BASF
We create chemistry

Resins and Additives for Digital Printing

Technology for digital printing solutions, enabling performance and sustainability.

Resins and Additives Digital Printing Solutions

BASF has launched a new portfolio of water-based solutions called Joncryl® DPS in response to industry trends that have accelerated digital printing technology, such as e-commerce, the need for speed, short runs, high quality, cost-effectiveness, and personalization. This wide range of resins allows printers and converters to customize and utilize primers, inks, and OPV for both absorbent and non-absorbent substrates. Several properties, including particle size distribution, viscosity stability, and salt compatibility, are important for this type of product.

Sustainability

For BASF, climate protection, circular economy and sustainable solutions are three main pillars for sustainability. Climate protection is part of our responsibility and an essential part of our strategy. By 2030, BASF intends to reduce its Scope 1 and 2 greenhouse gas (GHG) emissions worldwide by 25%, and for Scope 3.1, reduce emissions by 15%. We are committed to net zero carbon dioxide (CO_2) emissions by 2050. On circular economy, we want to achieve €7 billion circular sales by 2030 and achieve 250kt recycled and waste-based feedstock in 2025. And on the Sustainable solutions €22 billion Accelerator sales by 2025 (achieved in 2021).

Reduce Emissions
- ✓ CO_2 and VOC with water-based inks

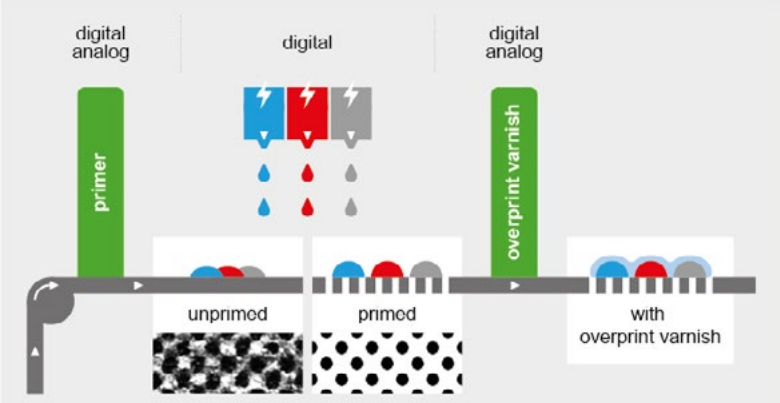
Waste Reduction
- ✓ Supporting the next step in formulating ink and coating

UN SDG's Goals
- ✓ Supports UN SDG's

Health and Safety
- ✓ Water based technology
- ✓ Swiss list compliance

Performance

- ✓ Excellent wettability
- ✓ Increased color density
- ✓ High salt compatibility
- ✓ Applicable on many substrates
- ✓ Excellent lamination bond strength
- ✓ Pigment concentrates compatibility



Resins

Water-Based Digital Printing

Customized printed corrugated board boxes

Digital Portfolio

Product	Tg [°C]	Solids [%]	Acid Number [mg KOH/g]	Viscosity at 25°C [mPa•s]	Density at 25°C [g/cm³] or *MFFT*	pH	Product Description
Joncryl DPS Portfolio							
Joncryl DPS 3611	91	43	146	< 100	1.03	2.2	Water-based acrylic resin for digital primers for improved image sharpness to be used on absorbent substrates
Joncryl DPS 3771	64	47	65	225	60	7.8	Acrylic emulsion with high Tg for digital ink applications
Joncryl DPS 3772	- 20	42.5	110	525	< 5	8.0	Acrylic emulsion with low Tg for digital ink applications
Joncryl DPS 3775	106	39	104	60	78	8.0	Acrylic emulsion for digital ink applications
Joncryl DPS 3791	--	40	--	75	<0	8.6	Polyurethane dispersion for water-based inks and OPV for continuous inkjet technology. It can also be used for digital primers, suitable for absorbent and non-absorbent substrates

Joncryl HPD User's Guide

Stronger inks for a more colorful world

By using Joncryl HPD resins in color concentrates, manufacturers can achieve increased color strength, excellent flow properties, and good shock and storage stability. This combination also provides potential cost savings without compromising on pigment wetting and milling characteristics.

