



# huber group Chemicals

## Product Portfolio

**hubergroup Chemicals** manufactures specialty chemicals such as Resins, Energy Curable Oligomers & Monomers, Lamination Adhesives, Pigments and Concentrates thereof. Launched in 2020, the company is a division of the international chemical and ink specialist hubergroup, which is based in Germany and has a 260-year history. hubergroup Chemicals specialises in the production of raw materials for use in industrial coatings, printing inks and adhesives for flexible food packaging. The company also develops, scales and manufactures customised solutions for the chemical industry.

## Designed in Germany – Made in India



As one of the largest manufacturers in the chemical sector, it is our motivation to prove ourselves anew every day. In addition to our high-quality standard products, we prioritise three core competencies that we work on daily. Leveraging our diverse chemical expertise, we offer customised analytical support, regulatory knowledge, and individual chemical consulting services. With our team of international experts, we help our clients to make chemical processes more efficient.

A handwritten signature in black ink, appearing to read "Taner Bicer".

**Taner Bicer**  
Chief Commercial Officer Chemicals



## We are nearby and connected



■ Accountable & Responsible

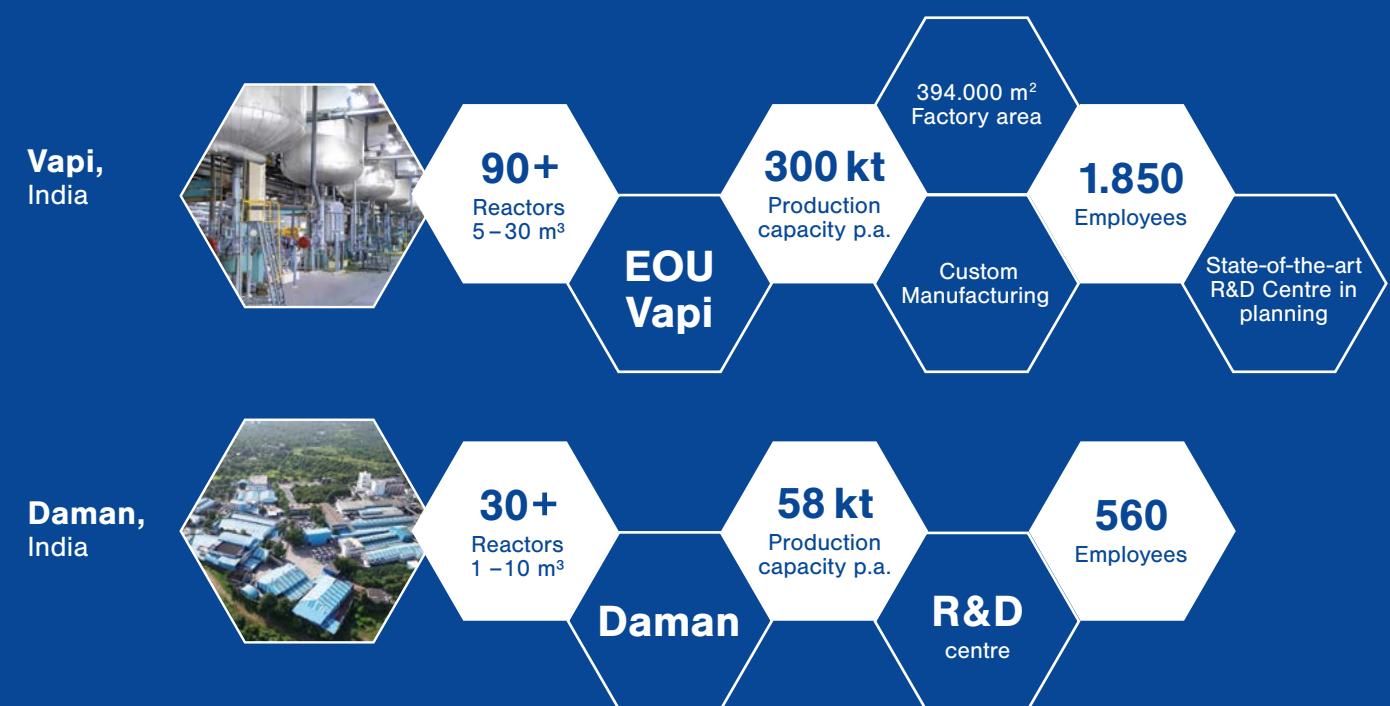
■ Responsible

**Americas**  
 Sales  
 Technical Marketing  
 Application Technology  
 Product Safety & Regulatory Affairs

**Europe**  
 huber group Corporate Headquarters  
 Product Lifecycle Management  
 Product Safety & Regulatory Affairs  
 Central Analytical Lab  
 Intellectual Property  
 Innovation Management  
 Application Technology  
 Business Development  
 Technical Marketing  
 Sales

**Asia**  
 Operations  
 Purchasing  
 Supply Chain  
 Application Technology  
 Technical Marketing  
 Analytical Lab  
 Product Safety & Regulatory Affairs  
 Sales

## We are a Chemicals Company with Manufacturing Sites in ...



## Business Segments

### Inks & Industrial Coatings

#### Printing Ink Related



#### Printing Inks & Overprint Varnishes

UV-Oligomers  
UV-Monomers  
Ketonic Resins  
Pigments and Concentrates  
Rosin Based Resins  
Polyamide Resins  
PVB Resins  
PU Resins

R&D knowledge in Chemicals and  
Printing Inks for a broad range of products from  
Resins to Pigments and Concentrates

#### PU Adhesives for Packaging

Solvent-Free and  
Solvent-Based  
Two-Component System  
for flexible packaging

#### Specialty Applications (Beyond Printing Inks)



#### Custom/Toll Manufacturing

Indian Footprint  
Indian Raw Material Sourcing  
Project Management  
Expertise in Product Safety &  
Regulatory Affairs  
Analytics

## Discover our Services

hubergroup Chemicals is one of the largest manufacturers in the chemical sector, offering a broad product portfolio of specialty chemicals, including Pigments and Concentrates, Lamination Adhesives, UV-Monomers, UV-Oligomers and custom manufacturing. We are committed to innovation and excellence, offering a wide array of specialty chemicals tailored to meet the unique demands of our valued clients. To date, hubergroup Chemicals has developed into a major chemical supplier that sells its products to all over the world, in all business areas and to customers ranging from SMEs to large, world-renowned chemical companies.

#### Analytical Support

Rely on our dedicated analytical support to ensure the quality and compliance of your formulations. With modern Lab Facilities in India and Munich our expert guidance will help you maintain the highest standards in your products.

#### Regulatory Expertise

Navigate complex compliance requirements with confidence. All materials imported to EU are REACH registered and various other inventories are covered as well. Our regulatory expertise from our specialists provides you with the knowledge and assurance you need to meet industry regulations and standards.



#### Industrial Coatings

UV-Oligomers  
UV-Monomers  
Functional Resins  
Ketonic Resins

#### Customised Solutions and Consulting Expertise

Our commitment to tailored solutions extends beyond custom manufacturing. We specialise in creating customised solutions because we recognise that every customer faces unique challenges. Our team of international experts is here to collaborate with you, making your chemical processes more efficient and effective.

At hubergroup Chemicals, we are committed to providing high-quality specialty chemicals and comprehensive support to meet your changing needs. Explore our product portfolio, and let us be your partner in achieving excellence in your industry.

