



**BETTER CHEMISTRY,
BETTER LIFE...**

**Manufacturer & Exporter
of Reactive Dyes**



Orcus 'VX' Series of Reactive Dyes

Our Vinyl Sulphone based Orcus 'VX' Series Reactive Dyes, being Spray Dried R/O products with minimal salt content, offer prudent solutions for dyeing of cellulosic textiles. The performance of the products usually match the specifications set by International Retailers and Buying Houses such as – Walmart, Gap, Adidas, Nike, Tommy Hilfiger, J.C. Penny, M & S, Inditex, H & M and so on.

Salient Features of Orcus 'VX' Reactive Dyes

- Highly compatible range over a wide spectrum of shades.
- Suitable for padding process due to their high solubility even in presence of alkali.
- Good substantivity in presence of salt and alkali, hence suitable for all conventional exhaust methods.
- Good leveling properties due to affinity on the lower side.
- Good all round fastness properties.
- Suitable for discharge and resist style of printing.
- Satisfies the requirements set by major ecological standards.

Exhaust Dyeing

The Dyeing Methods adopted for Orcus 'VX' Reactive Dyes depend exclusively on the type of substrate, shade and machinery available.

The starting dyebath pH is set between 5.5 and 6.5 by using adequate quantity of Acetic Acid.

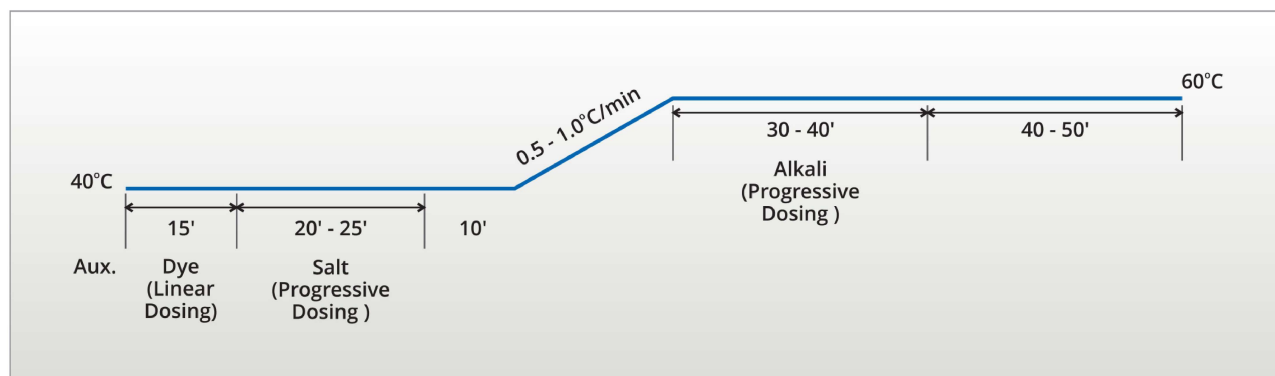
A general recipe for Dyebath Assistants during dyeing process with water of minimum hardness will be:

Acetic Acid	0.30 to 0.50 gpl
Sequestering Agent	0.50 to 1.00 gpl
Defoaming Agent	0.10 to 0.30 gpl
Lubricating Agent	0.25 to 0.40 gpl
Tri Sodium Phosphate	0.20 to 0.25 gpl

Dyeing Method

1) All-In-One Method:

This is a versatile method suitable for any cellulosic substrate.



Salt and Alkali Requirement & Fixation Time During Exhaust Dyeing:

Depth of Shade (% o.w.f.)		0.01 to 0.5	0.5 to 1.0	1.0 to 2.0	2.0 to 4.0	4.0 & Above
Salt (gpl)	Unmercerized Cotton	30	50	60	70	80
	Mercerized Cotton	20	40	45	50	60
Alkali (gpl)	Soda Ash	10	15	20	20	20
Fixation Time (Min.)		50	50	60	60	70

Washing Off Process of Orcus 'VX' Reactive Dyes During Exhaust Dyeing

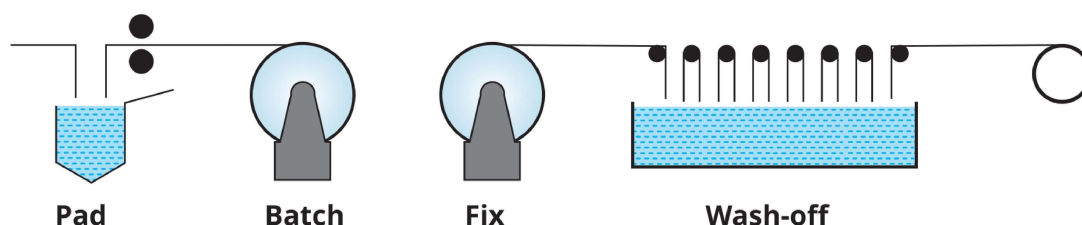
On completion of the Dyeing Cycle, washing off steps to be followed are as:

