	L	1	•		•		DIG, OFF, FLE, SCR, WOC, ELE, 3DP															High molecular weight in-can stabilizer. Excellent efficiency in UV LED and other free radical systems.
<b>GENORAD* 26</b>	In-can Stabilizer	4 G	13	120	R	L	L	1	•		•		DIG, OFF, FLE, SCR, WOC, ELE															Premium stabilizer for grinding and storage, works anaerobically, no effect on reactivity, BPA free
<b>GENORAD* 40</b>	Adhesion Promoter	100 A	295	2000	R	L	L	1				•	FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA															Adhesion promoter on metal, glass and plastics
<b>GENORAD* 41</b>	Adhesion Promoter	100 A	290	1500	N	L	L	1				•	FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA															Adhesion promoter on metal, glass and plastics

# Photoinitiators

Product	Product Data (Typical Values)						HS & Registration				Applications	Key Features
Description	Purity (%)	Melting Point °C (Viscosity [mPa.s at 25 °C])	Melting Point °F (Viscosity [mPa.s at 77 °F])	Absorption (nm)	Structure	REACH-Status	Active TSCA inventory	IECSC-Status	Swiss Ordinance-Status			
<b>GENOCURE* BAPO</b>	Phenylbis (2,4,6-trimethylbenzoyl) phosphine oxide	≥ 98	127-132	260-269	292/370		R	L	L	1	DIG, OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA, 3DP	Shows excellent through cure in pigmented systems, low odor
<b>GENOCURE* BDK</b>	Benzildimethylketal	> 99.5	66	151	252		R	L	L	1	DIG, OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA	General purpose where non yellowing not essential
<b>GENOCURE* BDMM</b>	2-Benzyl-2-dimethylamino-1-(4-morpholinophenyl)-butanone-1	> 98.0	110-123	230-244	230/325		R	L	L	1	DIG, OFF, FLE, SCR, OPV, COM, ELE, ADH, PLA	Excellent through cure in dark color pigmented systems. Combinations with other photoinitiators
<b>GENOCURE* BMS</b>	4-Benzoyl- 4'methyldiphenylsulphid	> 98.0	75-85	167-185	246/315	-	R	L	L	1	DIG, OFF, FLE, SCR, OPV, WOC, ELE, ADH, PLA, 3DP	High reactivity, good solubility, LED curing 365nm, for pigmented systems in combination with amine synergists and thioxanthenes
<b>GENOCURE* BP</b>	Benzophenone	> 99.0	47-49	117-120	254		R	L	L	1	DIG, OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA	General purpose, low cost
<b>GENOCURE* CPK</b>	1-Hydroxycyclohexylphenylketone	> 99.0	48	118	247		R	L	L	1	DIG, OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA, 3DP	Low yellowing
<b>GENOCURE* DEAP</b>	2,2 Diethoxyacetophenone	> 95.0	(~7)	(~7)	210/250		N	L	L	1	DIG, OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA, 3DP	Non yellowing, insoluble in water
<b>GENOCURE* DETX</b>	2,4 Diethylthioxanthone	> 98.0	72	162	261/384		R	L/ SNUR	L	1	DIG, OFF, FLE, SCR, WOC, 3DP	Pigmented systems in combination with amines and e.g. GENOCURE* BDMM
<b>GENOCURE* DMHA</b>	Dimethylhydroxyacetophenone	> 98.0	4	39	247/277		R	L	L	1	DIG, OPV, FLE, SCR, WOC, ELE, ADH, PLA	Low yellowing, liquid
<b>GENOCURE* EMK</b>	4,4-Bis (diethylamino) benzophenone	> 99.0	92-96	197-204	205/375		N	L	L	1	DIG, OFF, FLE, SCR, OPV, WOC, PLA, 3DP	Excellent efficacy in pigmented systems, has Type II photoinitiator and alkyl amine functionality. Usable in UV/LED systems
<b>GENOCURE* ITX</b>	Isopropylthioxanthone	> 98.0	74-76	165-169	259/383		R	L	L	1	DIG, OFF, FLE, SCR, WOC, COM, ELE, 3DP	Pigmented systems in combination with amines and e.g. GENOCURE* BDMM
<b>GENOCURE* LBC</b>	1-Hydroxycyclohexylphenylketone and Benzophenone	> 98.0	-	-	250/330		R	L	L	1	DIG, OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA	Liquid with good balance of surface and through cure for clear coatings
<b>GENOCURE* LBP</b>	4-Methylbenzophenone and Benzophenone	> 99.0	(~90)	(~90)	257		N	L	L	1	DIG, OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA	General purpose, liquid
<b>GENOCURE* LTD</b>	2,4,6 Trimethylbenzoyldiphenylphosphine oxide Dimethylhydroxyacetophenone	> 98.0	-	-	240/272/ 367		R	L	L	1	DIG, OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA, 3DP	Liquid photoinitiator for non yellowing clear and white pigmented systems
<b>GENOCURE* LTM</b>	Liquid Photoinitiatorblend	> 97.0	(~20)	(~20)	253/368	-	R	L	L	1	DIG, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA, 3DP	White and thick coatings, liquid with good balance of surface and through cure, non yellowing
<b>GENOCURE* MBB</b>	Methyl-o-benzoyl-benzoate	> 99.0	50-52	122-126	246		R	L	L	1	DIG, OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA	Good surface cure
<b>GENOCURE* MBF</b>	Methylbenzoylformate	> 97.0	(~5)	(~5)	257		R	L	L	1	DIG, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA	Clear coatings, excellent surface curing photoinitiator especially in amine-free systems, low odor
<b>GENOCURE* PBZ</b>	4-Phenylbenzophenone	> 99.0	99-103	210-217	295		N	L	L	1	DIG, OFF, FLE, SCR, OPV, WOC, ELE, ADH	High reactivity, low odor
<b>GENOCURE* PMP</b>	2-Methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one	> 99.0	74-76	165-169	307		R	L	L	1	DIG, OFF, FLE, SCR, OPV, COM, ELE, ADH	Pigmented systems in combination with other photoinitiators
<b>GENOCURE* TPO</b>	2,4,6-Trimethylbenzoyldiphenylphosphine oxide	> 99.0	92-94	198-201	380		R	L	L	1	DIG, OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA, 3DP	White and thick coatings, non yellowing
<b>GENOCURE* TPO-L</b>	Ethyl(2,4,6-trimethylbenzoyl) phenylphosphinate	≥ 93.0	-	-	370/275		R	L	L	1	DIG, OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA, 3DP	Liquid, white and thick coatings, non yellowing