## Committed to Sustainability

### Advancement

of water stewardship by running own water treatment plant on clever water cycles

### Water recycling

minimum 96% by means of ultra filtration reverse osmosis and water-flea-treatment

### Reduction

of carbon footprint by Avoidance- & Green-Energy-Strategy: solar energy is in use in our production plants and offices

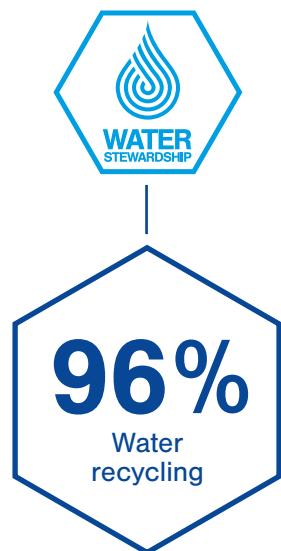
## Highest Quality Standards

### ISO certified in all our facilities

ISO 9001:2015	Quality management
ISO 45001:2018	Occupational health & safety
ISO 14001:2015	Environmental management
ISO 50001:2018	Energy management

### Manufacturers for food packaging materials produced according to GMP standards

### A member of the “Responsible Care®” initiative



## Discover our Product Portfolio

### UV-Oligomers

We are experts at creating the solution to your requirement. Rely on our high-quality, sustainable UV-Oligomers for increased reactivity and resistance.

### Pigments and Concentrates

Explore our wide range of high-quality Pigments and Concentrates, suitable for various industries such as printing, packaging, and coatings. Our colour solutions offer a diverse spectrum, providing plenty of creative opportunities for your projects.

### Ketonic Resins

Remarkable clarity and perfect solubility, how else could we best describe our Ketonic Resins to you?

### Precursors

Our long history in polyurethane chemistry is based on the synthesis of our own intermediates. You can benefit from our in-depth expertise, be it in polyester polyols or ketone resins as precursors for a wide range of industrial applications such as coatings, adhesives or reactive hot melts.



### Rosin Based Resins

As India's largest manufacturer for Rosin Based Resins we know what we are talking about. Discover our solutions to your Solvent-Based or Oil-Based Ink formulations!

### Lamination Adhesives

Our Lamination Adhesives are engineered for durability and precision and guarantee a good processability at a wide range of application speeds. They are well suited for various flexible packaging applications from snacks to detergents. Count on us for a steadfast and enduring bond.

### UV-Monomers

Elevate formulation performance with our exceptional range of Monomers. We provide the foundational elements for a multitude of applications, from adhesives to coatings, enhancing your products with improved properties and functionality.

**UV-Monomers**

TPGDA, DPGDA, PETIA, GPTA, TMPTA, EOTMPTA, HDDA  
Page 12 – 13

**Resins**

UV-Oligomers  
Page 14 – 19

Functional Resins  
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Resins  
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**Additives**

Siccatives  
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Adhesion Promoter  
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Fatty Acid Esters  
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Dispersants  
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Tackifier  
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**Pigments and Concentrates**

Concentrates  
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Powder Pigments  
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**Lamination Adhesives**

Solvent Free Two-Component  
Page 60 – 61

Solvent Based Two-Component  
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# UV-Monomers

Product	Product Description	Appearance	Colour	Acid Value
		APHA	mg KOH/g	
UHVM-22701	TMPTA	clear liquid	≤ 50	≤ 4
UHVM-22702	TPGDA	clear liquid	≤ 50	≤ 0.5
UHVM-22704	DPGDA	clear liquid	≤ 50	≤ 0.2
UHVM-22707	PETIA	clear liquid	≤ 70	≤ 10
UHVM-22710	GPTA 	clear liquid	≤ 50	≤ 2
UHVM-22709	EOTMPTA	clear liquid	≤ 30	≤ 0.5
UHVM-24703	HDDA	clear liquid	≤ 30	≤ 0.5

Moisture	Solvent	Viscosity 25 °C <sup>1)</sup>
%	%	mPa*s
≤ 0.3	≤ 0.1	80 - 135
≤ 0.3	≤ 0.1	30 - 40
≤ 0.3	≤ 0.1	20 - 30
≤ 0.3	≤ 0.1	700 - 3,000
≤ 0.3	≤ 0.1	110 - 150
≤ 0.3	≤ 0.1	70 - 110
≤ 0.3	≤ 0.1	5 - 30

# UV-Oligomers

## Polyester Acrylates

Product	Product Description	Viscosity <sup>1)</sup> Pa·s	Acid Value mg KOH/g	Hydroxyl Value mg KOH/g	Average Functionality					
						Double Bond Density mol/kg	Bio Renewable %	Colour Gardner	Key properties	Application
UHVO-221019	Polyester Acrylate BPA-free	100 - 130	≤ 19	15 - 35	6	6 - 7	10 	≤ 12	- medium viscosity - very good pigment wetting - high reactivity - suitable for LED and EB - suitable for indirect food contact	- inks OOO - coatings O
UHVO-221016 	Polyester Acrylate BPA-free	180 - 235	≤ 15	55 - 75	4	2.8 - 3.2	38 	≤ 12	- high viscosity - very good pigment wetting properties - high reactivity - suitable for LED and EB - suitable for indirect food contact	- inks OOO - coatings O
UHVO-019842	Polyester Acrylate	100 - 130	≤ 4	55 - 75	6	5.4 - 6.0	14 	≤ 12	- medium viscosity - high reactivity - suitable for LED and EB - recommended for commercial printing	- inks OOO - coatings O
UHVO-221020** 	Polyester Acrylate BPA-free	4 - 6	≤ 6	60 - 70	6	5.4 - 6.4	12 	5 - 8	- low viscosity - suitable for LED and EB - suitable for indirect food contact - good coffee stain resistance - low yellowing	- inks OOO - coatings OO
UHVO-221022 	Polyester Acrylate BPA-free	13 - 17	≤ 20	60 - 70	6	7.5 - 9.0	28 	≤ 13	- low viscosity - very good pigment wetting - excellent ink water balance - suitable for LED and EB - suitable for indirect food contact - excellent coffee stain resistance - low yellowing	- inks OOO - coatings OO
UHVO-221023	Polyester Acrylate	35 - 55	≤ 20	20 - 60	2 - 3	3.5 - 5.5	-	≤ 4	- all around coating resin - balanced flexibility & hardness - suitable for matte top coats - suitable for overprint varnishes	- inks O - coatings OOO
UHVO-221024	Polyester Acrylate	15 - 20	≤ 5	55 - 75	2 - 3	3.5 - 5.5	-	≤ 4	- all around coating resin - balanced flexibility & hardness - high chemical resistance - suitable for matte top coats	- inks O - coatings OOO
UHVO-221025 	Polyester Acrylate BPA-free	1 - 1.4	≤ 20	65 - 85	4	Approx. 3.6	15 	≤ 2	- very low viscosity - suitable for indirect food contact	- inks O - coatings OOO
UHVO-17806	Polyester Acrylate	5 - 8	≤ 3	80 - 90	6	5.6 - 6.6	9 	4 - 5	- low viscosity - good stain resistance - excellent pigment wetting & flow - low yellowing - suitable for indirect food contact - suitable for LED and EB	- inks OOO - coatings OO
UHVO-17826	Polyester Acrylate	8 - 12	≤ 3	80 - 90	6	6.8 - 7.6	14 	≤ 12	- low viscosity - outstanding ink water balance - excellent pigment wetting & flow - good stain resistance, e.g coffee - low yellowing - suitable for indirect food contact - suitable for LED and EB	- inks OOO - coatings OO

