

Technical Data Sheet

1. Product features

1.1 QUADREX ONE INKS

- QUADREX ONE CMYK sheetfed offset ink series have been designed to deliver outstanding results on high-speed printing presses. Visco-elastic core vehicle coupled to selected raw materials are prone to deliver remarkable, smooth and problem-free print.
- have been fine tuned to meet challenging pressroom's dynamics.
- support the production of food contact materials which comply with all relevant regulations in EU & US.
- allow the production of food packaging with very good organoleptic properties as well as safe migration levels far below the overall migration limit of 60mg per 1 kg food (60ppm) or 10mg/dm² of packaging surface area referring to the "EU cube" where 1 kg food is packed in a surface of 600 cm².
- are based on oils and esters which are evaluated as non-toxic for the human body. There are no restrictions for the daily intake. Consequently, the European Food Safety Authority (EFSA) does not assign a Specific Migration Limit.
- do not use triarylcarbonium-pigments with complex anions (so-called "Fanal" pigments), due to their low resistances and potential contamination by cleavage products.
- are vegetable based and mineral oil free.
- do not contain Bisphenol A.
- are available as a 4-process colour ink set, a range of base inks for spot colour mixing and metallics.

1.2 Key Features

- Glossy roller fresh overnight-type inks
- Inks with purer hues, to give higher contrast
- Fast setting reducing the use of anti set-off powder
- Minimal show through eliminating second-day loss in density
- Quick and smooth ink transfer
- Superior trapping
- Fast work and turn
- Excellent rub resistance
- Minimal dot gain
- Color reproductibility: $dE < 2,5$
- Coherent vegetable oil based ink system giving an odor-free printing
- Suitable for food indirect packaging

1.3 Physical Properties

- Vehicle: Rosin Resins/Vegetable Oils
- Viscosity: 65-85 Pa.s. (23°C, CP50,25s-1 Anton Paar MCR101)
- Tack: 7,6-8,2 (400 rpm/32°C/Inkometer)
- Solid Content: 55-75%
- Dry Film: 1-2gr/m²

2. Product Suitability

2.1 Applications

The main application of QUADREX ONE inks is low odour and low migration packaging (folding cartons, wrappers, etc.) for the food, cosmetic, pharmaceutical or tobacco industry.

Preferred press configurations are straight 4+ colour sheetfed offset presses of all makes and sizes with a unit for aqueous coatings.

Packaging converters should assure themselves that the use of this product has been fully assessed for risk and that the packaging produced meets regulatory requirements for the intended use. Whilst QUADREX ONE inks are versatile in performance, they may not be suitable if used outside the above described applications. If in doubt, please check suitability with your local Comex Graphics representative.

QUADREX ONE inks should not be used in the following areas:

- Where the application of an aqueous coating is not an option.
- Printing on non-absorbent substrates (films, foils, metal plates, metallised paper, PE layer of laminated boards, etc.)
- Poster printing
- Skin-or Blister Packaging
- Direct food contact applications

QUADREX ONE inks are not designed for direct food contact (physical contact between ink and food).

2.2 Substrate

QUADREX ONE inks are suitable for the following substrates:

- Single or double side coated carton board
- Single or double side coated paper

Please make sure that these substrates comply with the end use requirements (organoleptics, migration, etc.).

Substrates

Substrates	Coated	Uncoated	Matt	Recycled	Board
	Y	Y	C	Y	Y

Y: Yes N: No C: Caution

2.3 Varnishability

Inline overprinting with an aqueous coating is mandatory. Please make sure that these coatings comply with the end use requirements (organoleptics, migration, etc.).

Since the testing agents specified in ISO 2836 are more severe than solvent-free aqueous coatings, problems linked to the fastnesses to alcohol or alkali are not expected. As a precaution, we recommend the use of solvent-free coatings.

PRB 9070 are based on so-called Alkali blue pigments. This class of pigments has very limited resistances against alcohol and solvents and tend to bleed when being over-varnished. A test under industrial conditions is absolutely mandatory to avoid customer complaints. Wherever possible, these inks should be replaced by others.

Fastness

Process Colors	Code	Light	Alkali	Alcohol	UV varnish	8C perfecting
Magenta	6422	4	N	Y	N	Y
Yellow	6446	5	Y	Y	N	Y
Cyan	6456	8	Y	Y	N	Y
Black	6473	7	N	Y	N	Y

Lightfastness (1: poor ~ 8:excellent)

Y: Yes

N: No

C: Caution

2.4 Interaction with plastic films

In some cases printed material is wrapped with plastic films (i.e. tobacco or confectionary packaging). Some polymers (like polyethylene or polypropylene) tend to absorb (liquid) ink components resulting in a cloudy appearance of the film or a dimension change, often described as "swelling".

QUADREX ONE inks have a significantly reduced potential of solvent migration, however a test under industrial conditions is advised if film swelling could be an issue.

