Efka® PX 4701

Product description

High-molecular-weight dispersant

Efka® PX 4701 is made by the Controlled Free Radical Polymerization (CFRP) technology, which allows producing polymeric dispersants with defined polymer architecture and a low polydispersity index. It offers the following benefits:

- 100 % active dispersant
- Well suited for UV-curable, solvent- and water-based ink formulations
- Especially recommended for high-performance systems such as inkjet inks, UV-curable and water-based flexographic inks
- Highly efficient dispersant for organic pigments and carbon blacks
- Provides a combination of strong viscosity suppression and excellent storage stability

Efka® PX 4701– as a solvent free and liquid product – is ideally suited for use in UV-curable ink systems. It is also well suited for use with the concept of resin-free pigment concentrates (RFPC) in UV-curable, water- and even solvent-based systems.

Chemical nature

Acrylic block copolymer

Properties

Physical form

Amber to brownish liquid

Technical data
(not supply specification)

active ingredients	~ 100 %
amine value	~ 40 mg KOH/g

Application

Efka® PX 4701 is a 100% active dispersant with broad compatibility towards different ink systems and pigments and is particularly recommended for these applications:

UV-curable	solvent-based	water-based
inkjet inks	inkjet inks ("strong solvent")	inkjet inks
flexographic inks	inkjet inks ("mild solvent")	flexographic inks

Efka® PX 4701 is excellent in stabilizing organic pigments in low- viscosity systems based on acrylate-functional UV monomers and in organic solvents or water.

The stabilizing properties of the dispersant are so strong that even stable resin-free concentrates in organic solvents can be made at use levels that would normally demand a complementary dispersing resin.

Recommend concentration

Appropriate use levels depend on pigment selection, dispersing medium and letdown composition. A ladder study should be performed to determine the optimum use level. Efka® PX 4701 should always be incorporated before addition of pigment.

The optimum use level of Efka® PX 4701 for inkjet ink formulations (UV-curable, solvent- and water-based) can generally be found in the range of 20–90 % Efka® PX 4701 as supplied, calculated on pigment load.

The optimum use level of Efka® PX 4701 for UV-curable flexographic inks can generally be found in the range of 2.5–10 % calculated on pig- ment load. Such levels offer significantly reduced mill base viscosity and nearly Newtonian flow.

The minimum required amount of dispersant can be estimated from the specific surface area or oil absorption value of the pigment. The calculated amount can be used as a starting point for ladder studies.

Inorganic pigments	10 – 20 % active dispersant on oil absorption
Organic pigments	15 – 45 % active dispersant on BET
Carbon blacks	15 – 20 % active dispersant on DBP absorption

Guideline formulations for UV-curable inkjet mill base formulations with low viscosity and good stability:

	Heliogen® Blue D 7088	Cinquasia® Magenta D 4500 J	Cromophtal® Yellow L 1061 HD
Colour Index	Pigment Blue 15:4	Quinacridone	Pigment Yellow 151
Efka® PX 4701	3	9	6
Propoxylated neopentylglycol diacrylate	82	76	79
Pigment	15	15	15
Total	100	100	100
Dispersant on pigment weight	20 %	60 %	40 %

Guideline formulations for UV-curable flexographic mill base formulations with good viscosity and flow:

	Heliogen® Blue D 7088	**Cromophtal® Violet D 5800**	**Irgalite® Orange D 2980**
Colour Index	Pigment Blue 15:4	Pigment Violet 23	Pigment Orange 34
Efka® PX 4701	0.75	1.5	0.75
Grinding varnish (see recipe below)	69.25	68.5	69.25
Pigment	30	30	30
Total	100	100	100
Dispersant on pigment weight	2.5 %	5 %	2.5 %

Recipe for grinding varnish

Polyester acrylate	60
Amine-modified polyester acrylate	38.5
Irgastab® UV 22 liquid	1.5

Storage

Efka® PX 4701 should be stored in a cool dry place.

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Validity

This Technical Data Sheet is valid for all versions of the Efka® PX 4701.

Safety

When handling this product, please comply with the advice and information given in the safety data sheet and observe protective and workplace hygiene measures adequate for handling chemicals.

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. The agreed contractual quality of the product results exclusively from the statements made in the product specification. It is the responsibility of the recipient of our product to ensure that any proprietary rights and existing laws and legislation are observed.

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