1) At 20 °C; Physica; D = 5/s  
\*\* Not fully commercialised

# UV-Oligomers

## Chlorinated Polyester

Product	Product Description	Viscosity <sup>1)</sup> Pa·s	Acid Value mg KOH/g	Colour Gardner	Appearance	Key properties	Application
UHVO-15113 	Chlorinated Polyester in 40% EOTMPTA	180 - 230	8 - 12	≤ 3	clear liquid	- excellent adhesion to plastics and metal - suitable for indirect food contact	- inks OOO - coatings O - UV-curable Adhesives OOO
UHVO-241030 	Chlorinated Polyester in 40% EOTMPTA (TMPTA reduced)	180 - 230	8 - 12	≤ 3	clear liquid	- excellent adhesion to plastics and metal - suitable for indirect food contact - TMPTA < 0.1%	- inks OOO - coatings O - UV-curable Adhesives OOO
UHVO-20114 	Chlorinated Polyester in 40% TMPTA	500 - 600	9 - 13	≤ 3	clear liquid	- excellent adhesion to plastics and metal	- inks OOO - coatings O - UV-curable Adhesives OOO
UHVO-20115 	Chlorinated Polyester in 40% GPTA	490 - 600	8 - 12	≤ 3	clear liquid	- excellent adhesion to plastics and metal - suitable for indirect food contact	- inks OOO - coatings O - UV-curable Adhesives OOO
UHVO-221017 	Chlorinated Polyester in 40% EOTMPTA	55 - 75	15 - 25	≤ 3	clear liquid	- excellent adhesion to plastics and metal - suitable for indirect food contact	- inks OOO - coatings O - UV-curable Adhesives OOO
UHVO-221015 	Chlorinated Polyester in 40% TMPTA	80 - 120	15 - 25	≤ 3	clear liquid	- excellent adhesion to plastics and metal	- inks OOO - coatings O - UV-curable Adhesives OOO
UHVO-221021 	Chlorinated Polyester in 40% GPTA	95 - 115	15 - 25	≤ 3	clear liquid	- excellent adhesion to plastics and metal - suitable for indirect food contact	- inks OOO - coatings O - UV-curable Adhesives OOO

# UV-Oligomers

## Urethane Acrylate

1) At 20 °C; Physica; D = 5/s  
 2) At 25 °C, Physica, D = 50/s  
 3) At 40 °C, Physica, D = 5/s  
 4) At 60 °C, Physica, D = 5/s  
 \*\* Not fully commercialized

Product	Product Description	Viscosity <sup>2)</sup> Pa·s	Acid Value mg KOH/g	Hydroxyl Value mg KOH/g	Average Functionality	Double Bond Density mol / kg	Colour	Key properties	Application
UHVO-221014 ** 	Aromatic Urethane Acrylate	25 - 35	≤ 3	50 - 70	6	8 - 10	< 2	- tin-free - excellent hardness and resistance properties - high gloss - suitable for indirect food contact	- inks OOO - coatings O
UHVO-231029** 	Aliphatic Urethane Acrylate	200 - 220	≤ 3	20 - 30	6	6 - 10	< 2	- low yellowing - high hardness and resistance properties - good reactivity	- inks O - coatings OOO

# Epoxy Acrylate

Product	Product Description	Viscosity	Acid Value	Bio Renewable	Colour	Application
UHVO-23920	Epoxy Acrylate 100%	85 - 105 <sup>3)</sup>	≤ 2	-	≤ 2	- inks OOO - coatings OOO
UHVO-23922	Epoxy Acrylate 100% bio-based	100 - 120 <sup>3)</sup>	≤ 0.5	Approx. 20 	≤ 2	- inks OOO - coatings OOO
UHVO-22912 	Epoxydised Soybean Oil Acrylate	15 - 30 <sup>2)</sup>	≤ 10	Approx. 82 	≤ 2	- inks OOO - coatings OOO

# Functional Resins

## UV Reactive/Inert Rosin Resins

Product	Product Description	Bio Renewable	Viscosity <sup>1)</sup>	Acid Value	Photoinitiator Content
		%	Pa·s	mg KOH/g	%
UHVPI-22460 	UV reactive Rosin Resin	55 	-	≤ 15	10
UHVPI-22463 	UV reactive Rosin Resin in 50% DPGDA	27 	2 - 4	≤ 7	5
UHVR-22461 	UV inert Rosin Resin	59 	-	≤ 5	-
UHVR-22464 	UV inert Rosin Resin in 50% EOTMPTA	29 	55 - 65	≤ 2	-

Appearance	Softening Point	Key properties	Application
	°C		
Amber Flakes	115 - 125	<ul style="list-style-type: none"> <li>- excellent suitability for LED curing</li> <li>- recommended to replace monomeric photoinitiator</li> <li>- flexibilizes and improves adhesion to difficult substrates</li> <li>- suitable for direct-to-metal application</li> </ul>	<ul style="list-style-type: none"> <li>- inks O</li> <li>- coatings OOO</li> </ul>
Amber Liquid	-	<ul style="list-style-type: none"> <li>- excellent suitability for LED curing</li> <li>- recommended to replace monomeric photoinitiator</li> <li>- flexibilizes and improves adhesion to difficult substrates</li> <li>- suitable for direct-to-metal application</li> </ul>	<ul style="list-style-type: none"> <li>- inks O</li> <li>- coatings OOO</li> </ul>
Brown Flakes	95 - 105	<ul style="list-style-type: none"> <li>- flexibilizes and improves adhesion to difficult substrates</li> <li>- suitable for direct-to-metal application</li> <li>- suitable for indirect food contact</li> </ul>	<ul style="list-style-type: none"> <li>- inks O</li> <li>- coatings OOO</li> </ul>
Brown Liquid	-	<ul style="list-style-type: none"> <li>- flexibilizes and improves adhesion to difficult substrates</li> <li>- suitable for direct-to-metal application</li> <li>- suitable for indirect food contact</li> </ul>	<ul style="list-style-type: none"> <li>- inks O</li> <li>- coatings OOO</li> </ul>