2.5 Hot foil stamping

The adhesion between the different layers carton board, ink, varnish and lamination foil is essential for the final result. Therefore, for hot foil stamping applications a waiting time of minimum 48 hours is requested. A suitable combination of water-based coating and foil is mandatory for the application of hot foil stamping.

3. General Handling

3.1 Storage

QUADREX ONE inks should be stored at ambient temperature between 5°C and 20°C. Under these conditions QUADREX ONE inks have a shelf life of at least 5 years in an unopened vacuum tins.

Inks supplied in drums or pails should be used within 3 years after production. Drums and pails having exceeded 3 years may be fit for use but must be inspected before usage. Inks in drums or pails should be worked off within 6 months after the removal of the lid.

QUADREX ONE golds and QUADREX ONE silvers have a shelf life of 2 years after production.

When storing opened containers, it is advised not to apply any chemicals (i.e. antioxidants) onto the surface.

3.2 Waste disposal

QUADREX ONE ink waste can be handled as any other sheetfed ink waste. This should be carried out in accordance with good industrial practice, observing all the appropriate local, national and regional regulations and guidance. Practice should be updated at least once yearly to ensure complete compliance.

4. Printing conditions and press room consumables

All press room consumables could have a negative influence on the organoleptic properties and could be potential migrants. Therefore a careful selection addressing these impacts should be considered.

4.1 Fount solution

Fountain solution additives are available for all water hardnesses, press types and IPA (alcohol) levels. For achieving best values regarding odour and taint as well as migration, the selection of the right fountain solution additive is vital. With regard to fountain solution related press performance other parameters such as water quality and press conditions have to be considered.

4.2 Printing Plates

QUADREX ONE can be run with any type of aluminium based printing plates (CtP plates, conventional positive or negative plates)

4.3 Print density of metallic inks

Depending on the press conditions and substrates we recommend a wet colour density for gold of OD 1.4 to OD 1.6. The density should be measured with the filter for Yellow, using the polarisation filter.

The wet density for silver should be in the range of OD 0.9 to OD 1.1 measured with the filter for cyan, using the polarisation filter.

4.4 Press cleaning

To avoid contamination from standard print shop consumables the press should be ideally dedicated to food packaging printing and only run with QUADREX ONE inks and press aids appropriate for food packaging. If this is not possible we recommend cleaning the press thoroughly in order to extract absorbed substances from rollers and printing blankets.

4.5 Influence of IR drier

The use of IR drier is recommended if it suits job printing production criteria.

5. End-use safety / Regulations

The QUADREX ONE ink range is designed for use on the non-food-contact side of food packaging provided that the inks are applied under the relevant Good Manufacturing Practices (GMP) and according to the recommendations of this Technical Data Sheet.

QUADREX ONE inks allow the production of food packaging compliant with these relevant requirements. However, the printer, converter and the packer/filler have the legal responsibility to ensure that the finished article is fit for the intended purpose and that the ink and coating components do not migrate into the food at levels that exceed legal industry requirements as outlined in the EU Framework Regulation (EC) No 1935/2004, the GMP Regulation (EC) No 2023/2006, Swiss Ordinance on Materials and Articles in Contact with Food (SR 817.023.21), as well as the US FDA regulations. We recommend that the finished packaging is tested under appropriate representative conditions of use, if there are any doubts regarding compliance.

CEPE/EuPIA Exclusion Policy. This excludes from use all materials classified according to the CLP Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures as carcinogenic, mutagenic or toxic for reproduction in categories 1A or 1B with hazard statements H340, H350 or H360, in addition to toxic or highly toxic materials with hazard statements H300, H301, H310, H311, H330, H331, H370 or H372. None of the raw materials used in inks supplied intentionally contain the heavy metals Antimony, Arsenic, Cadmium, Chromium (VI), Lead, Mercury, Selenium. A copy of the document is available on the EuPIA website: <http://www.eupia.org>

QUADREX ONE also complies with the EuPIA “Guideline on Printing Inks applied to the non-food Contact Surface of Food Packaging Materials and Articles”, the EuPIA “Good Manufacturing Practices – Printing inks for food contact materials” which is in compliance with the European Regulation (EC) No 2023/2006. Copies of these documents are available on the EuPIA website: <http://www.eupia.org>.

QUADREX ONE is produced in a dedicated printing ink plant avoiding cross-contamination to an utmost degree.

All components of QUADREX ONE are listed in Annex 10 of the Swiss Ordinance on Materials and Articles in Contact with Food (SR 817.023.21).

The migratory substances are listed as a “generally recognised as safe” (GRAS) food ingredient or direct food additive by the US FDA.

A “Statement of Composition” is available on request for QUADREX ONE to assist risk assessment calculations. QUADREX ONE is regularly tested by an accredited third party institute regarding the use for food packaging. A relevant certificate is available on request.

Information provided in this technical data sheet are given for guidance and performance direction. It should not be regarded as warranty or garrantee.