

Helizarin[®] Binder UDT

® = Registered trademark of BASF Aktiengesellschaft

Acrylate-based pigment-printing binder for direct, discharge and resist printing. The prints are fast to dry cleaning, have a pleasingly soft handle and excellent all-round fastness properties.

Helizarin Binder UDT

Chemical nature	Aqueous dispersion of a thermally crosslinkable acrylate copolymer
Physical form	Slightly viscous liquid
Shelf life	When it is stored in the original, sealed containers at temperatures of between 5 °C and 35°C, Helizarin Binder UDT has a shelf life of at least 12 months. Once a drum has been opened, the contents should be used up as soon as possible. After product has been taken out, the drum must be properly resealed because the binder tends to form a skin on exposure to air. Helizarin Binder UDT should be stored under frost-free conditions.

Properties

Density	Approx. 1.02 g/cm ³
Setting point	Approx. 0 °C
Boiling point	Approx. 100 °C
PH	Approx. 7 – 9 (undiluted)
Solubility	Miscible with water in all proportions

The above values characterize the physical range of properties. Details of the tolerances are provided in the product specification.

Action	Helizarin Binder UDT allows the production of prints with an excellent standard of fastness, including fastness to dry cleaning (according to DIN 54024 = ISO 105 D01). The binder is suitable for direct, discharge and resist printing. Prints produced with Helizarin Binder UDT have a pleasingly soft handle and are resistant to ageing. Helizarin Binder UDT has only a very slight influence on the viscosity of synthetic thickenings.
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Application

Helizarin Binder UDT can be used in conjunction with Lutexal[®] types in both aqueous, low-solvent and high-solvent pigment-printing systems

Fields of application

Direct printing	Coloured prints, matt white and matt coloured prints on white and dyed material, flock printing, bronze printing, printing with pearlescent pigments, e. g. Iriodin [®] types (Registered trademark of E. Merck, Darmstadt).
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Discharge printing

Suitable

Resist printing

Suitable

Processing notes

Helizarin Binder UDT has good compatibility with all the auxiliaries normally employed in pigment printing and can be mixed with the other Helizarin binders in all proportions. If it should be necessary to store the print pastes for an extended period, it is advisable to cover the containers with plastic film or to pour a thin layer of white spirit over the surface of the paste. This white spirit can be readily incorporated into the paste with a high-speed stirrer prior to printing.

To ensure that the prints produced with **solvent-free formulations** have the requisite depth of shade, definition and surface-printing effect, it is generally necessary for the print paste to have a **higher viscosity** than is normally employed with white-spirit emulsion systems.

Guideline recipes

The guideline recipes given below were prepared with water of medium hardness and adjusted to the following viscosities:

Aqueous: approx. 80 dPa's (=poise)
Low-solvent: 60 – 70 dPa's

(measured with viscotester VT 02 made by Haake Mess-Technik GmbH & Co., Karlsruhe).

The recipes are intended as a guide and should be adapted as necessary to suit the local conditions (e.g. water hardness, processing conditions, substrate, etc.)

1. Standard recipe for cellulosic-fiber fabrics and blends (solvent-free)

x g water

25 g Luprintol® MCL
80 – 220 g Helizarin® Binder UDT
30 – 32 g Lutexal® HIT or
33 – 35 g Lutexal® HEF
1000 g

2. Economical prints on cotton fabrics (solvent-free)

x g water

10 g Luprintol® MP
80 – 220 g Helizarin® Binder UDT
27 – 30 g Lutexal® HIT or
30 – 33 g Lutexal® HEF
1000 g

3. Cellulosic-fiber fabrics and blends (low-solvent)

x g water
if necessary, suitable antifoam

25 g Luprintol® MCL
80 – 220 g Helizarin® Binder UDT
23 g Lutexal® HIT or
25 g Lutexal® HEF

150 g white spirit
1000 g

A smoother fabric surface is obtained by adding 5 g/kg Luprimol SIG or SE; this addition also produces a further improvement in the fastness properties (particularly the fastness to dry rubbing) and has a positive influence on the handle and brilliance of the prints. When Luprimol SIG is to be incorporated in aqueous formulations, a high-speed stirrer should be used to ensure its homogeneous dispersion in the mix.

On substrates composed of synthetic fibres and their blends with cellulose fibres, and also on regenerated cellulose materials, an addition of 7 –10 g/kg Helizarin Fixing Agent LF is necessary to improve the fastness. An addition of Helizarin Fixing Agent LF can also further improve the fastness on cotton to a certain extent (particularly the wet fastness).

Preparation of a pigment thickening

Run the requisite amount of water into the mixing vessel and, if necessary, add suitable antifoam (e. g. 0.5 –1.5 g/kg Defoamer TP). The Helizarin Binder UDT, the Luprintol types and, if required, Helizarin Fixing Agent LF and Luprimol SIG or SE are then added successively, with stirring.

Finally, the Lutexal HIT or HP is stirred in, after which the mix is stirred with a high-speed stirrer until the thickener has swollen to its full extent (approx. 8 –10 min). With low-solvent formulations, the white spirit is next emulsified into the mix, which is finally homogenized by stirring for a further 12 –15 minutes.

PH

The print pastes should have a PH of at least 7.5 – 8. Low value must be corrected by adding ammonia.

Viscosity adjustment

Subsequent adjustments can be made to the viscosity of the mix. To **increase the viscosity** of aqueous pastes. Lutexal HIT or HP can be stirred into the paste. Pastes that contain white spirit are best thickened by adding 0.5 – 2 g/kg Lutexal HVW.

A **reduction in viscosity** of pastes that contain Lutexal HIT or HP can be achieved by stirring in small amounts of an aqueous solution of diammonium phosphate or ammonium sulfate.

Fixation

Hot-air fixation produces the optimum standard of fastness. The following conditions are recommended:

4 – 5 min at 150 °C or
3 – 2 min at 160 –170 °C.

With **high-temperature steam**, the prints should be fixed for

5 – 7 min at a minimum temperature of 160 °C.

While this method of fixation also produces a good standard of fastness, it is still somewhat below that of prints fixed in hot air.

Safety

When using this product, the information and advice given in our **Safety Data Sheet** should be observed. Due attention should also be given to the **precautions** necessary 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. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed. Responsibility for compliance with the requirements of the downstream textile market rests with the textile processor.



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