# Resins

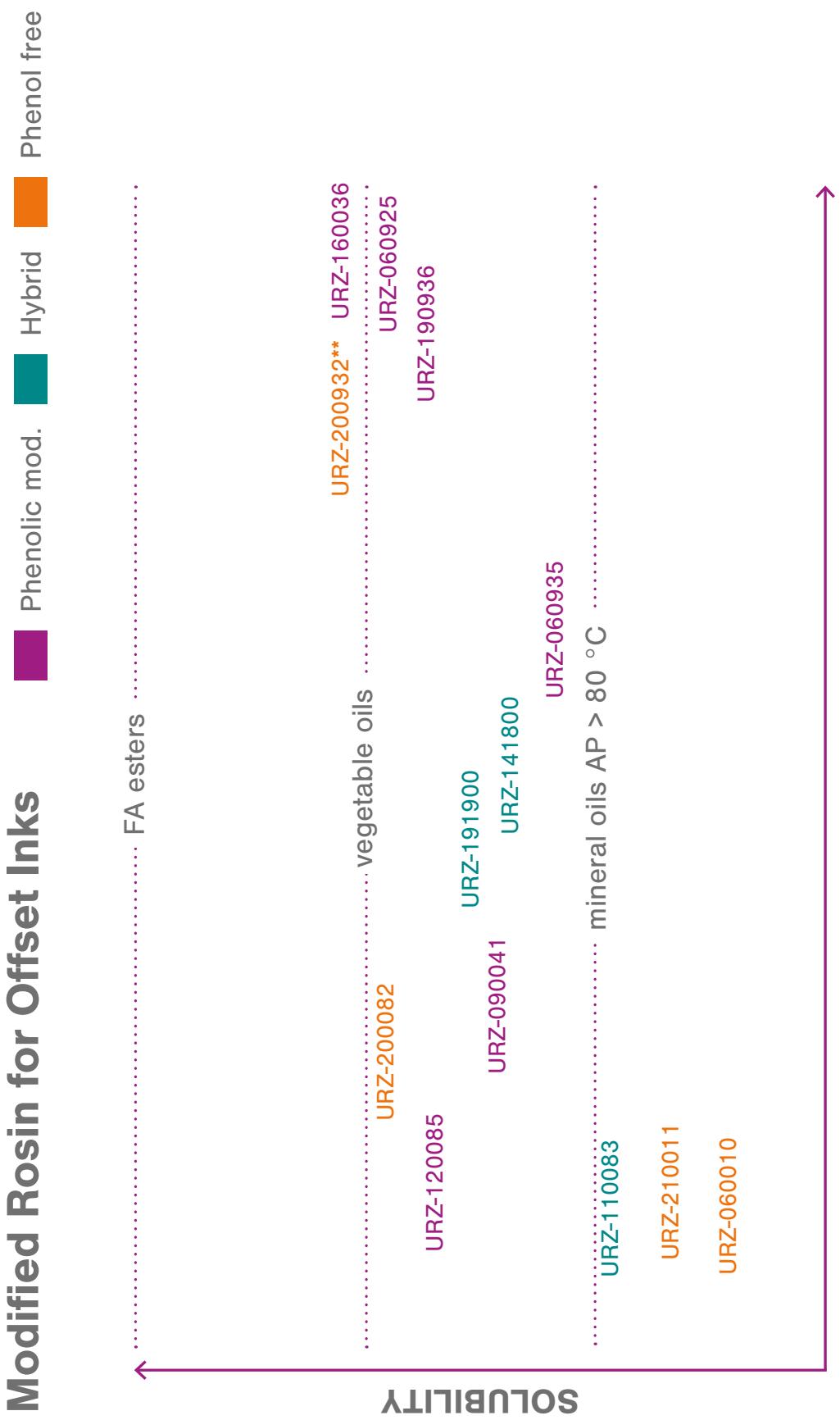
## Modified Rosin for Offset Inks

Product	Product Description	Viscosity <sup>1)</sup> Pas	Acid Value mg KOH/g	Colour Gardner	Softening Point <sup>2)</sup> °C
URZ-090041 	Phenolic Modified Rosin Resin	10 - 22	≤ 25	8 -13	150 - 160
URZ-060935 	Phenolic Modified Rosin Resin	40 - 70	≤ 25	8 -13	160 - 185
URZ-190936 	Phenolic Modified Rosin Resin	40 - 70	≤ 25	8 -13	160 - 180
URZ-060925 	Phenolic Modified Rosin Resin	64 - 104	≤ 25	8 -13	165 - 185
URZ-120085 	Phenolic Modified Rosin Resin	5 - 8	≤ 25	8 -13	150 - 170
URZ-160036 	Phenolic Modified Rosin Resin	350 - 650	18 - 25	8 -13	165 - 190
URZ-141800 	Hybrid Rosin Resin	20 - 40	≤ 25	8 -13	165 - 190
URZ-191900 	Hybrid Rosin Resin	15 - 25	≤ 25	8 -13	165 - 190
URZ-110083 	Hybrid Rosin Resin	1.5 - 3.5	≤ 25	8 -13	150 - 170
URZ-060010 	Modified Rosin, Phenol & Formaldehyde free	15 - 35	≤ 25	8 -13	110 - 120
URZ-210011 	Modified Rosin, Phenol & Formaldehyde free	35 - 60	≤ 25	8 -13	100 - 120
URZ-200082 	Modified Rosin, Phenol & Formaldehyde free	8 - 12	≤ 25	8 -13	140 - 150
URZ-200932 ** 	Modified Rosin, Phenol & Formaldehyde free	20 - 30	≤ 25	8 - 13	140 - 150

1) Physica; D = 50/s ; 20 °C; 40% in Linear Alkyl Benzene  
 2) B&R Method  
 3) 10% in Test Oil 6/9 AF New  
 4) 10% in Test Oil 6/9  
 \*\* Not fully commercialized

Cloud point °C	Key properties	Suggested Application
110 - 135 <sup>3)</sup>	- high gloss - excellent ink water balance	Heatset, Sheetfed, Coldset
100 - 130 <sup>3)</sup>	- high gloss - excellent ink water balance	Heatset, Sheetfed, Coldset
145 - 170 <sup>3)</sup>	- low solubility - fast setting - improved press performance	Heatset, Sheetfed, Coldset
70 - 100 <sup>4)</sup>	- high gloss - excellent ink water balance and ink set - high viscosity	Heatset, Sheetfed, Coldset
150 - 170 <sup>3)</sup>	- excellent pigment wetting	Heatset, Sheetfed, Coldset
130 - 165 <sup>4)</sup>	- excellent solubility in fatty esters - indirect food contact	Heatset, Sheetfed, Coldset
130 - 160 <sup>3)</sup>	- low tack - low misting - excellent ink water balance	Heatset, Sheetfed, Coldset
60 - 75 <sup>4)</sup>	- very good ink water balance	Heatset, Sheetfed, Coldset
80 - 110 <sup>3)</sup>	- good pigment wetting - low viscosity - improve film thickness - increase tack	Heatset, Sheetfed, Coldset
70 - 90 <sup>3)</sup>	- excellent pigment wetting - high compatibility with alkyd resin - low viscosity - recommended for indirect food contact	Heatset, Sheetfed, Coldset
45 - 65 <sup>3)</sup>	- low viscosity - excellent pigment wetting - recommended for indirect food contact	Heatset, Sheetfed, Coldset
80 - 120 <sup>4)</sup>	- low viscosity - excellent pigment wetting - low viscosity - recommended for indirect food contact	Heatset, Sheetfed, Coldset
120 - 140 <sup>5)</sup>	- medium solubility - indirect food contact - very good ink - water balance	Heatset, Sheetfed, Coldset

## Conventional Drying Resins / Modified Rosin for Offset Inks



# Resins

## Modified Rosin for Liquid Inks

Product	Product Description	Viscosity <sup>1)</sup> s	Acid Value mg KOH/g	Colour Gardner	Softening point <sup>2)</sup> °C
UFRZ-1020 	Fumaric Modified Rosin Resin	17 - 22	190 - 210	0 - 8	136 - 150
UFRZ-1121 	Fumaric Modified Rosin Resin	15 - 18	280 - 300	0 - 12	140 - 150

