WLF90000 Series High-Speed Water-Based Flexo Packaging Inks Technology Data Sheet

1. Product Overview

WLF90000 Series is an advanced eco-friendly water-based flexographic ink system engineered by HCOLOR for modern high-speed flexo printing, covering four specialized paper packaging applications: C1S paper label cartons, cold-drink double-PE coated paper cups, hot-drink PE-coated paperboard, and corrugated boxes. Featuring high color density, low dot gain, excellent ink transfer, and rapid drying, it is optimized for 80–300 m/min high-speed flexo converting and green packaging compliance.

2. Product Features

- **Crisp & Sharp Dot Reproduction:** High ink transfer efficiency with minimal dot gain, delivering smooth tonal gradations across highlights and shadows.
- **High Tinting Strength & Opacity:** Saturated, vibrant shades with superior hiding power, ensuring vivid color laydown on kraft paper and corrugated board.
- **Tenacious Substrate Adhesion:** Outstanding bond strength on C1S paper, high-density woodfree paper, white cardboard, and single/double-PE coated boards.
- **Exceptional Thermal & Cold Moisture Resistance:** Paper cup inks resist cold condensation soaking without ink peel-off; PE-coated inks resist hot beverage immersion and grease.
- **Wide Press Speed Latitude:** Anti-shearing and anti-skinning stability on press, maintaining stable runnability at 80–300 m/min on high-speed flexo presses.
- **Green & Low-Carbon Eco-Profile:** Advanced water-based formulation free of heavy metals, low odor, low VOCs, and China Environmental Labelling (Ten-Ring) certified.

3. Suitable Substrates

Suitable for C1S coated paper, woodfree paper, white cardboard (SBS/FBB), matte coated paper, kraft paper, corrugated board, single/double-sided PE-coated paperboard, and cup base paper.

4. Technical Specifications

Property	Unit	Typical Value	Test Method / Notes
Appearance & Color	-	Homogeneous free-flowing liquid in various colors	Visual inspection
Viscosity	s	25–55 (supplied) / 20–35 (press)	Zahn #2 cup / Ford #4 cup, 25±0.5°C
pH Value	-	8.0–9.5	Precision pH meter, 25°C
Solid Content	%	35–50 (varies by color)	Oven drying, 105°C × 2 h
Gloss (60°)	GU		

5. Application Guidelines

Ink Preparation	Stir thoroughly for 5–10 minutes until completely homogeneous; filtration through 150–200 mesh screen is recommended. 1-pack water-based ink.
Plate / Cylinder Specs	Photopolymer flexo plate; recommended anilox roll screen 300–600 LPI (cell volume 4–10 BCM), with uniform and moderate doctor blade pressure.
Dilution Ratio	Dilute with deionized water or dedicated aqueous diluent, addition ratio 5%–15% (fine-tune according to ambient temperature/humidity and target viscosity).
Press Viscosity	Recommended operating press viscosity: 20–35 s (Zahn #2 cup / Ford #4 cup, 25°C).
Press Speed	80–300 m/min (optimize based on cup forming line speed or CI flexo drying capacity).
Drying Method	Hot air blast drying, drying chamber air temperature 60–90°C; ensure complete moisture release before rewinding or die-cutting.
Equipment Cleaning	Clean anilox rolls and printing plates immediately after press stoppage with water or specialized mild alkaline cleaning agents to prevent cell clogging.
Application Note	Prior to initial commercial production, thorough trials must be conducted under actual operating conditions to verify ink adhesion, soak resistance, and heat-sealing compatibility.

6. Regulatory & Safety

Regulatory Compliance	Complies with EU RoHS 2.0, REACH (SVHC) directives, and China Environmental Labelling (Ten-Ring) certification.
Food Contact Statement	
Usage Note	
Safety Data Sheet (SDS)	Safety Data Sheets (SDS) are available upon request.
User Responsibility	Users must independently confirm process suitability and regulatory compliance of final packaging products with end-customer specifications prior to full-scale commercial adoption.

7. Packaging & Storage

Standard Packaging	Standard packaging: 20 kg plastic pail; custom packaging: 5 kg/pail or custom volumes available upon request.
Storage Conditions	Store tightly sealed in original containers. Keep in a dry, cool, and well-ventilated warehouse at 5–35°C, away from heat and open flame; strictly protect from freezing and direct sunlight.
Shelf Life	12 months from production date in unopened original containers.
Post-Opening Care	Reseal inner and outer lids immediately and tightly after each dispense to prevent water evaporation, surface skinning, and viscosity drift.

8. Typical Product Grades

Product Code	Key Features	Suitable Substrates	Target Applications
WLF90000-C1S	C1S flexo color ink / Sharp dot reproduction / Saturated vibrant colors	C1S coated paper, woodfree paper, white cardboard	Tobacco outer packaging cartons, luxury gift boxes, pharmaceutical packaging, premium tags
WLF90000-Double PE	Water-based cup flexo ink / Superb cold water soak resistance / Ultra-low odor & migration	Double-sided PE coated board, cold beverage cup paper, ice cream container board	Cold beverage paper cups, ice cream tubs, frozen yogurt containers
WLF90000-PE Coated	Extrusion-coated flexo ink / Hot beverage heat resistance / Superior scratch & grease resistance	Single-sided PE coated board, hot beverage cup board, fast food container paperboard	Hot coffee paper cups, milk tea cups, instant noodle bowls, hot food takeaway cartons
WLF90000-Corrugated	Corrugated board flexo ink / High hiding power & tinting strength / High rub & scuff resistance	Kraft linerboard, white top liner, corrugated board, standard kraft paper	Household chemical transport shippers, appliance color boxes, e-commerce logistic corrugated cartons

1. Baseline Platforms & Customization: The products listed above are core baseline platforms of the WLF90000 Series proven through extensive commercial mass production. To meet specific press speeds (e.g., high-speed printing above 300 m/min), substrate absorbency variations, or demanding cold/hot soak resistance requirements, HCOLOR provides tailored viscosity adjustments, custom spot color blending, and bespoke functional performance development.

2. Specialty Process Integration: If specialized overprint varnishes (high gloss/matte) or water-based barrier primer sealers are required to further enhance water resistance, rub durability, or anti-blocking properties, please contact HCOLOR technical support for a comprehensive turnkey formulation.

9. Disclaimer

1. The data are typical values intended for product selection and technical reference only. Unless otherwise agreed in writing, they do not constitute guaranteed specifications.

2. The information contained herein is based on our current knowledge and experience and is provided in good faith for general application guidance only. It does not constitute a legal warranty, guarantee, or binding technical specification. Users are strictly responsible for evaluating and confirming product suitability, process compatibility, and commercial usability under their actual operating conditions and production equipment prior to commercial use.