

WATER-BASED FLEXO INKS

UniCold

Water-based inks for PE-coated cold-drink cups

Water-, beverage- and condiment-resistant inks for PE-coated paper cups and board tableware

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PRODUCT TYPE	Water-based ink

PRODUCT WB flexo ink	CHEMISTRY Acrylic, water resistant	SUBSTRATES PE-coated cup board >= 38 dyn/cm	ANILOX 200 – 900 lpi	PACK 5 kg · 20 kg
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01 PRODUCT DESCRIPTION

UniCold inks are special inks for PE-coated cups as well as paper and board tableware and various other paper substrates where good water resistance and resistance to the condiments used in the fast-food industry is required. These inks are only suited for indirect food contact applications. Surface treatment of the polyethylene must be at least 38 dyn/cm to ensure adequate adhesion and ink resistance properties.

02 FEATURES AND BENEFITS

- Good water and beverage resistance
- Good resistance to fats and oils
- Good adhesion to treated polyethylene
- Good scratch and scuff resistance
- Good printability for both line and tone printing
- Low foaming
- Good freeze-thaw stability

03 TYPICAL PROPERTIES

Property	Typical value	Method / condition
Chemistry	Acrylic emulsion / alkali-soluble acrylic resin	
Appearance	Coloured liquid	Visual
pH	8.5 – 9.0	pH meter, 25 °C
Viscosity	Press-ready; 18 – 25 s	Zahn cup #2 at 25 °C (series typical)
Solids content	35 – 45 %	Gravimetric
VOC	< 10 % w/w	Calculated
Shelf life	6 months	5 – 35 °C, unopened, frost-free

04 SUBSTRATES AND APPLICATIONS

Substrates	PE-coated cup board (treatment >= 38 dyn/cm), paper and board tableware, other paper substrates.
Process	Flexo, wide and narrow web.
End use	Cold-drink cups, tableware, fast-food packaging – indirect food contact only.

05 APPLICATION CONDITIONS

Parameter	Recommendation
Anilox	200 – 900 lpi (80 – 400 l/cm); wide range of ceramic aniloxes suitable for tones and solids
Viscosity	Press-ready; reduce with water up to 10 %
Drying	Hot air with exhaust; full drying before cup forming
Clean-up	Water; UF alkaline wash for dried film

06 DRYING AND FILM FORMATION

Water-based inks and coatings dry by evaporation and absorption of the water carrier and by coalescence of the dispersed acrylic particles into a continuous film. Up to 90 % of the water evaporates in a fraction of a second when exposed to IR or hot air with adequate exhaust; post-cure that goes on over time accounts for the remaining cure and the full development of rub, water and block resistance.

Variable	Effect and control
Dryer	Hot-air impingement with adequate exhaust at 60 – 90 °C removes water faster than higher temperature with poor airflow and keeps heat-sensitive substrates flat.
Film weight	Anilox volume sets the film; a heavier film needs more drying and more anilox cleaning.
pH	A volatile amine keeps the product at pH 8.5 – 9.0 on press. As amine leaves, pH falls, viscosity rises and resolubility drops – check pH every hour on long runs and add pH stabiliser as required.
Viscosity	Adjust with water (up to 10 %) or the recommended reducer; never with solvent.
Substrate	Absorbent stock draws in the liquid before film formation; coated and PE-coated stocks need full drying before rewind.
Frost	Freezing destroys the emulsion irreversibly – protect from frost in storage and transit.