## Synergists

Product	Product Data (Typical Values)						HS & Registration				Applications	Key Features
Description	Purity (%)	Melting Point °C (Viscosity [mPa.s at 25 °C])	Melting Point °F (Viscosity [mPa.s at 77 °F])	Absorption (nm)	Structure	REACH-Status	Active TSCA inventory	IECSC-Status	Swiss Ordinance-Status	Digital Inks = DIG Offset Inks = OFF Flexo inks = FLE Screen Inks = SCR Overprint Varnishes = OPV Wood Coatings = WOC	Composites = COM Electronics = ELE Adhesives = ADH Coatings on Plastics = PLA 3D Printing = 3DP	
<b>GENOCURE* ABD</b>	Aminobenzoate Derivative	> 99	(~13 000)	(~13 000)	228/310	-	R	L	1	DIG, OFF, FLE, SCR, OPV, COM, ELE, ADH		Water insoluble synergist suited for litho systems, liquid
<b>GENOCURE* EHA</b>	2-Ethylhexyl-4-dimethylaminobenzoate	> 99.0	(~80)	(~80)	228/311		N	L	1	OFF, FLE, SCR, COM, ELE, ADH		Water insoluble synergist suited for litho systems, liquid
<b>GENOCURE* EPD</b>	Ethyl-4-dimethylaminobenzoate	> 99.0	63	142	228/310		R	L	1	OFF, FLE, SCR, COM, ELE, ADH		Water insoluble synergist suited for litho systems
<b>GENOCURE* MDEA*</b>	N-Methyldiethanolamine	> 99.0	(~100)	(~100)	220		N	L	1	FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA		Low cost amine synergist