- Cold Wash with Overflow for 10 minutes.
- Hot Wash at 80°C for 10 minutes.
- Neutralization with Acetic Acid.
- Soaping with 1-2 gpl Non-Ionic Soaping Agent and 0.50 gpl of Sequestering Agent at 90°C for 10 minutes.
- Hot Wash for 10 minutes at 80°C.
- Cold Rinse.
- For maximum wet fastness properties for dark to extra dark shades, additional soaping and hot wash may be repeated before final cold rinse.
- Hot or cold rinse is necessary till final clear solution is obtained.

Cold Pad Batch System

Introduction

- Cold Pad Batch Dyeing System offers the most economical and most convenient method of applying Orcus 'VX' Reactive Dyes with high color yield especially for woven fabric.
- Energy and water consumptions are the lowest and salt addition is totally made redundant, thus rendering it more eco-friendly.
- Primarily applied for woven fabrics but process can be extended to knits as well with specialized features in the pad box and the guiding systems.
- With least inputs in terms of capital outlay, energy, water, manpower and Right First Time(RFT) capabilities, this method is most cost effective option for dyeing substrates that are amenable to padding operation.



Application Procedure

Sodium Silicate Method

Description

This is the most commonly adopted method by the Process Houses for applying Orcus 'VX' Reactive Dyes. The general approach is to apply the dye at neutral pH and after distribution of the dye on the substrate, the pH is raised for fixation.

Economics

The following advantages are achievable:

- Increase the stability of padding liquor by preventing hydrolysis of the dyestuffs in alkaline atmosphere prior to fixation.
- Any antagonistic effect due to variation in the concentration of alkali in the padding liquor is taken care of by Sodium Silicate.
- Assist in avoiding selvedge carbonization due to uneven selvedge edges resulting due to improper weaving and subsequent overlapping of edges on batching.
- Presence of Sodium Silicate provides better fixation yield thereby resulting in better depth of shade.

Padding Liquor Recipe

(A) Dyestuff Solution

COMPOSITION OF DYESTUFF SOLUTION	QUANTITY (GPL)
Orcus 'VX' Reactive Dye	X GPL
Wetting-cum-Penetrating Agent	1-2 GPL
Antimigration Agent	2-4 GPL
Sequestering-cum-Dispersing Agent	1-2 GPL
Urea	30-40 GPL (Upto 20 GPL Shades) 50-80 GPL (Above 20 GPL Shade)

(B) Silicate / Caustic Solution

Amount of Orcus 'VX' Reactive Dyes				
Na ₂ SiO ₃	<20 gpl	20gpl - 40 gpl	40 gpl - 70 gpl	>70 gpl
(48 - 50° Be)	Amount of Caustic Soda Solution 35.5% w/w (38° Be) in cc/l required in addition to Sodium Silicate			
100 gpl	15 cc/l	20 cc/l	25 cc/l	30 cc/l

Notes:

- Only necessary amount of boiling water is used for dissolution of dyestuff. Further dilution is done by cold water.
- Urea is sprinkled in solid form into the cooled liquor and dissolved by stirring. Temperature of dye solution should not be above 40°C at the time of adding urea.
- A/B ratio should be 4:1 in the padding bath and to be added through dosage pump.

Padding

- Uniformly cooled fabric is padded at about 25-30°C.
- Padding trough should be of smaller capacity of 15-25 litres due to high fabric speed and frequent replenishment.
- Fabric pick-up should be about 60-70% for cotton woven and 90-100% for viscose fabrics.
- Quantity of ready-to-pad fabric and speed of the Padding Mangle to be kept at a higher speed, so that Orcus 'VX' Reactive Dye Solution is used up within 15-20 minutes.

Fixation

- On padding, fabric roll is covered with plastic sheet to protect the padded goods from partial drying and is made to rotate at around 5-10 rpm.
- Fixation time is 8-10 hours, however, for shades like-Turquoise the recommended time is 16-18 hours.