Benefits from Inks formulated with Joncryl HPD resins:

- Enables lower viscosity, higher pigment load dispersions
- Improves both dispersion and ink viscosity stability
- Improves shock stability to enable use of the dispersions in automated dispensers
- Improves milling efficiency
- Enables the ink manufacturer to more effectively produce high strength, viscosity-stable inks

Product	Tg [°C]	Solids [%]	Acid Number [mg KOH/g]	Viscosity at 25°C [mPa•s]	Density at 25°C [g/cm³]	pH	Molecular Weight	Product Description
High Performance Pigment Dispersion								
Joncryl HPD 96	88	34	220	5,000	1.10	8.5	16,000	High molecular weight acrylic resin for improved color development and gloss of pigment dispersions without compromising ink stability
Joncryl HPD 96 MEA	86	39	220	5,000	1.10	8.6	16,000	High molecular weight resin in water and mono-ethanol amine for improved color development and gloss of pigment dispersions without compromising ink stability
Joncryl HPD 196	92	36	200	3,800	1.08	8.6	9,200	Mid-range molecular weight acrylic resin in water and ammonia for dispersing organic pigments without compromising stability
Joncryl HPD 196 MEA	92	41.5	200	3,500	1.08	8.5	9,200	Mid-range molecular weight acrylic resin in water and monoethanol amine for dispersing organic pigments at high concentrations without compromising ink stability
Joncryl HPD 296	15	36.3	141	600	1.03	8.1	11,500	High performance resin solution for improved viscosity and shock stability of highly pigmented dispersions
Joncryl HPD 496-A	58	34.5	178	500	1.07	8.5	5,500	Premium performance resin solution that enables highly concentrated pigment dispersions for use in water-based inks and Swiss A compliant
Joncryl HPD 696	88	98.9	220	--	1.16	--	--	High molecular weight acrylic resin for improved color development and gloss of pigment dispersions without compromising ink stability
Joncryl HPD 671	128	99.4	214	--	--	--	--	Cost-effective, high molecular weight acrylic resin for high quality pigment dispersions with very good viscosity stability
Joncryl HPD 71	128	27.5	214	4,000	1.05	8.5	17,250	Cost-effective ammonia solution of Joncryl HPD 671 designed for high quality pigment dispersions with very good viscosity stability
Joncryl HPD BRC 596	--	35.0	49.1	1,100	1.08	8.5	--	High performance resin solution for pigment dispersion applications