1) At 30 °C; FCB4; 50% Solution in Ethanol  
2) B&R Method

Key properties	Suggested Application
<ul style="list-style-type: none"> <li>- excellent adhesion</li> <li>- high gloss</li> <li>- improved solvent release</li> <li>- suitable for solvent-borne and water-borne systems</li> </ul>	<ul style="list-style-type: none"> <li>- inks + OPV OOO</li> <li>- coatings OO</li> </ul>
<ul style="list-style-type: none"> <li>- excellent adhesion</li> <li>- high gloss</li> <li>- improved solvent release</li> <li>- suitable for solvent-borne and water-borne systems</li> </ul>	<ul style="list-style-type: none"> <li>- inks + OPV OOO</li> <li>- coatings OO</li> </ul>

# Resins

## Polyurethane

Product	Product Description	Viscosity <sup>1)</sup> mPa·s	Solid Content %	Volatiles %

UMU-097080	Plasticizing Semi-Aliphatic	1,000 - 2,000	78 - 82	18 ethyl acetate 2 ethanol
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UMU-247175	Plasticizing Semi-Aliphatic	1,000 - 2,000	73 - 77	22 ethyl acetate 3 iso-propanol
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UMU-139045 	Film-Forming Aliphatic	3,500 - 4,500	43 - 47	17 propyl acetate 38 n-propanol
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UMU-239355 	Film-Forming Aliphatic	20,000 - 30,000	53 - 57	12 propyl acetate 33 n-propanol
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UMU-185030 	Film-Forming Aliphatic	1,000 - 3,000	28 - 32	68 ethyl acetate 4 n-propanol
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UMU-201230	Film-Forming Aliphatic	1,000 - 3,000	28 - 32	70 ethyl acetate
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1) at 25 °C; Brookfield

NCO Type	Key properties	Application
TDI	<ul style="list-style-type: none"> <li>- tin-free</li> <li>- suitable for indirect food contact</li> <li>- suitable for surface and lamination printing</li> <li>- recommended for flexo and gravure inks</li> </ul>	<ul style="list-style-type: none"> <li>- inks OOO</li> <li>- coatings</li> </ul>
TDI	<ul style="list-style-type: none"> <li>- tin-free</li> <li>- suitable for indirect food contact</li> <li>- suitable for surface printing</li> <li>- recommended for flexo and gravure inks</li> </ul>	<ul style="list-style-type: none"> <li>- inks OOO</li> <li>- coatings</li> </ul>
IPDI	<ul style="list-style-type: none"> <li>- tin-free</li> <li>- suitable for indirect food contact</li> <li>- recommended for PU NC systems</li> <li>- suitable for pure PU white</li> <li>- recommended for flexo and gravure inks</li> </ul>	<ul style="list-style-type: none"> <li>- inks OOO</li> <li>- coatings</li> </ul>
IPDI	<ul style="list-style-type: none"> <li>- tin-free</li> <li>- suitable for indirect food contact</li> <li>- recommended for PU NC systems</li> <li>- suitable for pure PU white</li> <li>- recommended for flexo and gravure inks</li> </ul>	<ul style="list-style-type: none"> <li>- inks OOO</li> <li>- coatings O</li> </ul>
IPDI	<ul style="list-style-type: none"> <li>- tin-free</li> <li>- suitable for indirect food contact</li> <li>- recommended for pure PU colours and white</li> <li>- recommended for flexo and gravure inks</li> </ul>	<ul style="list-style-type: none"> <li>- inks OOO</li> <li>- coatings O</li> </ul>
IPDI	<ul style="list-style-type: none"> <li>- tin-free</li> <li>- suitable for indirect food contact</li> <li>- recommended for PU vinyl systems</li> <li>- recommended for gravure inks</li> <li>- Polyester-based</li> </ul>	<ul style="list-style-type: none"> <li>- inks OOO</li> <li>- coatings O</li> </ul>

# Resins

## Polyamide

Product	Product Description	Viscosity <sup>1)</sup> s	Acid Value mg KOH/g	Amine Value mg KOH/g
HPR-209	Cosolvent Soluble	60 - 75 <sup>2)</sup>	≤ 5	≤ 5
HPR-215	Cosolvent Soluble	120 - 160 <sup>2)</sup>	≤ 5	≤ 5
HPR-260	Cosolvent Soluble	48 - 58 <sup>2)</sup>	≤ 5	≤ 5
HPR-500	Cosolvent Soluble	17 - 23 <sup>2)</sup>	≤ 10	≤ 2
HPR-304	Alcohol Soluble	17 - 23 <sup>3)</sup>	≤ 6	≤ 6
HPR-350	Alcohol Soluble	17 - 23 <sup>3)</sup>	≤ 6	≤ 6
HPR-307	Alcohol Soluble	17 - 23 <sup>3)</sup>	≤ 6	≤ 6

1) At 30 °C with FCB4  
 2) 40% Resin, 40% Toluene, 20% Butanol  
 3) 40% Resin, 60% Ethanol  
 4) B&R Method

Softening Point <sup>4)</sup> °C	Bio Renewable %	Appearance	Key properties	Application
		mg KOH/g		
105 - 115	90 	pale yellow solid	- general application - anti-slip	- inks OOO - coatings
110 - 120	90 	pale yellow solid	- general application - anti-slip	- inks OOO - coatings
100 - 107	89 	pale yellow solid	- general application - anti-slip	- inks OOO - coatings
95 - 100	88 	pale yellow solid	- general application - untreated olefinic surfaces - corona treated surfaces	- inks OOO - coatings
110 - 120	77 	pale yellow solid	- weathering resistant	- inks OOO - coatings
128 - 138	80 	pale yellow solid	- release properties	- inks OOO - coatings
100 - 105	78 	pale yellow solid	- general application - anti-slip - stretch and shrink application	- inks OOO - coatings

# Resins

## Ketonic

Product	Product Description	Viscosity <sup>1)</sup> s	Acid Value mg KOH/g	Hydroxyl Value mg KOH/g	Softening Point <sup>2)</sup> °C
HUK-0001E	Ketonic Resin	20 - 22	0 - 1	200 - 230	92 - 102
HUK-0009	Ketonic Resin	20 -22	0 - 1	260 - 290	81 - 91
HUK-0010	Ketonic Resin	18 - 20	0 - 1	230 - 270	75 - 85
HUK-0011E	Ketonic Resin	27 - 31	0 - 1	200 - 230	110 - 120
HUK-0014	Ketonic Resin	28 - 30	0 - 1	230 - 260	108 - 118

1) FCB4; 30 °C; 50% Solution in Ethanol  
2) capillary method

Appearance	Key properties	Application
Star Bright Particles	- easy to dissolve - small clear particles - high purity - excellent pigment wetting	- inks OOO - ball point pen inks OOO - coatings OO - nail varnish OOO
Pale Yellowish Lumps	- high OH reactivity - excellent pigment wetting	- inks OOO - ball point pen inks OOO - coatings OO - nail varnish OO
Pale Yellowish Lumps	- excellent pigment wetting	- inks OOO - ball point pen inks OOO - coatings OO - nail varnish OO
Star Bright Particles	- excellent pigment wetting	- inks OOO - ball point pen inks OOO - coatings OO - nail varnish OO
Pale Yellowish Lumps	- very low residual monomer - excellent pigment wetting	- inks OOO - ball point pen inks OOO - coatings OO - nail varnish OO