Washing-Off

- Can be carried out on any suitable machine, say, Jigger, Winch or Open-width Soaper.
- For efficient washing off of dyed fabric, 7-8 chamber washing tank is suggestive. In the first 2-3 chambers, excess amount of water is used, to remove Silicate and to drop pH to 8.0-8.5. Temperature in these tanks should not be above 50°C.
- From 4th to 6th chamber, temperature is maintained at 98°C with soaping agent being added in 4th chamber.
- Temperature can be dropped down to 70°C in 7th Chamber and 40°C in the last chamber.

White Discharge Printing

Majority of the Orcus 'VX' Reactive Dyes exhibit excellent discharge effects. The pre-dyed fabric to be printed should be treated with mild oxidizing agent (such as Resist Salt) containing Lactic or Glycolic Acid before discharge printing. This is done to protect the unprinted portion of the ground shade from alkali and reducing agents of print paste and steaming.

Print Paste Recipe

Rangolite C	200 Parts
Titanium Dioxide(1:1)	100 Parts
Discharge Salt	80 Parts
Thickener	400 Parts
Sodium Carbonate	100 Parts
Potassium Carbonate	80 Parts
Water	40 Parts
Bulk To	1000 Parts

- Print the dyed fabric and dry at 90 °C.
- Steaming done for 5-10 minutes in a Continuous Ager or 15-20 minutes in a Star Ager.
- Fabric rinsed twice in cold water and then rinsed hot at 40 °C.
- Washing-off with neutral soap at 90 °C, followed by hot and cold rinse.

White Resist Printing

The Resist style of printing can be used for those type of Orcus 'VX' Reactive Dyes which cannot be discharged properly due to presence of highly stable chemical moiety. The resisting agent is printed on the undyed fabric and effectively prevents fixation or development of ground color, which is subsequently applied by padding process.

The printing paste used for Resist Printing is highly acidic. Accordingly, acid resistant thickener, such as British Gum is usually recommended in the print paste.

Print Paste Recipe

Titanium Dioxide(1:1)	200 Parts
Citric Acid	100 Parts
Optical Brightener(Acid Resistant)	10 Parts
Water	200 Parts
Thickener Balance to Bulk	1000 Parts



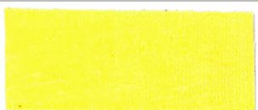











Print, dry and nip pad through the following dye solution at room temperature (25-30 °C).

Orcus 'VX' Reactive Dye	X Parts
Boiling Water	20 Parts
Urea	100 Parts
Resist Salt	10 Parts
Sodium Bicarbonate(Just before Padding)	60 Parts
Water	Y Parts
Bulk To	1000 Parts

- After nip padding, fabric is dried and steamed at atmospheric pressure 5-10 minutes in a Continuous Ager or 15-20 minutes in a Star Ager.
- Fabric cold rinsed with overflow and then rinsed hot at 40 °C.
- Washing-off with neutral soap at 90 °C, followed by hot and cold rinse.

Important:

The following supersedes the Buyer's documents. This is intended to service as non-binding guidelines. Seller makes no representation or warranty, expressed or implied, including the fitness for a particular purpose. Data and results are based on controlled lab conditions and must be confirmed by Buyer by testing for the intended conditions of use.

			Solubility at 30°C		Applications	
			Salt-Free Neutral Water	30 gpl Common Salt	Exhaust	Pad-Batch
ORCUS 'VX' REACTIVE DYES						
1%	4%	Name of Shade				
		ORCUS YELLOW VX7G	60	50	R	R
		ORCUS YELLOW VXG	125	100	LR	R
		ORCUS YELLOW VXGR	150	100	R	R
		ORCUS GOLDEN VXR	50	15	R	R
		ORCUS YELLOW VXNL	30	10	R	R
		ORCUS ORANGE VX2R	150	120	R	R
		ORCUS ORANGE VX3R	80	50	R	R

