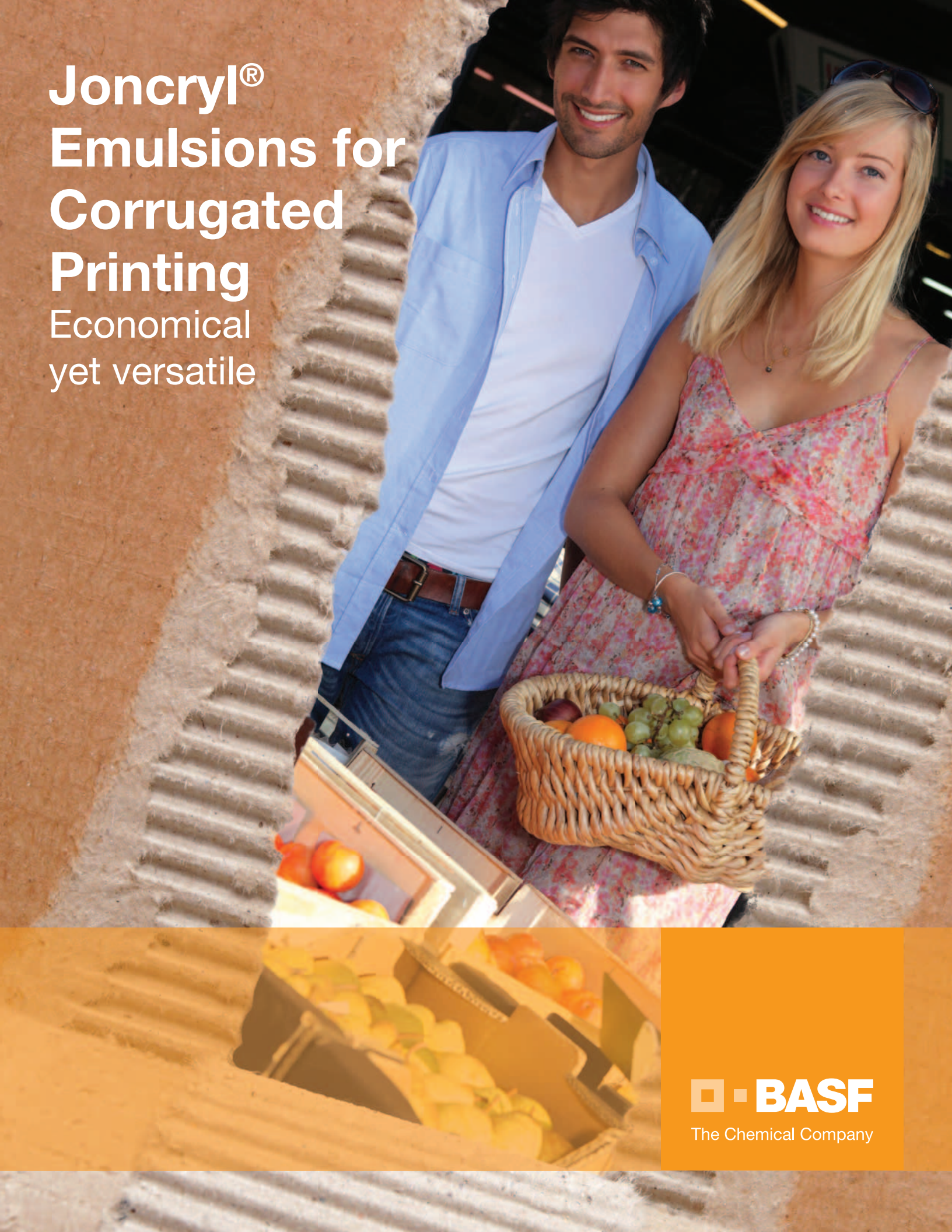
Joncryl® Emulsions for Corrugated Printing

Economical yet versatile



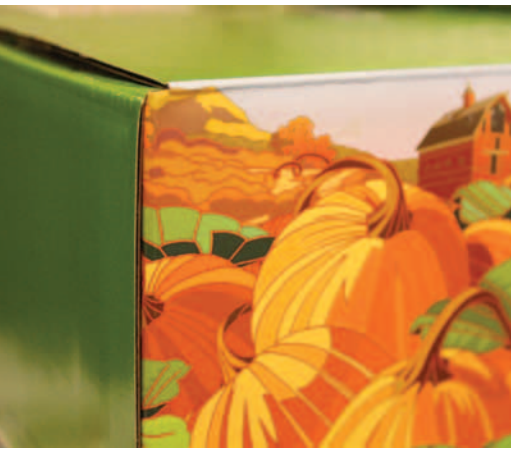
BASF
The Chemical Company

Joncryl® Emulsions for Corrugated Printing

Economical yet versatile

BASF offers a broad portfolio of emulsions for corrugated printing applications including high quality pre-print inks and overprint varnishes, post-print display inks, high hiding corrugated inks and economical corrugated black inks.