# Resins

## Polyvinyl Butyral (PVB)

Product	Product Description	Viscosity	Bulk Density <sup>3)</sup>	Acid Value	Polyvinyl Alcohol Content
		s	g/cm <sup>3</sup>	mg KOH/g	%
HVB-0001	High Viscosity, Thermoplastic	180 - 250 <sup>1)</sup>	0.280 - 0.312	0 - 1	14 - 17
HVB-0004	High Viscosity, Thermoplastic	55 - 60 <sup>2)</sup>	0.222 - 0.238	0 - 1	17 - 19
HVB-0005	Thermoplastic	48 - 58 <sup>1)</sup>	0.245 - 0.291	0 - 1	14 - 17
HVB-0006	Thermoplastic	75 - 85 <sup>1)</sup>	0.284 - 0.312	0 - 1	11 - 14

1) 20% in Ethanol at 30 °C; FCB4  
 2) 10% in Ethanol at 30 °C; FCB4  
 3) 25 °C

Polyvinyl Acetate Content	Polyvinyl Butyral Content	Key properties	Application
%	%		
2.2 - 2.5	80 - 90		
1.9 - 2.3	75 - 85	<ul style="list-style-type: none"> <li>- grades differ by molecular weight and degree of acetalization</li> <li>- solubility in various solvents</li> <li>- good compatibility with various resins and plasticizers</li> <li>- excellent film formation</li> <li>- free, reactive hydroxyl groups for crosslinking</li> </ul>	<ul style="list-style-type: none"> <li>- inks OOO</li> <li>- inks for textile OOO</li> <li>- powder coatings OO</li> <li>- adhesives OO</li> <li>- temporary binder for ceramics OOO</li> <li>- coatings OOO</li> </ul>
1.0 - 1.5	80 - 90	<ul style="list-style-type: none"> <li>- excellent flexibility</li> <li>- heat sealability</li> <li>- good light resistance</li> <li>- suitable for indirect food contact</li> </ul>	
1.6 - 1.7	80 - 90		

# Additives

## Siccatives

Product	Product Description	Viscosity <sup>1)</sup> s	Moisture <sup>2)</sup> %	Metal Content %
UMID-17504	Iron Neodecanoate Drier	24 - 45	0 - 0.4	4.9 - 5.1
UMID-12306	Manganese Tallate Drier	50 - 350	0 - 0.4	4.9 - 5.1

1) 30 °C, FCB4  
2) Karl-Fischer  
3) 120 °C for 1 hour

Solvent	Key properties	Application
2-ethyl hexyl laurate	- Effective cobalt-free drier for all air-drying systems	- inks OOO - coatings OO
2-ethyl hexyl laurate	- Effective cobalt-free drier for all air-drying systems	- inks OOO - coatings OO

# Adhesion Promoter

Product	Product Description	Viscosity <sup>1)</sup> s	Solid Content <sup>3)</sup> %	Titanium Content %
UAP-11002 	Titanium Phosphate Complex	16 - 18	49 - 51	8.4 - 8.6

Odour	Key properties	Application
Alcoholic	- high compatibility with NC, PU, PA and other binders - no predilution required - excellent viscosity stability - crosslinker for -OH and -COOH functionalities	- inks OOO - coatings O

# Additives

## Fatty Acid Esters

Product	Product Description	Viscosity, FCB4 s	Refractive Index <sup>1)</sup>	Moisture %
UEAF-0706	Isopropyl Laurate	12	1.425 - 1.427	< 0.1
UEAF-0905	Soya Fatty Acid Butyl Ester	13 - 15	1.452 - 1.454	< 0.2
UEAF-1107	2-Ethyl Hexyl Laurate	13	1.435 - 1.445	< 0.2
UEAF-1108	Pentaerythritol Caprylic/ Caprate Ester	24	1.450 - 1.455	< 0.2
UEAF-1109	Trimethylol Propane Caprylic/Caprate Ester	19	1.445 - 1.455	< 0.2

1) 30 °C

Density <sup>1)</sup> g/cm <sup>3</sup>	Acid value mg KOH/g	Colour, Gardner	Application
0.845 - 0.855	< 1	< 1	- inks OOO - lubricants OO
0.860 - 0.880	< 5	10 - 14	- inks OOO - lubricants OO
0.850 - 0.865	< 1	< 1	- inks OOO - lubricants OO
0.948 - 0.956	< 1	< 1	- inks OOO - lubricants OO
0.930 - 0.940	< 1	< 1	- inks OOO - lubricants OO

# Additives

## Dispersant

Product	Product Description	Appearance	Moisture	Viscosity <sup>1)</sup>	Bulk density	Key properties	Application
			%	s	g/cm <sup>3</sup>		
UADP-21001*	Dispersant	light brown liquid	-	35 - 45	-	- high pigment loading - high colour strength - improves grinding efficiency	- inks OOO
UADP-23002 *	Pigment Synergist	yellow powder	< 4	-	0.55 - 0.65	- high pigment loading - high colour strength - improved pigment stabilisation	- inks OOO

# Tackifier

Product	Product Description	Softening Point <sup>2)</sup>	Ash content	Colour	Appearance	Acid value	Iodine value	Key properties	Application
		°C	%	Gardner		mg KOH/g	g I <sub>2</sub> /100g		
UTRZ-2300 **	DCPD Resin	80 - 120	< 0.1	10 - 14	brown lumps	< 10	110 - 180	- high reactivity - softening and reinforcing agent - excellent compatibility	- rubber OOO - tyres OOO

1) FCB4 at 30 °C, 60% in Xylene  
2) Ball & Ring  
\* Limited regional availability  
\*\* Not fully commercialised

1) At 20 °C; Physica; D = 50/s

# Concentrates

# UV Flexo Spot Colours

Product	Colour Index	Viscosity <sup>1)</sup>	Fineness of grind	Pigmentation
		Pa·s	NPIRI	%
UFX-Y14	Pigment Yellow 14	0.5 - 2.5	< 4	Approx. 32
UFX-O13	Pigment Orange 13	15 - 25	< 4	Approx. 32
UFX-R571	Pigment Red 57:1	2.5 - 7.5	< 4	Approx. 30
UFX-R531	Pigment Red 53:1	2.5 - 7.5	< 4	Approx. 30
UFX-R254	Pigment Red 254	2.5 - 7.5	< 4	Approx. 32
UFX-V23	Pigment Violet 23	10 - 20	< 4	Approx. 24
UFX-B154	Pigment Blue 15:4	10 - 20	< 4	Approx. 30
UFX-G7	Pigment Green 7	0.5 - 2.5	< 4	Approx. 36
UFX-Bk7	Pigment Black 7	0.5 - 2.5	< 4	Approx. 34

# Concentrates

## UV Sheetfed Process Colours

- 1) At 20 °C; Physica; D = 5/s; 70% Concentrate, 30% Letdown
- 2) At 20 °C; Physica; D = 5/s; Measured as Such
- 3) At 32 °C And 800 RPM; Thwing Albert Inkometer; 70% Concentrate, 30% Letdown;

