



JONCRYL[®]
FLX 5000
Users
Guide

JONCRYL FLX 5000
— a high
performance,
water-based,
surface printing
vehicle

**BASF**

The Chemical Company

Assorted Flavours

JONCRYL® FLX 5000

Users Guide



BASF introduces JONCRYL FLX 5000, a surface printing vehicle that makes the conversion to water-based inks for medium duty film applications a cost-effective reality!

KEY BENEFITS OF JONCRYL FLX 5000

- Self-crosslinking emulsion with excellent press resolvability
- Develops excellent rub, wet crinkle, and deep freeze resistance
- Excellent heat seal resistance
- Excellent adhesion to polyolefin films
- Good printability for high quality surface printing
- A cost-effective and environmentally compliant alternative to solvent-based inks

JONCRYL FLX 5000 is a new technology that has excellent resistance/resolvability balance and was developed for use in flexible packaging applications like bread bags, frozen food bags, and heavy duty bags. Inks based on JONCRYL FLX 5000 are a cost-effective alternative to solvent-based inks and eliminate your customer's need to worry about U.S. EPA VOC restrictions and European VOC and ATEX legislations.

DEMONSTRATED RESULTS

Good resistance properties

Resistance properties, especially water resistance, are of paramount importance for the surface printing of flexible packaging materials. We have tested JONCRYL FLX 5000 against two of our existing products, JONCRYL 2646 and JONCRYL 624, in a basic formulation containing only pigment concentrate with pure emulsion, and in a fully formulated ink also containing wax, antifoam, and levelling and slip agents.

The inks were printed on a Moser pilot press and tested for wet crinkle and deep freeze resistance according to standard procedures.

The basic inks formulated with JONCRYL FLX 5000 show good wet crinkle and deep freeze resistance (see Figures 1 and 2). These properties were even further optimized in the formulated inks.

Inks based on JONCRYL FLX 5000 demonstrate improved resistance properties over inks based on currently available, water-based products.

The results clearly show the importance of proper formulating. When formulated correctly, the resistance properties of JONCRYL FLX 5000 are suitable for medium duty film applications.

Excellent resolvability

Resolvability is the key to obtaining clean sharp images over a long print run. We compared the resolvability of JONCRYL FLX 5000 on a pilot press with two of our existing products, JONCRYL 2646 and JONCRYL 624.

The results of this comparison are graphed in Figure 3. The actual prints are shown in Figure 4.

Prints are fully recovered within only a small number of revolutions when JONCRYL FLX 5000 was the basis of the ink formula. No wash-ups are required during press runs.

The results have been verified at several trials with converters and in Windmüller & Hölscher's test facilities.

Excellent resolvability in combination with high resistance properties is unique to the water-based ink market.

Excellent heat seal and block resistance

Inks based on JONCRYL FLX 5000 show excellent heat seal and blocking resistance properties — two important parameters for efficient production of flexible packaging material. Again, tests at converters have confirmed these findings (see Figure 5).

Reels were printed at high speeds — up to 600 m/min (1,950 ft/min) — without blocking. Bags were produced on in-line bagging equipment at standard temperature settings with hassle-free sealing directly in printed areas.

APPLICATIONS

The combination of good printability and high resistance properties are unique in the market for water-based products. The combination makes JONCRYL FLX 5000 ideal to apply in inks for flexible packaging like frozen foods, bread bags, and heavy duty bags.

Figure 4. Print conditions: 20 m/min, 60°C (65 ft/min, 140°F), 500 Watt corona treatment, printing stopped for 5 minutes. Printing Press: Moser, Gravure; Substrate: LDPE (supplier: Flexoplast)

