Technical Data Sheet

RDF-HF

ROTARY PAD PRINTING INK

1- and 2-component ink, rotary printing, gloss ink, halogen, aromatics, cyclohexanone and BPA free

Fields of application

One and Two component rotary pad printing ink suited for bottle caps and closures of the following substrates:

- Pre-treated polyethylene (PE)- specially CSD
- Pre-treated polypropylene (PP)
- Also suitable for printing on the outside of food packaging.
- PET

*Compatible with TAMPOFLEX®, TAMPOPRINT®, WINNER® and other machines like ROTOPRINT®, CLOSUREPRINT® etc.

NB: Different substrates may differ in printability due to difference in surface properties hence preliminary trials are essential before printing.

Industry compliance standards:

Requirements fulfilled	RDF-HF
Printing on the non-food-contact side of food packaging, Regulation (EU) 1935/2004, Article 3	✓
AfPS GS 2014:01 PAH Cat. 1	✓
FBPA free (4,4'-Isopropylidendiphenol)	✓
Chlorine-free (Standard: IEC 61249-2-21)	(<900ppm)
Barium free	✓
Bromine free (Standard: IEC 61249-2-21)	(<900ppm)
Fluorine free (Standard: IEC 61249-2-21)	✓
Free of cyclohexanone and aromatic solvents	✓
Free of phthalates Directive 2005/84/EC and REACH-Regulation (EC) 1907/2006 Annex XVII	✓
Toy Safety EN 71-3:2014-12 Teil 3*	✓
Toy Safety EN 71-9:2007-09*	✓
EuPIA-Exclusion policy	✓
RoHS, Directive 2011/65/EU and Directive 2015/863/EU	✓
GADSL	✓
VOC China [g/kg]*	✓

NB. *Gold and silver inks have to be considered separately.

Declaration: The test results are to the best of our knowledge. For your own validation please check on your part/substrates.

Application Process

These inks are suitable for rotary pad printing and high-speed pad printing. Pretreatment is needed on polyolefins.

These inks can be used with all rotary pad printing machines with clichés and rotary pads currently used for industrial applications. The printing result may be affected by depth of the pad printing cliché plate and shape, and hardness of the pad. The printing speed of the rotary pad printing machine also has an influence on the printing result.

A temperature between 20-25°C and humidity around 60-70% will be ideal for printing processes to achieve optimum adhesion.

The substrate surface must be free from any impurities (silicone, dust, grease, graphite, fingerprints) which might affect adhesion and printing. Hence, pre-cleaning and pre-treatment will generally enhance adhesion.

Pre/post treatment generally improves adhesion with this 1 and 2-component ink.
These inks are suitable for both indoor and outdoor applications.

The above statements are accurate to our best knowledge and belief. However, due to the great number of possible influences during the manufacture of the substrate and the variation in the application process we suggest that suitability testing take place under actual conditions before production. No legally binding guarantee of certain properties or of the suitability for a definite application purpose can be derived from the above information.

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Characteristics

The ink should be stirred homogeneously before and during printing. Since this is also a 2-component ink system, it is required to add hardener in the right percentage and stir homogeneously.

While processing with hardener the temperature should not go below 20°C as the proper mixing won't occur at low

Pre-reaction time

The ink mixture should be kept around 15 mins for pre reaction to occur.

Pot life

The pot life of ink hardener mixture is 7-8 hrs at 20-25°C and 50% humidity. Levelling agent EQS 223 as required. Inks adhesion may decrease after the mentioned hours.

Drying

Apart from evaporation of solvent, ink drying includes crosslinking between ink and hardener which ultimately leads to hardening of ink film. Though touch dry occurs in minutes (5-10), heat shock drying approx. 2–3 sec. (infrared drying or hot air blower) and the actual adhesion of ink occurs in approximately 36-48 hrs depending upon the hardener used.

Colors

Basic shades

The basic shades consist of 12 basic colors and can be used to produce wide color shades for Pantone, HKS, RAL, NCS, etc. Also there are special mixed colours.

BASIC COLOR	SHADES	CODE
Yellow	Light	RDF 203
	Medium	RDF 201
Red	orange	RDF 306
	Standard Red	RDF 308
	Pink	RDF 309
Blue	Violet	RDF 505
	Standard Blue	RDF 506
Green		RDF 603
White	standard	RDF 100
	opaque	RDF 101
Black	standard	RDF 900
	opaque	RDF 901

RDF-HF Special Ink Shades	
BASIC COLORS	**CODE**
Pepsi® Red	RDF 308P
Pepsi® Blue	RDF 506P
Coke® Red	RDF 307C
Coke® White	RDF 100P
Mirinda® Green	RDF 603M
7 UP® Red	RDF 307U
Fanta® Orange	RDF 306F
Fanta® Green	RDF 603F
Sprite® Green	RDF 603S
Sprite® Yellow	RDF 203S

Disclaimer: *Pepsi®, Coca-Cola®, Mirinda®, 7UP®, Fanta® and Sprite® are trademarks of their respective owners, PepsiCo, Inc. and The Coca-Cola Company. They are mentioned solely for educational and reference purposes. This report is not affiliated with or endorsed by these companies*.

NB: Process colors shall be made available upon request.

Additives

Catalysts:

Catalyst helps in increasing adhesion of ink film to the surface by chemically cross linking with the ink pigments. Hence, there is a standard catalyst.

Catalyst 10-20% CAT 135
2-5% CAT 140

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It should be noted that proper adhesion with hardener (chemical and physical resistance) can be attained after minimum 36 hrs of printing at 20-25 ºC. Therefore, any adhesion test should be done after 36-48 hrs for proper results.
Temperatures lower than 20°C should be avoided as cross linking does not occur at low temperatures. For this reason, post treatment is desirable in many cases. Heating at 150 -180 ºC for 20-30 minutes helps in improving adhesion of ink film over surface.

Dilutant:
Dilutant helps in adjusting the viscosity of the printing ink.

Dilutant (fast)	15-25% DLT 134
Dilutant (slow)	15-25% DLT 140
Dilutant (standard)	15-25% DLT 138

Levelling agents:
These agents fix the ink pigments uniformly which enables to obtain uniform shade of desired colour.

Excessive addition should be avoided since high percentage can negatively influence printability.
Levelling agent 0.5-1% EQS 223.

Cleaners:
The cleaner RFR 530 is recommended for manual cleaning or automatic cleaning of the working equipment. All cleaning devices and auxiliaries may only be used for chlorine- and cyclohexanone-free ink, otherwise they will be contaminated with halogen. Use our RFR 531 to clean the printing pads.

Shelf Life
Shelf life depends upon the formula/reactivity of the ink system as well as the storage temperature.

The shelf life for an unopened ink container if stored in a dark room at a temperature of 15 - 25 °C is 2 years. Metallic and effect inks have a shelf life of 6 months.

Precautions
Handle in accordance with good industrial hygiene and safety practices Keep the environment temperature within the recommended temperature range during the printing process, otherwise, fluency problems probably happen. Ensure adequate ventilation, especially in confined areas.

Avoid contact with skin, eyes, or clothing, and avoid breathing vapours or mists. Do not eat, drink or smoke when using this product. For further information on safety, storage, and environmental aspects concerning these products please refer to the Safety Data Sheet. In addition, technical information can be obtained from our product safety department.



This ink is also compatible with etched solid/hollow metal rollers.

Imported & Marketed By:
SPINKS INDIA,
Plot No 135, Pace city I, Sector 37,
Gurugram, Haryana- 122001(India).
Available at: https://www.spinksworld.com/

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