Product	Product Description	Viscosity	Tack <sup>3)</sup>	Pigmentation
		Pa·s		%
UOBX-Y174	Pigment Yellow 174 (for Paper & Board)	130 - 180 <sup>1)</sup>	21.0 - 25.0	Approx. 31
UOBX-R571	Pigment Red 57:1 (for Paper & Board)	170 - 230 <sup>1)</sup>	25.0 - 29.0	Approx. 31
UOBX-B153	Pigment Blue 15:3 (for Paper & Board)	125 - 185 <sup>1)</sup>	24.5 - 28.5	Approx. 31
UOPX-Y174	Pigment Yellow 174 (for Plastic)	190 - 260 <sup>1)</sup>	18.0 - 22.0	Approx. 19
UOPX-R571	Pigment Red 57:1 (for Plastic)	400 - 800 <sup>2)</sup>	23 - 27	Approx. 24
UOPX-B153	Pigment Blue 15:3 (for Plastic)	125 - 185 <sup>1)</sup>	18 - 22	Approx. 33

Colour Strength	Delta E (CIELAB)	FCM suitability
%		
95 - 105	0.00 - 1.50	No
95 - 105	0.00 - 1.50	No
95 – 105	0.00 - 1.50	No
95 – 105	0.00 - 1.50	No
95 – 105	0.00 - 1.50	No
95 – 105	0.00 - 1.50	No

# Concentrates

## UV Sheetfed Spot Colours

Product	Product Description	Viscosity <sup>1)</sup>	Tack <sup>2)</sup>	Pigmentation
		Pa·s		%
UOBF-Y174	Pigment Yellow 174 (for Paper & Board)	120 - 220	12.5 - 14.5	Approx. 25
UOBF-R571	Pigment Red 57:1 (for Paper & Board)	70 - 140	12.0 - 14.0	Approx. 24
UOBF-B153	Pigment Blue 15:3 (for Paper & Board)	80 - 150	13.0 - 15.0	Approx. 27
UOPF-Y174	Pigment Yellow 174 (for Plastic)	120 - 180	12.0 - 15.0	Approx. 21
UOPF-R571	Pigment Red 57:1 (for Plastic)	60 - 100	13.0 - 15.0	Approx. 21
UOPF-B153	Pigment Blue 15:3 (for Plastic)	60 - 110	12.5 - 14.5	Approx. 25
Other Shades available for Printing on Plastic or Paper and Board	Details on Request			

- 1) At 20 °C, Physica;  $D = 5/s$ ; 90% Concentrate, 10% PI-Solution
- 2) At 32 °C And 800 RPM; Thwing Albert Inkometer;  
90% Concentrate, 10% PI-Solution

Colour Strength	Delta E (CIELAB)	FCM suitability
%		
95 - 105	0.00 - 1.50	Yes
95 - 105	0.00 - 1.50	Yes
95 - 105	0.00 - 1.50	Yes
95 - 105	0.00 - 1.50	Yes
95 - 105	0.00 - 1.50	Yes
95 - 105	0.00 - 1.50	Yes
		Yes

# Concentrates

## Heatset Process Colours

Product	Colour Index	Viscosity <sup>1)</sup>	Tack <sup>2)</sup>	Pigmentation
		Pa·s		%
HSX-Y12	Pigment Yellow 12	800 - 1,100	10.0 - 12.0	Approx. 22
HSX-R571	Pigment Red 57:1	500 - 800	11.0 - 13.0	Approx. 27
HSX-B153	Pigment Blue 15:3	800 - 1,200	12.0 - 14.0	Approx. 30

1) At 20 °C; Physica; D = 5/s  
 2) At 32 °C and 800 RPM; Thwing Albert Inkometer

Colour Strength	Delta E (CIELAB)	FCM suitability
%		
95 - 105	0.00 - 1.50	No
95 - 105	0.00 - 1.50	No
95 - 105	0.00 - 1.50	No

# Coldset Process Colours

Product	Colour Index	Viscosity <sup>1)</sup>	Tack <sup>2)</sup>	Pigmentation
		Pa·s		%
CSX-Y12	Pigment Yellow 12	750 - 1,000	10.0 - 12.0	Approx. 22
CSX-R571	Pigment Red 57:1	500 - 800	10.0 - 12.0	Approx. 28
CSX-B153	Pigment Blue 15:3	600 - 1,000	10.0 - 12.0	Approx. 30

Colour Strength	Delta E (CIELAB)	FCM suitability
%		
95 - 105	0.00 - 1.50	No
95 - 105	0.00 - 1.50	No
95 - 105	0.00 - 1.50	No

# Concentrates

## Sheetfed Process Colours

Product	Colour Index	Viscosity <sup>1)</sup> Pa·s	Tack <sup>2)</sup>	Pigmentation %
SFE-Y174	Pigment Yellow 174	500 – 850	13.5 – 15.5	Approx. 21
SFE-R571	Pigment Red 57:1	750 – 1,000	13.5 – 15.5	Approx. 28
SFE-B153	Pigment Blue 15:3	950 – 1,300	13.5 – 15.5	Approx. 30

1) At 20 °C; Physica; D = 5/s  
 2) At 32 °C and 800 RPM; Thwing Albert Inkometer  
 3) PY74, PY83, PY139, PY180, PO34, PO43, PR 2, PR48:1, PR48:4, PR53:1, PR112, PR122, PR146, PR184, PR254, PV23, PG7, PBk7, PWh6

Colour Strength %	Delta E (CIELAB)	FCM suitability
95 – 105	0.00 – 1.50	No
95 – 105	0.00 – 1.50	No
95 – 105	0.00 – 1.50	No

# Sheetfed Spot Colours

Product	Colour Index	Viscosity <sup>1)</sup> Pa·s	Tack <sup>2)</sup>	Pigmentation %
SFF-Y174	Pigment Yellow 174	350 – 650	11.0 – 13.0	Approx. 27
SFF-R571	Pigment Red 57:1	170 – 470	12.0 – 14.0	Approx. 29
SFF-B153	Pigment Blue 15:3	400 – 800	12.5 – 14.5	Approx. 35
Other Shades available <sup>3)</sup>	Details on Request			

Colour Strength %	Delta E (CIELAB)	FCM suitability
95 – 105	0.00 – 1.50	Yes
95 – 105	0.00 – 1.50	Yes
95 – 105	0.00 – 1.50	Yes
		Yes

1) At 20 °C; Physica; D = 5/s

2) At 32 °C and 800 RPM; Thwing Albert Inkometer

# Concentrates

## Alkali Blue Concentrates for Offset Inks

Product	Product Description	Viscosity <sup>1)</sup>	Tack <sup>2)</sup>	Pigmentation
		Pa·s		%
H01-1750IB	Very Red Shade	50 - 100	4.0 - 7.0	Approx. 37
H03-1750IB	Red Shade	50 - 100	4.0 - 7.0	Approx. 37
H03-17200IB	Red Shade	180 - 300	12.0 - 15.0	Approx. 37
H05-17200IB	Medium Shade	180 - 300	12.0 - 15.0	Approx. 40
H09-17200IB2	Green Shade	200 - 350	13.0 - 16.0	Approx. 40
H09-17200IB3	Green Shade	200 - 350	13.0 - 16.0	Approx. 27