\*GENOCURE\* MDEA – subject to chemical weapons convention

## Polymeric Photoinitiators

Product	Product Data (Typical Values)				HS & Registration				Applications	Key Features
Description	Viscosity (mPa.s at 25 °C)	Molecular Weight (g/mol)	Absorption (nm)	REACH-Status	Active TSCA inventory	IECSC-Status	Swiss Ordinance-Status	Digital Inks = DIG Offset Inks = OFF Flexo inks = FLE Screen Inks = SCR Overprint Varnishes = OPV Wood Coatings = WOC	Composites = COM Electronics = ELE Adhesives = ADH Coatings on Plastics = PLA 3D Printing = 3DP	
<b>GENOPOL* AB-2</b>	Polymeric Aminobenzoate Derivative	15 000	900	228, 310	R	L	1	OFF, FLE, SCR, OPV, COM, ELE, ADH		Low migration and odor, excellent compatibility in UV formulations
<b>GENOPOL* BP-2</b>	Polymeric Benzophenone Derivative	120 000	980	245, 325	R	L	1	OFF, FLE, SCR, OPV, WOC, COM, ELE, ADH, PLA		Low migration and odor, excellent compatibility in UV formulations
<b>GENOPOL* TX-2</b>	Polymeric Thioxanthone Derivative	160 000	820	225, 310, 375	R	1	1	DIG, OFF, FLE, SCR, COM, ELE		Low migration and odor, excellent compatibility in UV formulations



## Dental & Cosmetic Products

We are promoting these products for use in energy curable medical application formulations. It is the responsibility of the formulator to check the suitability of these products for the intended medical application, including but not limited to, all

relevant restrictions and approvals of the local governing bodies for the intended medical application. RAHN in no way warrants that these products have any approvals for use in any of the possible medical applications that might be considered.

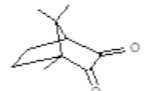
## Methacrylates

Product	Product Data (Typical Values)							HS & Registration				Properties					Applications	Key Features	
	Description	Functionality	Color	Acid Value (mg KOH/g)	Viscosity (mPa.s at 25 °C)	Tg (°C)	Refractive Index	REACH-Status	Active TSCA inventory	IECSC-Status	Swiss Ordinance-Status	Reactivity	Flexibility	Hardness	Chemical Resistance	Adhesion			Pigment Wetting
<b>Epoxy Methacrylates</b>																			
<b>EPOXY METHACRYLATE 97-053</b>	Epoxy Methacrylate	2	1 G	-	4 500 (60°C/140°F)	114	1,551	R	L	L	1	+	+	++++	++++	+++		Dental & Cosmetics = DNC Adhesives = ADH 3D Printing = 3DP	Very low shrinkage, provides excellent hardness as well as abrasion and scratch resistance
<b>Urethane Methacrylates</b>																			
<b>GENOMER* 4205</b>	Aliphatic Urethane Methacrylate	2	25 A	-	9 000	99	1,483	R	L	L	1	+	+	++++	++++	++		Dental & Cosmetics = DNC Adhesives = ADH 3D Printing = 3DP	High E-modulus and good tensile strength, other characteristics are its light stability, abrasion and chemical resistance
<b>GENOMER* 4247<sup>°</sup></b>	Aliphatic Urethane Methacrylate	2	25 A	-	10 000	134	1,484	R	L	L	2	+	+	++++	++++	++		Dental & Cosmetics = DNC Adhesives = ADH 3D Printing = 3DP	Exceptional hardness and mechanical properties, high scratch and abrasion resistance, highest transparency and clarity, high gloss, low yellowing, tin free
<b>GENOMER* 4256</b>	Aliphatic Urethane Methacrylate	2	1 G	-	15 000*	-17	1,487	R	L	L	1	+	++++	+	+	+++		Dental & Cosmetics = DNC Adhesives = ADH 3D Printing = 3DP	Excellent elasticity and elongation, improves light stability and chemical resistance
<b>GENOMER* 4277</b>	Aliphatic Urethane Methacrylate	2	1 G	-	19 000 (60°C/140°F)	8	1,491	R	L	L	1	+	++++	+++	+++	++++		Dental & Cosmetics = DNC Adhesives = ADH 3D Printing = 3DP	High flexibility and toughness, high transparency and low yellowing, good adhesion, low cure exotherm
<b>GENOMER* 4297</b>	Aliphatic Urethane Methacrylate	2	20 A	-	8 700	130	1,485	R	L	L	2	+	+	++++	++++	++		Dental & Cosmetics = DNC Adhesives = ADH 3D Printing = 3DP	Good stain and chemical resistance as well as high tensile strength and E-modulus, good abrasion resistance and very low yellowing
<b>Specialities</b>																			
<b>GENOMER* 7244</b>	Modified Methacrylate	2	1G	5	15000	130	1,535	R	L	L	1	+	+	++++	++++	+++		Dental & Cosmetics = DNC Adhesives = ADH 3D Printing = 3DP	High E-modulus and good tensile strength giving excellent rigidity to 3D parts. Good adhesion, abrasion and scratch resistance