Additives

Product	Physical Form	Solids [%]	Viscosity at 25°C [mPa•s]	Product Description
UV Absorbers				
Tinuvin® 400	Liquid 85% in 1-methoxypro-pan-2-ol	--	~ 7.400	Blue shifted UVA for high durability requirements in clear coat applications including UV curing systems; excellent spectral coverage in combination with Tinuvin 479
Tinuvin 400 DW ECO	Liquid 20% active	~ 40.7	9.893 @ 100 s-1	Blue shifted UVA for water-based high-performance applications; excellent spectral coverage in combination with Tinuvin 479-DW
Tinuvin 1130	Liquid	--	~ 8.300	UVA for medium performance solvent-based and water-based coatings (may require addition of cosolvent)
Tinuvin 384-2	Liquid 95% in MPA*	--	~ 3,000	Multi-purpose UVA for medium to high durability requirements; minimum color impact in refinish clear coat applications
Wetting Agents and Surface Modifiers				
Efka® SL 3299	Liquid	100	2,000	Organically modified polysiloxane; strong slip and surface smoothness effect for high-gloss industrial coatings
Efka SL 3257	Clear – hazy liquid	>95	175 – 390	Highly effective solvent-free slip additive and leveling agent for non-aqueous coatings and UV systems
Hydropalat® SL 3683	Liquid	65	--	An aqueous emulsion of an ultra-high molecular weight silicone providing excellent slip, scratch and mar resistance and anti-blocking properties
Hydropalat WE 3111	Colorless liquid	~80	~ 150	Alkyl phenol free, proprietary, non ionic ethoxylate aliphatic alcohol
Hydropalat WE 3120	Colorless liquid	>99.5	60	Low-foaming wetting agent for aqueous formulations; excellent reduction of dynamic surface tension
Hydropalat WE 3220	Clear colorless, low-viscosity liquid	~87.5	--	Silicone surfactant with strong reduction of surface tension in aqueous formulations; excellent substrate and anti-crater additive with good recoatability
Hydropalat WE 3221	Clear colorless, low-viscosity liquid	45	14	Silicone surfactant in dipropylene glycol monomethyl ether with strong reduction of surface tension in aqueous formulations; excellent substrate and anti-crater additive with good recoatability
Hydropalat WE 3225	Clear liquid	~93	~ 150	Silicone-based wetting agent with pronounced defoaming action for all kinds of aqueous coating formulations; combines excellent compatibility and wetting action with defoaming properties
Hydropalat WE 3229	Clear liquid	--	500 - 600	A silicone-based wetting agent with pronounced defoaming action for all kinds of aqueous spray coating formulations. It combines excellent compatibility and wetting action with defoaming properties
Hydropalat WE 3475	Low viscous, clear liquid	75	340	Highly efficient sulfosuccinate wetting agent; strong reduction of dynamic surface tension; standard product used in overprint varnishes
Hydropalat WE 3477	Clear to pale yellowish liquid	77	--	Highly efficient sulfosuccinate wetting agent; strong reduction of dynamic surface tension; alternative solvent
Hydropalat WE 3197	Liquid	??	~ 200	Nonvolatile, non-ionic surfactant with low foaming behavior and low surface tension. It exhibits good alkaline and acid resistance
Hydropalat WE 3694	Liquid	>85	90	Non-ionic wetting agent for aqueous formulations with excellent wetting and emulsification properties; low foaming and low surface tension
Hydropalat WE 3650	Clear, colorless to slightly yellow liquid	>96	64.5	Highly effective, low foaming, substrate wetting agent for water-based coatings and ink applications
Hydroplat WE 3966	White to slightly yellowish powder	100	--	Label-free, effective, low foaming, non-ionic surfactant; miscible with anionic, cationic and non-ionic surfactants; excellent improvement of shock stability in inks; strong improvement of compatibility
In-can Stabalizer				
Irgastab® UV 22	Clear, orange liquid	--	~ 139	In-can stabilizer for all kinds of UV/EB inks and UV/EB overprint varnishes