\*\*\* Not available in EU

# Powder Pigments For Solvent Based Inks

Product	Product Description	Binder System Recommendation	Colour Strength
%			
UMP-0957106	Pigment Red 57:1	Vinyl, Polyamide	95 - 105
UMP-1557117	Pigment Red 57:1	NC	95 - 105
UMP-1153101	Pigment Red 53:1, Yellowish Shade	Vinyl, Polyamide, PU, NC	95 - 105
UMP-104802	Pigment Red 48:2, Bluish Shade	Vinyl, Polyamide, PU, NC	95 - 105
UMP-1501301	Pigment Orange 13, Yellowish Shade	Vinyl, Polyamide, PU, NC	95 - 105
UMP-2313112	Pigment Yellow 13	NC	95 - 105
UMP-0815303	Pigment Blue 15:3	Polyamide	95 - 105
UMP-0715304 ***	Pigment Blue 15:3	NC	95 - 105
UMP-0915306	Pigment Blue 15:3	Vinyl	95 - 105
UMP-1115307	Pigment Blue 15:3	PU	95 - 105
UMP-0815401 ***	Pigment Blue 15:4	NC	95 - 105

## Delta E (CIELAB)

# Powder Pigments

## Offset and UV Inks

Product	Product Description	Binder System Recommendation	Colour Strength %
UMP-1313107	Pigment Yellow 13	Conv. Offset, UV Offset	95 - 105
UMP-1217402	Pigment Yellow 174	Conv. Offset, UV Offset	95 - 105
UMP-0957106	Pigment Red 57:1	Conv. Offset, UV Offset	95 - 105
UMP-0657112	Pigment Red 57:1, Yellowish Shade	Conv. Offset, UV Offset	95 - 105
UMP-0957118	Pigment Red 57:1, Yellowish Shade	Conv. Offset, UV Offset	95 - 105
UMP-1153101	Pigment Red 53:1, Yellowish Shade	Conv. Offset, UV Offset	95 - 105
UMP-104802	Pigment Red 48:2, Bluish Shade	Conv. Offset, UV Offset	95 - 105
UMP-1501301	Pigment Orange 13, Yellowish Shade	Conv. Offset, UV Offset, UV Flexo	95 - 105
UMP-0815308	Pigment Blue 15:3	Conv. Offset, Energy Curing	95 - 105

### Delta E (CIELAB)

0.00 - 1.50

0.00 - 1.50

0.00 - 1.50

0.00 - 1.50

0.00 - 1.50

0.00 - 1.50

0.00 - 1.50

0.00 - 1.50

0.00 - 1.50

# Powder Pigments

## Alkali Blue

Product	Product Description	Binder System Recommendation	Colour Strength
%			
H03-PDI	Red Shade	Conventional Offset	95 - 105
H05-PDI	Medium Shade	Conventional Offset	95 - 105
H05-PDI1	Medium Shade	Conventional Offset	95 - 105
H09-PDI	Green Shade	Conventional Offset	95 - 105

### Delta E (CIELAB)

0.00 - 1.50
0.00 - 1.50
0.00 - 1.50
0.00 - 1.50

# Lamination Adhesives

## Solvent Free Two-Component

Type	Product Attributes		Key properties	Application
	Bond / Seal Strength*	Chemical Resistance		
Medium-High Performance	5 – 6	Very good	<ul style="list-style-type: none"> <li>- use with high gauge PE</li> <li>- use with Alu foil</li> <li>- demanding filling goods</li> <li>- hot fill</li> </ul>	<ul style="list-style-type: none"> <li>- very good chemical and heat resistance properties.</li> <li>- aggressive end use applications (e.g. liquids, spices and detergents, or edible oils)</li> </ul>
General Performance	4 – 5	Good	<ul style="list-style-type: none"> <li>- all purpose product for general use</li> <li>- product with increased curing speed</li> <li>- high speed lamination</li> <li>- use with metallized films</li> </ul>	<ul style="list-style-type: none"> <li>- laminates for packaging of snacks and other non-aggressive dry products.</li> <li>- adhesives for general purpose film to film metallized or foil application</li> </ul>

\* scale 1 - 10; 10 = perfect

# Lamination Adhesives

## Solvent Based Two-Component

Type	Product Attributes		Key properties	Application
	Bond / Seal Strength*	Chemical Resistance		
High Performance	8 – 9	Excellent	<ul style="list-style-type: none"> <li>- reverse technology</li> <li>- retort grade up to 130°C</li> <li>- retort grade up to 125°C</li> </ul>	<ul style="list-style-type: none"> <li>- for extremely demanding end uses like packing of acidic liquids and harsh chemicals</li> <li>- can be used in retort applications as well as at very low temperature (deep freeze)</li> </ul>
Medium Performance	6 – 7	Very good	<ul style="list-style-type: none"> <li>- standard medium performance product</li> <li>- high solid, high viscosity</li> </ul>	<ul style="list-style-type: none"> <li>- very good chemical and heat resistance</li> <li>- aggressive end use applications (e.g. liquids, spices and detergents, or edible oils)</li> </ul>
General Performance	4 – 5	Good	<ul style="list-style-type: none"> <li>- standard general performance product</li> <li>- especially suitable for metallized PE films</li> </ul>	<ul style="list-style-type: none"> <li>- laminates for packaging of snacks and other non-aggressive dry products.</li> <li>- adhesives for general purpose film to film, metallized or foil application</li> </ul>

\* scale 1 - 10; 10 = perfect

# Let's Stay In Touch

## Sales Contacts

### **Uwe Haberstein-Plöger**

Europe

E: [uwe.habersteinploeger@hubergroup.com](mailto:uwe.habersteinploeger@hubergroup.com)  
M: +49 171 2133095  
hubergroup Deutschland GmbH

### **Joseph Francis**

Europe

E: [joseph.francis@hubergroup.com](mailto:joseph.francis@hubergroup.com)  
T: +44 754 2855435  
hubergroup UK Ltd.

### **Navjot Sahni**

Asia, Africa, Latin America

E: [navjot.sahni@hubergroup.com](mailto:navjot.sahni@hubergroup.com)  
T: +91 260 7158000  
M: +91 7710004067  
hubergroup India Pvt. Ltd.

### **Ken Ferguson**

USA

E: [ken.ferguson@hubergroup.com](mailto:ken.ferguson@hubergroup.com)  
M: +1 631 2410516  
hubergroup USA, Inc.

### **Sagar Kuchekar**

APAC

E: [sagar.kuchekar@hubergroup.com](mailto:sagar.kuchekar@hubergroup.com)  
T: +91 22 28364313  
M: +91 9987634269  
hubergroup India Pvt. Ltd.

## Technical Contacts

### **Dr. Angela Stark**

Technical Marketing Inks

E: [angela.stark@hubergroup.com](mailto:angela.stark@hubergroup.com)  
T: +49 89 9003 442  
M: +49 171 3818861  
hubergroup Deutschland GmbH

### **Franziska Trapp**

Technical Marketing Coatings

E: [franziska.trapp@hubergroup.com](mailto:franziska.trapp@hubergroup.com)  
T: +49 89 9003 820  
M: +49 151 24195083  
hubergroup Deutschland GmbH

### **Jason Ghaderi**

Technical Marketing North America

E: [jason.ghaderi@hubergroup.com](mailto:jason.ghaderi@hubergroup.com)  
M: +1 770 5686439  
hubergroup USA, Inc.



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