\*diluted in 20% Toluene for measuring purposes only

<sup>°</sup>tin free (free of intentionally added tin compounds)

## Initiators

Product	Product Data (Typical Values)							HS & Registration				Applications	Key Features	
	Description	Purity (%)	Melting Point °C (Viscosity [mPa.s at 25 °C])	Melting Point °F (Viscosity [mPa.s at 77 °F])	Molecular Weight (g/mol)	Absorption (nm)	Structure	REACH-Status	Active TSCA inventory	IECSC-Status	Swiss Ordinance-Status			
<b>GENOCURE* CQ</b>	Camphorquinone	> 99,0	201-203	393-397	166	470		L	L	L	1		Dental & Cosmetics = DNC Electronics = ELE Adhesives = ADH 3D Printing = 3DP	Provides good through cure in long wavelength (visible) UV light, soluble in alcohol, ketones, acrylates and methacrylates

## MECHANICAL DATA

Product	Product Data (Typical Values)							
	Description	Elongation at Break %	E-Modulus		Tensile Strength		Shore Hardness	T <sub>g</sub> (°C)
			MPa	psi	MPa	psi		
<b>Epoxy Acrylates</b>								
GENOMER* 2235	Aliphatic Epoxy Acrylate	3	2 420	350 400	40	5 800	D83	45
GENOMER* 2252	Epoxy Acrylate	1	4 730	686 000	44	6 300	D86	105
GENOMER* 2253	Modified Epoxy Acrylate	17	50	7 100	7	1 100	D66	-1
GENOMER* 2259	Modified Epoxy Acrylate	2	3 000	435 800	45	6 600	D84	85
GENOMER* 2263	Epoxy Acrylate	1	5 210	756 200	44	6 300	D88	99
GENOMER* 2280	Modified Epoxy Acrylate	3	4 320	626 700	73	10 600	D85	62
GENOMER* 2281	Modified Epoxy Acrylate	3	4 370	633 100	76	11 000	D85	66
GENOMER* 2312	Epoxidized Soy Oil Acrylate	7	50	6 900	4	500	D52	-12
EPOXY METHACRYLATES 97-053	Epoxy Methacrylate	2	4 830	701 100	65	9 400	D89	114
<b>Polyester/Polyether Acrylates</b>								
GENOMER* 3135	Polyester Acrylate	250	30	5 000	2	300	D55	16
GENOMER* 3143	Polyether Acrylate	<1	1 130	163 600	6	900	D79	28
GENOMER* 3364	Polyether Acrylate	3	1 150	166 400	23	3 300	D81	26
GENOMER* 3414	Polyether Acrylate	7	70	9 400	5	700	D61	-14
GENOMER* 3430	Polyether Acrylate	4	60	8 100	3	500	D57	-6
GENOMER* 3457	Polyether Acrylate	2	1 230	178 100	20	2 900	D81	12
GENOMER* 3486	Polyester Acrylate	3	1 130	163 500	23	3 300	D80	20
GENOMER* 3497	Polyether Acrylate	5	420	61 000	14	2 100	D76	2
GENOMER* 3498	Polyether Acrylate	5	150	21 300	7	1 100	D67	-3
GENOMER* 3611	Polyester Acrylate	2	1 270	184 300	22	3 200	D84	7
POLYESTER ACRYLATE 03-849	Polyester Acrylate	11	510	74 400	22	3 200	D79	19
<b>Urethane (Meth)Acrylate</b>								
GENOMER* 4188/EHA	Aliphatic Urethane Acrylate	360	<10	<100	<1	<100	OO83	-14
GENOMER* 4205	Aliphatic Urethane Methacrylate	3	3 620	525 700	68	9 900	D86	99
GENOMER* 4212	Aliphatic Urethane Acrylate	24	10	1 900	3	400	A84	-7
GENOMER* 4215	Aliphatic Urethane Acrylate	23	120	17 700	11	1 600	D59	-22
GENOMER* 4217	Aromatic Urethane Acrylate	21	20	2 200	3	400	A88	-36
GENOMER* 4230	Aliphatic Urethane Acrylate	30	<10	400	<1	100	A57	-53
GENOMER* 4247	Aliphatic Urethane Methacrylate	2	3 420	496 000	60	8 700	D89	134
GENOMER* 4256	Aliphatic Urethane Methacrylate	90	<10	<100	<1	<100	OO85	-17

