

## Technical Data Sheet

### **Water Based Hydrochromic Inks**

#### **Technical Product Information**

**Metachromatic Function:** Irreversible  
**Product Name:** Water Based Hydrochromic Ink  
**Last Revision:** 31/08/2018

#### **Water Based Hydrochromic**

Hydrochromic inks when printed are a strong colour which can be decolourised by exposure to water.

#### **Water Based Flexo Inks**

Hydrochromic ink changing from colour to clear is available in Water Based flexo ink formulations.

A general purpose flexo ink for absorbent substrates such as paper, and board is available. Various colours possible the standard is blue or black.

Supplied as a 1 part ink system ready formulated and easy to use allowing flexibility in application and optimisation in appearance of printed article.

#### **Application**

Print onto paper or card. The ink dries it giving opaque colour. It may be recoated to increase opacity. When wet the ink loses its colour and goes clear.

Decolouration of the ink on wetting may be affected to some extent by different substrates or if the water evaporates on the surface. The difference between a fresh print area and one that has been exposed to moisture will always be quite apparent. Users should evaluate the effectiveness of the ink on their own substrate. Prints on an absorbent substrate will show far less tendency to regain colour after they have dried out after being exposed to water. A print on a non-absorbent substrate where the moisture dries out still on top of the print may show colour reversion. Exposure to high humidity, >80% RH, may cause colour to fade. Users should carefully evaluate the suitability of this ink to their own application and conditions of use. UV light can fade the colour, avoid direct sunlight exposure.

#### **Product Properties**

##### **Adhesion**

The adhesion of Water Based Hydrochromic Ink depends upon the surface properties of the selected substrate. Due to the wide variety of substrates it is recommended that this ink is evaluated fully prior to any commercial use. Hydrochromic ink formulated for paper may have satisfactory adhesion for plastics or non-absorbent substrates with suitable surface treatment.

Information in this Product Data Sheet is compiled from our general experience and data obtained from various technical publications. Whilst we believe that the information provided herein is accurate at the date hereof, no responsibility for its completeness or accuracy can be assumed. Tests are carried out under controlled laboratory conditions. Information is given in good faith, but without commitment as conditions vary in every case. The information is provided solely for consideration, investigation and verification by the user. We do not except any liability for any loss, damage or injury resulting from its use (except as required by law). Please refer to the Material Safety Data Sheet before using products to ensure safe handling.

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### **Rub Resistance**

The ink itself after drying exhibits good rub resistance properties on absorbent and non absorbent substrates. It well to paper and print receptive plastics.

### **Additional Product Properties**

#### **Recommended Printing Parameters**

The flexo graphic ink may benefit from a heavy coating anilox but the user should evaluate for themselves in conjunction with their own substrate.

The water based hydrochromic ink is quite acidic so printing plates should be tested for compatibility with low pH inks.

### **Drying**

The ink will air dry or can be forced dried with IR lamps or hot air. When wet the ink colour is very light and the full colour only develops as the ink dries out. The strength of colour is therefore a good guide to the effectiveness of the drying process.

It is recommended that the ink and substrate are fully tested in the printing procedure before a print run. Adequate ventilation and fume extraction should be provided. The safety data sheet should be read before use and appropriate control measures taken.

### **Cleaning recommendations**

Use water.

### **Handling**

Water Based Hydrochromic inks are a one part ink system that will remain stable if kept in the supplied container and stored in the correct storage conditions.

### **Mixing Instructions**

Contents may settle on transit. Ink should be thoroughly mixed using a mechanical stirrer prior to application. Do not mix with other ink systems.

### **Storage**

Stored away from frost and high temperature to gain optimum performance from the product. Product is flammable so an appropriate safety storage area is recommended.

Shelf Life

6 Months

Do not store in temperatures in Excess of 25°C / 77°F

### **Do not freeze**

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As the product is water based it is important to keep the containers tightly shut to avoid evaporation and skinning of the product.

### **Water Based Hydrochromic Screen Ink**

A hydrochromic ink changing from colour to clear is available in a Water Based Screen ink formulation.

A general purpose screen ink for absorbent substrates such as paper, board and non-absorbent surfaces such as print receptive plastics is available. Various colours possible the standard is blue or black.

Supplied as a 1 part ink system ready formulated and easy to use allowing flexibility in application and optimisation in appearance of printed article.

Screen printing can be done with strong colour strength achieved with screen from 90 – 120T. The heavier the coating the greater the opacity but a heavier film may have a greater tendency to revert to its original colour after it dries out from water exposure.

The water based ink is light in colour while being printed but as it dries the full colour develops. On exposure to water the dried ink film loses its colour and clears out. There may be a small degree of white opacity – depending on how heavy a print has been made.

The clear print may show some colour reversion depending on how much water has been applied and if the same water is allowed to dry out on top of the print. In general exposure to running water will mean no colour reversion. Drops of water on the surface which dry out may lead to very significant colour reversion.

The substrate used can also affect reversion. A print on paper will be less inclined to reversion than a print on a non-absorbent substrate. However a print on a non-absorbent substrate will clear out more rapidly than one on paper.

### **Recommended Printing Parameters**

The screen ink may be printed with any mesh size according to the colour strength required. Strong block prints can be achieved with a 90T.

Stencils should be water resistant and not affected by the low pH of the ink. Check carefully as some stencils will soften with acidic inks.

### **Cleaning**

Water can be used to clean down.

### **Hydrochromic Printed Material**

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Exposure to high humidity, >80% RH, may cause colour to fade quite quickly. Users should carefully evaluate the suitability of this ink to their own application and conditions of use.

Prints should be stored to minimise exposure to humidity. Bagging of printed items would be recommended if it is intended to keep them for some time.

### **UV resistance**

All hydrochromics have poor UV resistance making them unsuitable for outdoor exposure. Keep inks out of direct sunlight. UV will cause fading of colour.