* 2-methoxy-1-propyl acetate

Product	Physical Form	Solids [%]	Viscosity at 25°C [mPa•s]	Product Description
Hindered Amine Light Stabilizers (HALS)				
Tinuvin 123 DW ECO	Liquid 30% active	--	6,300	Non-basic HALS for water-based formulations; no interaction with sensitive dispersions
Tinuvin 249	Liquid	--	4,660	Non-basic HALS; no exudation from solvent-based polar coatings; low viscosity and very low inherent color; use in water-based coatings may require addition of co-solvents
Tinuvin 292	Liquid	--	~ 450	Multi-purpose basic HALS for various applications; use in water-based coatings may require addition of cosolvents; may interact with sensitive dispersion binders
Dispersing Agents				
Dispex® Ultra PX 4585	Liquid	50	2,000 - 3,000	High-end water-based coatings, industrial and automotive; broad compatibility with different binder systems; pH-independent; suitable for making resin-free pigment concentrates
Dispex Ultra PX 4290	Clear, yellowish liquid	40	174	High-performance wetting and dispersing agent; suitable for inorganic and organic pigments and fillers in aqueous coating systems, printing inks and adhesives; excellent stabilizing characteristics allow high levels of gloss and outstanding color strength; excellent viscosity reduction also allows higher pigment loadings while maintaining excellent flow characteristics
Dispex Ultra PX 4575	Clear, slightly yellowish liquid	40	200	VOC-free dispersing agent for water-based systems with benchmark performance in inorganic pigments; excellent overall performance for organic pigments; broad compatibility towards different resin systems; designed for colorants but well suited for grinds into primers, gloss and semi-gloss-paints
Efka PX 4360	Liquid	--	--	Designed with Controlled Free Radical Polymerization technology this product provides efficient stabilization for organic pigments and carbon blacks, while demonstrating excellent compatibility in many solvent-based industrial resin systems
Efka FA 4609	Clear, slightly yellowish liquid	52	2,200	Copolymeric wetting and dispersing agent; strong reduction of mill base viscosity; high pigment and filler loading; increased hiding power
Efka FA 4611	Clear, slightly yellowish liquid	100	1,200	Solvent-free wetting and dispersing agent; strong reduction of mill base viscosity; high pigment and filler loading; increased hiding power
Efka PX 4701	Amber to brownish liquid	100	60,000	Dispersing agent for high-performance pigments, especially for energy-curable systems and UV inkjets; also for solvent-based applications, both mild-solvent and strong-solvent
Efka PX 4703	Brown, high viscous liquid	> 99	70,000	Solvent-free dispersing agent for UV-curable and mild-solvent ink-jet systems; excellently suited for UV-curable ink systems including UV-curable flexographic-, litho- and screen inks; well suited for solvent-based resin free (RFPC) and resin containing pigment concentrates (RCPC) in a wide range of applications
Efka PX 4733	Brown viscous liquid	100	26,000	Tin-free dispersing agent for high-performance pigments especially for energy-curable systems such as UV-flexo or UV inkjets; also for solvent-based applications both mild-solvent and strong-solvent; peak performance in mild-solvent systems
Efka PX 4320	Liquid	25	--	Excellent dispersing performance; improves gloss; improves wet-scrub resistance; improves blocking resistance; excellent ZnO-compatibility
Defoamers				
Foamaster® NO 2331	Hazy, yellowish liquid	100	~ 1250	Native oil-based defoamer for monomer stripping in latex manufacturing and emulsion polymerization; specifically designed to have broadest food contact compliance
FoamStar® ST 2438	Clear to slightly hazy liquid	100	~ 140	Silicone-based defoamer for high-quality water-based paints, delivering excellent long-term persistency and foam knock down
FoamStar SI 2240	Clear to slightly hazy liquid	100	~ 600	Highly effective defoamer for aqueous pigment concentrates and systems with high surfactant content; broad food contact compliance
Rheology Modifiers				
Rheovis® HS 1332	White liquid	40	< 50	Acrylic thickener with associative thickening; high-shear thickener; Newtonian flow behavior; improved leveling; increases coating build-up / layer thickness
Rheovis AS 1337	Liquid	30	5	Non-associative pure acrylic thickener; most Newtonian product in the Rheovis AS range
Rheovis PU 1235 EC	Hazy liquid	25	~1,200	Mid-shear thickener; low-shear viscosity with moderate contribution to high shear viscosity

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Insights | www.insights.basf.com

Website | www.basf.us/dpsolutions

Contacts

Please contact our technical service department for more help on formulating with our products.

Asia
Phone: +852 2731-0111
dispersions-pigments-asia@basf.com

Europe, Africa, West Asia
Phone: +31 513 619-619
resins@basf.com

North America
Phone: +1 800 231-7868
dpsolutions@basf.com

South America
Phone: +55 11 2039-2300
packaging-sa@basf.com

BASF Corporation, Charlotte, NC

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