**Test Methods**

Elongation, Tensile Strength and E-Modulus: ASTM D638 – 14; DIN EN ISO 527-1  
Shore Hardness: ASTM D2240; DIN ISO 7619

Product	Product Data (Typical Values)							
	Description	Elongation at Break %	E-Modulus		Tensile Strength		Shore Hardness	T <sub>g</sub> (°C)
			MPa	psi	MPa	psi		
GENOMER* 4259	Aliphatic Urethane Acrylate	3	3 340	484 400	68	9 900	D87	85
GENOMER* 4267	Aliphatic Urethane Acrylate	32	110	15 500	11	1 600	D57	-10
GENOMER* 4269/M22	Aliphatic Urethane Acrylate	87	<10	<100	<1	<100	OO78	-13
GENOMER* 4277	Aliphatic Urethane Acrylate	34	350	51 300	21	3 000	D74	8
GENOMER* 4293	Aliphatic Urethane Acrylate	3	3 870	561 300	78	11 300	D86	67
GENOMER* 4297	Aliphatic Urethane Acrylate	2	3 670	532 300	59	8 600	D89	130
GENOMER* 4302	Isocyanurate	3	2 780	403 200	68	9 800	D86	90
GENOMER* 4312	Aliphatic Urethane Acrylate	15	720	104 700	22	3 200	D76	32
GENOMER* 4312TF	Aliphatic Urethane Acrylate	13	970	140 700	24	3 500	D77	34
GENOMER* 4316	Aliphatic Urethane Acrylate	15	30	4 300	4	600	D41	7
GENOMER* 4335	Aliphatic Urethane Acrylate Hydroxy Functional	4	770	111 500	22	3 100	D81	17
GENOMER* 4337	Aliphatic Urethane Acrylate	4	2 600	377 800	68	9 900	D84	87
GENOMER* 4425	Aliphatic Urethane Acrylate	3	1 670	242 200	34	5 000	D85	18
GENOMER* 4515	Aromatic Urethane Acrylate	1	710	102 700	10	1 500	D75	n/a
GENOMER* 4590/PP	Aliphatic Urethane Acrylate	<1	1 610	233 500	16	2 400	D91	42
GENOMER* 4622	Aromatic Urethane Acrylate	<1	1 440	208 900	13	1 900	D91	55
GENOMER* 4690	Aliphatic Urethane Acrylate	<1	1 230	177 800	11	1 700	D91	55
GENOMER* 4691	Aliphatic Urethane Acrylate	<1	1 300	188 000	12	1 800	D91	55
<b>Oligoamines &amp; Specialties</b>								
GENOMER* 5271	Amine Acrylate	6	10	1 900	<1	100	A83	-48
GENOMER* 5275	Amine Acrylate	7	10	1 400	<1	100	A78	-48
GENOMER* 5695	Acrylated Oligoamine	5	40	6 500	2	300	D41	-27
GENOMER* 7151	Carboxyfunctional Polyester Acrylate	<1	3 990	578 700	25	3 700	D85	37
GENOMER* 7244	Modified Epoxy Acrylate	<1	4 490	651 200	40	5 800	D88	130
GENOMER* 7302	Speciality Resin	10	720	104 300	18	2 700	D77	31
GENOMER* 7311	Acrylate Resin	5	20	3 500	1	200	A87	-40



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