



# Intrabond

## liquid dyes for paper



### Yorkshire supplies two ranges of liquid dyes to the paper industry:

#### **Intrabond B:**

These are cationic Basic liquids for use in brown packaging, newsprint tinting and coloured towelling in grades, which contain large proportions of recycled, mechanical, or unbleached chemical fibres.

#### **Intrabond D:**

These are predominantly anionic Direct liquid dyes which can be used in all types of paper grades with an emphasis on fine paper and tissue grades.

The high substantivity of these dyes produces good fastness properties and backwater ratings. For very deep shades, the use of a suitable fixing agent can be beneficial to assist with water clarification and bleedfastness improvement.

The Direct brown blends are aimed at the packaging sector for economic surface or stock dyeing.

### Base Furnishes:

70% Bleached Hardwood  
30% Bleached Softwood  
30° SR

2% Liquid Aluminium Sulphate

#### **For packaging grade Brown dyes and Basic dyes :**

100% wastepaper  
30° SR

2% Liquid Aluminium Sulphate

Illustration of dyes

All Intrabond liquid Direct dyes are illustrated at 2.0%  
All Intrabond liquid Basic dyes are illustrated at 1.0%



## Bleachability

### Oxidation

The dye is added at 2% (or powder equivalent) to a stock at 1.2% consistency for 15 minutes at pH7. Sodium hypochlorite is added (2% available chlorine on the weight of dry pulp) and the mixture transferred to a closed vessel where it is heated to 40°C and agitated for 30 minutes.

After sheet formation and drying, loss of colour strength is determined by comparison with an untreated, dyed control.

### Reduction (hydrosulphite)

The dye is added at 2% (or powder equivalent) to a stock at 4% consistency for 15 minutes at pH 7, and then transferred to a plastic vessel where it is heated to 50°C in a water bath. Borax and sodium hydrosulphite (0.66% analytical grade borax, 2% sodium hydrosulphite) are then added.

The vessel is closed and left for 30 minutes at 50°C during which time it is agitated several times. After sheet formation and drying, loss of colour strength is determined by comparison with an untreated, dyed control.

Assessment of bleachability:

1 = not bleachable

5 = sample almost white - highly bleachable

## Backwater colouration

The dye applied at the 2% level on 1.5% consistency, is filtered through a fine strainer. The fibre-free filtrate is then compared with distilled water.

Backwater colouration is assessed against ISO 105-A03 grey scale:

1 = marked colouration

5 = colourless

## Lightfastness

Lightfastness (Xenotest) is tested on sized papers at 2% strength (or powder equivalent) in accordance with ISO 105-B02 (under normal conditions) and assessed against the blue scale which is exposed to light at the same time.

1 = poor lightfastness      8 = outstanding lightfastness

## Fastness to water and chemicals

A sample of the dyed paper is placed between two sheets of glass fibre paper, soaked in an aqueous solution containing the quantity of chemicals given below. The test sandwich is then placed between two sheets of glass and a weight of 1kg applied for 10 minutes. The staining of the blotters is assessed after air drying.

Solution: Deionised water

0.5% Sodium Carbonate

3% • Acetic Acid

40% Alcohol

Assessment is by comparison with the ISO 105-A03 grey scale.

1 = marked staining

5 = no staining

## Storage















Intrabond liquid dyes should be stored in a cool dry environment and protected from extreme hot or cold temperatures.

When not in use the containers should be kept sealed to prevent contamination from foreign substances.


















Exposure to freezing temperatures should be prevented, this may require the provision of a heated storage area in winter months.

If the dyes are accidentally frozen then they should be thawed slowly and stirred before use.



					Intrabond liquid Direct dyes									
	Yellow D-6G	Yellow D-BN	Yellow D-4RN	Orange D-2RFN		Scarlet D-BSC	Red D-3BF	Red D-B	Violet D-2B	Blue D-S	Blue D-BTG	Turquoise D-BRL	Turquoise D-BG	
Illustration														
Lightfastness	3-4	4	3	3		2	3	2-3	2-3	2-3	2-3	5	4	
Backwater colouration	4-5	4	4	4-5		5	4-5	3-4	5	5	4	4-5	4	
Water Fastness	5	5	5	5		5	4-5	4-5	4-5	5	5	5	5	
Acid Fastness	5	5	5	5		5	5	4-5	5	5	5	5	4	
Alkali Fastness	5	5	4-5	5		5	5	4-5	5	5	4-5	5	3	
Alcohol Fastness	4-5	4-5	4-5	4-5		4-5	4	3	3-4	5	4-5	5	3-4	
Reduction Bleachability	1-2	3	1	4		3	5	1-2	3-4	3-4	1-2	1-2	2-3	
Oxidation Bleachability	3	3-4	1	3		4	5	3-4	5	5	1-2	4	3-4	
Specific Gravity g/cm³	1.1	1.08	1.17	1.10		1.1	1.11	1.06	1.1	1.1	1.1	1.1	1.15	
Viscosity (Cps)	22	32	100	12		42	<100	5	36	31	7	12.5	97	
Freezing point °C	-3	-5	<-5	<-5		<-5	0	<-5	-12	-10	<-5	<-5	-5	
pH	9	8	8.1	8		8.5	9.0	8	9.8	7.6	12	10	4.3	

## Intrabond liquid Basic dyes

	Brown D-M	Brown D-MK	Brown D-MODS	Brown D-MR	Brown D-MC	Brown D-MAL	Black D-CN	Brown B-R		Brown B-TM	Brown B-GG	Golden Yellow B-GL	Yellow B-3G	Red B-GL	Blue B-RGL	Green B-G	Green B-4G
																	
	3	2-3	2	2	2-3	2	2	1		1	1	1	1	1-2	1	1	1
	3-4	3-4	4	4	4	5	4-5	5		5	5	5	5	3	4	3	3-4
	5	4-5	5	5	5	5	5	4		4	4	4-5	4-5	4	4	4-5	5
	5	5	5	5	5	5	5	4-5		4-5	4-5	4-5	4	3-4	3-4	3	2
	4-5	3	5	5	5	4-5	4-5	4		4	4	1	4-5	4	5	5	1
	4	4	5	5	5	4-5	3-4	3		3	3	3-4	3-4	3-4	3-4	3-4	3-4
	1	3	2	2	2	3-4	1-2	4		4	4	2	4	5	4	3	4
	1	3-4	3	3	3	4	4	2		2	2	2-3	3-4	1	2	1-2	1-2
	1.15	1.1	1.2	1.2	1.2	1.1	1.06	1.1		1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.12
	80	31	<100	<100	<100	100	55	200		200	200	250	30	10	25	42	27
	<-5	<-5	<-5	<-5	<-5	-7	-1	<-5		<-5	<-5	<-5	-16	-8	-8	-6	-12
	8.1	7.9	8.5	8.5	9.6	8.5	8.5	3.5		3.5	3.5	3.5	1.9	2.6	2.5	2.5	2.2