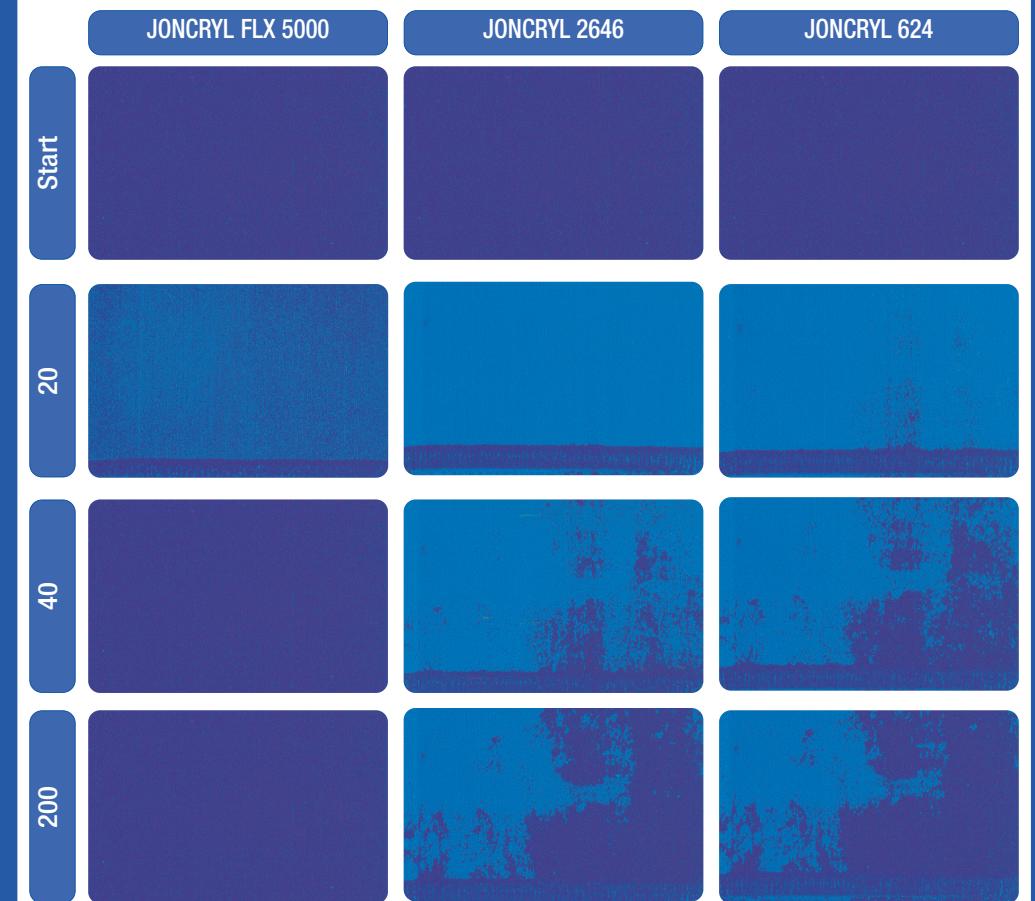


Figure 1. Two-hour water resistance

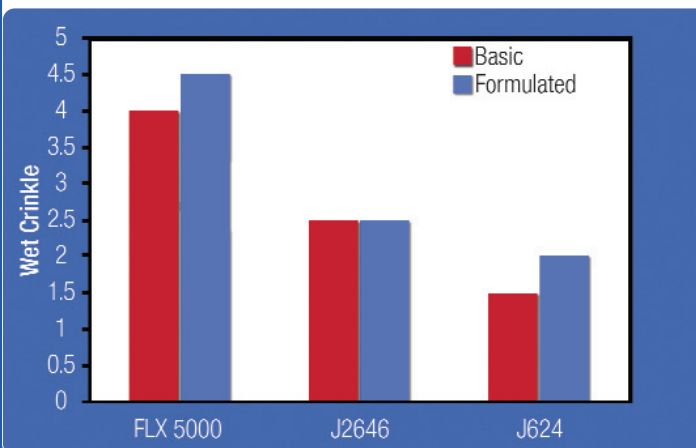


Figure 2. Deep freeze resistance

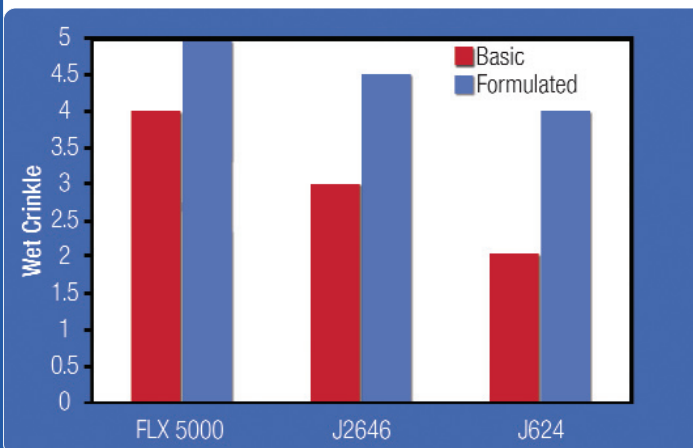


Figure 3. Resolvability on Moser press - Formulated Inks

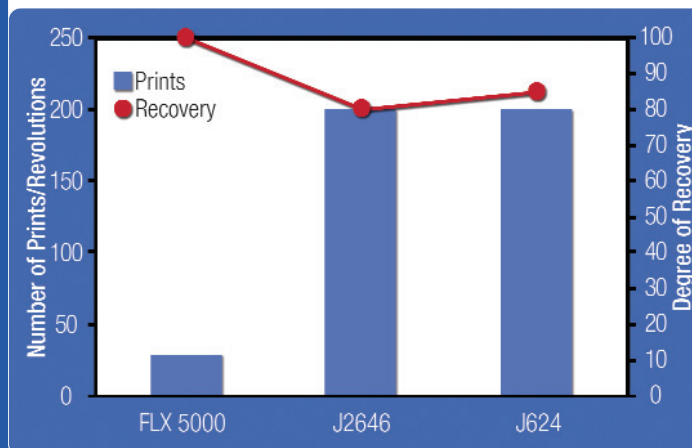
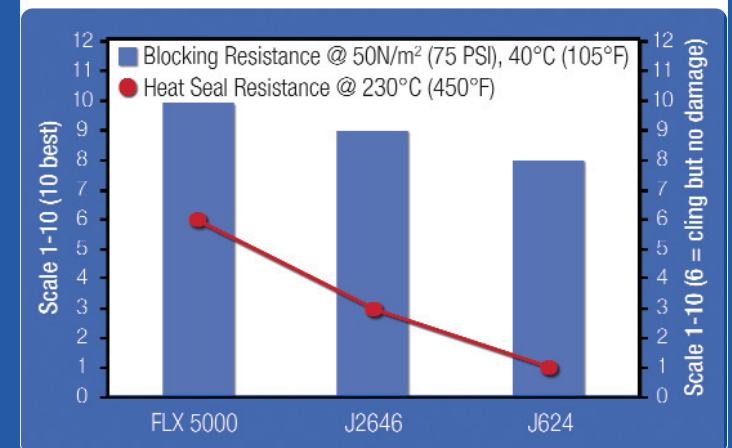


Figure 5. Heat seal and blocking resistance - Formulated Inks





RECOMMENDATIONS & CAUTIONS

Proper formulation is important

JONCRYL FLX 5000 was carefully developed to achieve optimal balance between resistance and resolubility. Because this balance is built into the product, it is no longer necessary to add extra resin solution or retarders (glycol ethers, glycerine or amines) to obtain good resolubility. In fact, doing so will negatively influence the final resistance properties.

When testing JONCRYL FLX 5000 we recommend that you follow our guideline formulation (see Table 1) or contact our Technical Service Department for further details.

If an emulsion in one of your existing formulations is changed to JONCRYL FLX 5000, carefully confirm that there are no additives present that will lower resistance levels.

Film formation development

Some time must be allowed to obtain the maximum resistance properties, since film formation of emulsions is not an instantaneous process.

For accelerated tests, place a print straight off the press in an oven at 60°C (140°F) for one minute; then test for resistance properties. Adhesion will typically be fine within a few minutes.

Substrate

Water-based inks perform best on corona-treated substrates with surface tension around 38-40 dynes. This is best guaranteed by using an in-line corona treater.

Anilox and printing plates

The print appearance of water-based inks, particularly attributes like color strength and dot gain, may differ from the results of solvent-based inks. It is important to remember that anilox and printing plates can be adjusted to give optimal results to water-based printing inks.

STARTING POINT FORMULATION

This formulation illustrates a good starting point for using JONCRYL FLX 5000 in film printing applications. More help formulating with JONCRYL FLX 5000 is available through our Technical Service Department.

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Table 1. Starting Point Formulation

JONCRYL FLX 5000	67.5
JONCRYL HPD 96 pigment dispersion	30.0
Wax	0.5
Slip additive	0.5
Leveling agent	1.0
Defoamer	0.5
TOTAL	100.0