As a leading supplier to the corrugated ink and overprint varnish market, BASF provides solutions for every requirement. Whether high quality graphics and color intensity, or low cost-in-use is needed, depend on BASF to meet the needs of your corrugated printing. Use this guide to select the right product or combination of products for your ink and overprint varnish formulations for corrugated printing applications.



high

Print Quality

low

Pre-print Ink and Overprint Varnish

For dynamic brand recognition, **Joncryl 1695** and **Joncryl 660** can provide the properties needed for colorful corrugated pre-print inks and overprint varnishes. These products are used for brand colors and large solids, and fine type and process printing on mottled white and bleached substrates.

Pre-print inks and overprint varnishes are formulated for the highest quality graphics, high color intensity, hot scuff resistance and good gloss.

Post-print Display Ink

Primarily used for point-of-purchase displays, these inks provide attractive and durable qualities. **Joncryl LMV 7050** or **Joncryl 2350** are used for brand colors and large solids, and fine type and process printing on bleached and coated substrates.

Point-of-purchase displays require high quality graphics, high color intensity, good gloss on high holdout substrates and are overprinted with water-based or UV coatings.

High Hiding Corrugated Ink

For corporate and product identification where strong, clean colors and bright high hiding whites on natural kraft substrates are required use **Joncryl 631** or **Joncryl 633**. Joncryl 631 is used for cleaner, more intense dark colors and Joncryl 633 for brighter whites and light colors. Joncryl opaque emulsions are used for GCMI and brand colors, and opaque whites on natural kraft and mottled white substrates.

High hiding corrugated inks enable better quality graphics, multiple colors with minimal trapping, high ink transfer, water resistance and rub resistance.

Economical Corrugated Black Ink

Packaging with less stringent printing requirements will benefit from **Joncryl LMV 7014** and **Joncryl 142**. These colloidal emulsions are used for low cost inks, basic product identification, and GCMI 90 black on natural kraft and mottled white substrates. In addition, **Joncryl 646** can be added to lower the formulated cost and **Joncryl 655** will improve appearance and transfer.

These inks can provide low cost-in-use, excellent resolubility and high water reducibility.


CERTIFIED BANANA
Premium Banana
PREMIUM BANANAS
VIDEO GAME SYSTEM
VINO TINTO
HAVITA

Product Selection

Joncryl Colloidal Emulsions

Joncryl colloidal emulsions' low cost-in-use makes them an excellent choice as a letdown vehicle for corrugated inks. In addition, they can be used as a dispersion resin for carbon black, which makes it possible to manufacture a black corrugated ink using a single polymer.

Joncryl 142 is a general purpose, sole vehicle, acrylic colloidal emulsion for carbon black inks, and a letdown vehicle for organic color dispersions.

Joncryl 646 is a high molecular weight acrylic colloidal emulsion that minimizes the cost of inks for corrugated board. The high molecular weight and unique polymer composition result in the ability to achieve a stable ink with a minimal amount of polymer.

Joncryl 655 is a low molecular weight, sole vehicle, acrylic colloidal emulsion for carbon black inks on paper, and a letdown vehicle for organic color dispersions.

Joncryl LMV 7014 is a colloidal emulsion that when neutralized to a pH of 7.0 or higher provides a basis for low cost, pH-stable black inks as well as a cost-effective letdown for organic color dispersions.

Joncryl RC Emulsions

The near Newtonian flow characteristics of Joncryl Rheology Controlled emulsions allow inks and overprint varnishes to handle the demanding shear stress encountered in high speed flexographic and gravure printing.

Joncryl 631 is an opaque acrylic emulsion that provides hiding power and enhances the appearance of brightly colored inks on corrugated board and other natural kraft substrates.

Joncryl 633 is an opaque acrylic emulsion that enables the reduction of TiO_2 needed in white and light colored inks on corrugated and other natural kraft substrates.

Joncryl 660 is a hard film forming acrylic emulsion that resists hot scuffing during corrugation of pre-printed linerboard.

Joncryl 1695 is a soft film forming acrylic emulsion with no added zinc or other metallic crosslinkers for high heat-resistant applications.

Joncryl 2350 is a non-film forming acrylic emulsion for viscosity-stable printing inks with excellent gloss and holdout.

Joncryl LMV 7050 is a low maintenance, pH-stable, non-film forming acrylic emulsion for fast dry and excellent resolubility in ink formulations on paper and paperboard substrates.