Abbreviations : H = High M = Medium L = Low







Dischargeability (Neutral Discharge)	Substantivity	FASTNESS PROPERTIES											
		LIGHT		Chlorinated Water (20 ppm Active Chlorine)	WASHING			CROCKING		PERSPIRATION (ISO 105-E04)			
		AATCC-16E / 20AFU		ISO 105-E03	ISO 105-C06-C2S, @60°C			ISO 105-X12		Alkaline		Acidic	
		1/1 S.D.	1/6 S.D.	Shade Change	Shade Change	Staining Cotton	Staining Nylon	Dry	Wet	Shade Change	Staining Cotton	Shade Change	Staining Cotton
NR	M	4-5	3-4	3-4	4-5	4-5	4-5	4-5	4	4-5	4-5	4-5	4-5
R	L	5	4	2-3	4-5	4-5	4-5	4-5	4	4	5	5	5
R	H	4-5	3-4	3-4	4-5	4-5	4-5	4	4	5	5	5	4-5
R	H	4-5	3-4	3	4-5	4-5	4-5	4-5	4	5	4-5	5	4-5
R	H	4-5	3-4	4	4-5	4-5	4-5	4-5	3-4	4-5	4-5	4-5	4-5
NR	H	3-4	3	4	4-5	4-5	4	4-5	4	5	5	5	5
R	H	4	3	4	4-5	4-5	4-5	4-5	4	5	5	5	5

Abbreviations : R = Recommended NR = Not Recommended

Pattern Illustration : On R.F.D. Cotton by Exhaust Process

			Solubility at 30°C		Applications	
			Salt-Free Neutral Water	30 gpl Common Salt	Exhaust	Pad-Batch
ORCUS 'VX' REACTIVE DYES						
1%	4%	Name of Shade				
		ORCUS RED VXB	100	75	R	R
		ORCUS RED VXGF	150	130	R	R
		ORCUS RED VXR	125	60	R	R
		ORCUS VIOLET VXR	80	55	R	R
		ORCUS BLUE VX3R	100	80	R	R
		ORCUS BLUE VXB	120	90	R	R
		ORCUS TURQUOISE VX2G	100	80	R	R

Dischargeability (Neutral Discharge)	Substantivity	FASTNESS PROPERTIES											
		LIGHT		Chlorinated Water (20 ppm Active Chlorine)	WASHING			CROCKING		PERSPIRATION (ISO 105-E04)			
		AATCC-16E / 20AFU		ISO 105-E03	ISO 105-C06-C2S, @60°C			ISO 105-X12		Alkaline		Acidic	
1/1 S.D.	1/6 S.D.	Shade Change	Shade Change	Staining Cotton	Staining Nylon	Dry	Wet	Shade Change	Staining Cotton	Shade Change	Staining Cotton		
R	H	4	3	4	4-5	3-4	4-5	4-5	3-4	4-5	4	5	4
NR	H	3-4	3	3	4-5	4	4-5	4-5	3-4	5	5	5	5
NR	H	4	3	3-4	4-5	4-5	4-5	4-5	4	5	4-5	5	4-5
NR	M	4-5	3-4	4	4-5	4-5	4-5	4-5	4	4-5	5	4-5	5
R	H	4-5	3-4	4	4-5	4	4-5	4-5	3-4	3-4	4-5	4	4-5
R	H	4-5	4	4	4-5	4-5	4-5	4-5	3-4	3-4	5	4	5
NR	H	4	3-4	4	4-5	3	3-4	4-5	3	5	4-5	5	4-5

			Solubility at 30°C		Applications	
			Salt-Free Neutral Water	30 gpl Common Salt	Exhaust	Pad-Batch
ORCUS 'VX' REACTIVE DYES						
1%	4%	Name of Shade				
		ORCUS NAVY BLUE VXGG	150	125	R	R
		ORCUS NAVY VXB	150	135	R	R
		ORCUS BLACK VXRL	125	100	R	R

Abbreviations : R = Recommended NR = Not Recommended

Dischargeability (Neutral Discharge)	Substantivity	FASTNESS PROPERTIES											
		LIGHT		Chlorinated Water (20 ppm Active Chlorine)	WASHING			CROCKING		PERSPIRATION (ISO 105-E04)			
		AATCC-16E / 20AFU		ISO 105-E03	ISO 105-C06-C2S, @60°C			ISO 105-X12		Alkaline		Acidic	
		1/1 S.D.	1/6 S.D.	Shade Change	Shade Change	Staining Cotton	Staining Nylon	Dry	Wet	Shade Change	Staining Cotton	Shade Change	Staining Cotton
R	H	3	2-3	4	4-5	4	4-5	4-5	3-4	5	5	5	5
R	H	3-4	2	2-3	4-5	4	4-5	4-5	2-3	5	4	5	4
NR	H	4	3	2-3	4-5	3-4	4-5	4-5	3-4	3-4	5	3-4	5

Abbreviations : H = High M = Medium L = Low

Pattern Illustration : On R.F.D. Cotton by Exhaust Process



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