07 TROUBLESHOOTING GUIDE

Observation	Likely cause	Corrective action
Ink dries on the anilox / plate	Fast water loss; low pH; long stoppages	Add pH stabiliser and a little water; keep the anilox turning or clean it immediately at stoppages
Poor rub or water resistance	Under-dried film; dryer air too slow; film too heavy	Increase airflow and exhaust; reduce film weight; allow post-cure
Foaming	Pump cavitation; high shear; wrong defoamer	Check pump suction; add UF defoamer in small doses
Poor adhesion on PE-coated stock	Treatment below 38 dyn/cm; contamination	Corona-treat in line to ≥ 38 dyn/cm; use the grade specified for PE
Blocking in the reel	Under-dried; wound hot and tight; high humidity	Dry fully; cool the web; reduce winding tension
Coagulation or lumps	Freezing; contamination with acid, solvent or metal salts	Discard frozen product; use dedicated containers; check wash-up water
Colour weak or dull	Over-dilution; anilox worn	Reduce water addition; check anilox volume

08 CLEANING

Clean aniloxes, plates, chambers and pumps with water or the recommended UF wash-up solution immediately after printing and at every stoppage; dried water-based film redissolves only with alkaline cleaner. Do not discharge washings to drains; collect for treatment or disposal through a licensed contractor.

09 STORAGE AND SHELF LIFE

Container	Original, tightly closed containers; keep closed on press to prevent skinning and ammonia loss.
Temperature	5 – 35 °C. PROTECT FROM FROST – freezing destroys the emulsion irreversibly. Avoid prolonged storage above 40 °C.
Contamination	Keep away from strong acids, solvents and multivalent metal salts, which coagulate the product.
Shelf life	Six (6) months from the date of manufacture in unopened containers. Stir well before use; check pH, viscosity and freedom from lumps before using product beyond shelf life.
Stock rotation	First in, first out; keep label and batch number legible.

10 HEALTH AND SAFETY

UniCold is a water-based product with very low VOC, non-flammable in the wet state, low in odour and not classified as hazardous. Good industrial hygiene applies.

Personal protection	Gloves and safety glasses; the alkaline liquid may irritate eyes and sensitive skin on prolonged contact.
Ventilation	General ventilation; local exhaust at the dryer where amine odour is noticeable.
Spills	Slippery. Absorb with inert material or wipe up before the film dries; do not flush to drains.
Safety Data Sheet	Read the UniCold Safety Data Sheet before use.

11 WASTE DISPOSAL

Liquid residues, washings and contaminated absorbent must be disposed of through a licensed contractor in accordance with local and national regulations. Do not discharge product or washings to drains or watercourses. Empty containers may be recycled after cleaning where local rules allow.

12 REGULATORY AND END-USE INFORMATION

Food packaging	Suitable for the non-food-contact side of paper and board packaging and for cups and containers where the product is separated from the food by the substrate or a PE coating, subject to the packer's assessment. Not for direct food contact unless specified on this sheet.
Raw materials	Selected in accordance with the EuPIA Charter on raw material selection; APEO-free grade raw materials; REACH-registered inputs.
Heavy metals	Pigments free from lead, cadmium, mercury and hexavalent chromium (RoHS).
VOC	Very low VOC (< 10 % w/w); no solvent emission of note.
Recycling	Water-based acrylic binder redissolves in alkaline flotation de-inking; supports paper recycling (de-inkability tested to INGEDE Method 11 on request).
Transport classification	Not classified as dangerous goods for transport.
Food contact	Indirect food contact only – the ink is on the outside of the cup, separated from the beverage by the board and PE coating.

13 DISCLAIMER AND REVISION HISTORY

The information in this data sheet has been compiled from laboratory experience and internal standardised tests with virgin, standard packaging-grade substrates and is given in good faith. The performance of the product and its suitability for the customer's purpose depend on the conditions of use, the equipment and the materials being printed, which are beyond our control; no statement in this sheet should be construed as a guarantee of performance in a specific application, and Uniform Industries accepts no responsibility for abnormal results obtained on lower-grade or sub-standard substrates. Customers should satisfy themselves, by their own trials, that the product meets their requirements in all respects before commencing production, and should carry out a full evaluation of performance and safety-in-use before commercial application. Uniform Industries' liability for printing-related problems clearly attributable to incompatibility with the ink system it recommended is limited to replacement of the product consumed. All sales are subject to our standard terms and conditions of sale.

Revision	Date	Change
01	September 2026	First issue in the consolidated data-sheet format, compiled from the product catalogue and technical literature.