Product	Appearance	Non Volatile (%)	Typical VOC (% wt)	Molecular Weight (Mw)	Viscosity @ 25°C (cps)	pH	Acid Number (NV)	Density @ 25°C (g/cm³)	Tg (°C)	MFFT (°C)	Freeze-Thaw Stable	Application: Economical Ink	Application: High Hiding Ink	Application: Post-print Display Ink	Application: Pre-print Ink/ Overprint Varnish
Colloidal Emulsions															
Joncryl 142	Opaque	39.5	< 0.005	48,000	25	6.0	130	1.06	10	< 7	no	■			
Joncryl 646	Opaque	40.0	< 0.005	100,000	45	6.0	128	1.07	30	< 7	no	■			
Joncryl 655	Opaque	41.5	< 0.005	25,000	19	6.3	128	1.05	25	< 7	no	■			
Joncryl LMV 7014	Opaque	34.0	< 0.1	45,000	< 100	4.0	201	1.08	50	< 5	yes	■			
RC Emulsions															
Joncryl 631	Opaque	50.0	< 0.1	> 200,000	2,500	7.9	25	1.05	105	> 60	yes		■		
Joncryl 633	Opaque	37.0	< 0.1	> 200,000	600	7.2	60	1.05	104	> 50	yes		■		
Joncryl 660	Translucent	33.0	4.0	> 200,000	400	8.5	203	1.08	27	< 10	yes				■
Joncryl 1695	Translucent	39.2	0.3	> 200,000	700	8.1	120	1.03	- 50	< 5	yes				■
Joncryl 2350	Semi-translucent	47.0	< 0.1	> 200,000	1,200	8.4	77	1.05	75	70	yes			■	
Joncryl LMV 7050	Semi-translucent	47.5	< 0.2	> 200,000	950	7.3	85	1.06	98	80	yes			■	

■ = Applies

Starting Point Formulations

The formulations below illustrate the broad spectrum of Joncryl products for corrugated inks and overprint varnishes. Contact a BASF representative for additional formulation assistance.

Joncryl LMV 7014 Neutralized Solution

Joncryl LMV 7014 colloidal emulsion requires neutralization with ammonia, MEA, or DMEA and water prior to incorporation into ink formulations.

Economical pH-stable Corrugated Black Ink

Joncryl LMV 7014, when neutralized, can be used as a letdown vehicle for organic pigment dispersions or as a sole vehicle for carbon black pH-stable corrugated inks.

High Hiding Corrugated Ink

Strong bright colors and high opacity white inks used on natural kraft or mottled white substrates can be formulated using Joncryl 631 and Joncryl 633 opaque emulsions. Joncryl 633 is used to formulate high opacity white inks and light colors. Joncryl 631 is used to enhance the appearance of darker, intense colors including dark blues and blacks.

Post-print Display, pH-stable Corrugated Ink

High quality, post-print or display inks can be formulated with a combination of Joncryl LMV vehicles. Joncryl LMV 7040 provides film formation and improves rub resistance, Joncryl LMV 7050 provides hardness to the printed film and Joncryl LMV 7025 improves the resolubility and modifies the drying speed. High quality, cost-effective post-print or display inks can be formulated with Joncryl 2350.

Pre-print Corrugated Ink

This formula features Joncryl 1695, a zinc-free, RC acrylic emulsion that provides rub and heat resistance and gloss.

Pre-print Corrugated Overprint Varnish

For pre-print overprint varnish applications, Joncryl 660 provides hot scuff and heat blush resistance, and has excellent rub resistance.

Joncryl LMV 7014 Neutralized Solution	**Amount (%)**
Joncryl LMV 7014	65.1
Ammonium Hydroxide, 28% Solution	4.0
Water	30.9
Total	100.0

Economical pH-stable Corrugated Black Ink	**Amount (%)**
Carbon Black	15.0
Joncryl LMV 7014 Neutralized Solution	33.5
Water	50.3
Wax Dispersion	1.0
Antifoam	0.2
Total	100.0

High Hiding Corrugated Ink	**Amount (%)**
Pigment Dispersion	40.0
Joncryl 633	47.9
Water	9.6
Joncryl Wax 4	2.0
Antifoam	0.5
Total	100.0

Post-print Display, pH-stable Corrugated Ink	**Amount (%)**
Pigment Dispersion	40.0
Joncryl LMV 7040	8.5
Joncryl LMV 7050	25.5
Joncryl LMV 7025	12.5
Wax Emulsion	5.0
Water	8.0
Antifoam	0.5
Total	100.0

Pre-print Corrugated Ink	**Amount (%)**
Pigment Dispersion	46.0
Joncryl 1695	42.0
Joncryl Wax 26	5.0
Antifoam	0.2
Water	6.8
Total	100.0

Pre-print Corrugated Overprint Varnish	**Amount (%)**
Joncryl 660	80.0
Antifoam	0.2
Water	19.8
Total	100.0

About BASF

BASF Corporation, headquartered in Florham Park, New Jersey, is the North American affiliate of BASF SE, Ludwigshafen, Germany. BASF has more than 16,900 employees in North America, and had sales of $18.7 billion in 2012. For more information about BASF's North American operations, visit www.basf.us.

BASF is the world's leading chemical company: The Chemical Company. Its portfolio ranges from chemicals, plastics, performance products and crop protection products to oil and gas. We combine economic success with environmental protection and social responsibility. Through science and innovation, we enable our customers in nearly every industry to meet the current and future needs of society. Our products and solutions contribute to conserving resources, ensuring nutrition and improving quality of life. We have summed up this contribution in our corporate purpose: We create chemistry for a sustainable future. BASF posted sales of €78.7 billion in 2012 and had more than 113,000 employees as of the end of the year. Further information on BASF is available on the Internet at www.basf.com.

For more information, scan the QR Code below, or goto basf.us/dpsolutions

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