

ModerTol[®]

Liquid dyestuffs for
Wood Coating System



MODERN DYESTUFFS & PIGMENTS





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324 Soi Lardpraw 94, Lardpraw Road,
Wangthonglang Bangkok, 10310, Thailand
Phone: 66-2-5303890-5 Fax: 66-2-5392488

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Illustration on Wood

	2%	5%
Lemon Yellow FW		
Yellow FW		
Orange FW		
Red FW		
Bordeaux FW		
Blue FW		
Brown FW		
Black FW		

Remark

The concentration of dyes 2% , 5 % in solvent ME and ET spray on Veneer wood.

The solvent ME and ET was special used code for Modern dyestuffs & pigment Co.,Ltd. only



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General

ModerTol® FW are a range of liquid dyes (mainly metal complex) which are selected for their high color strength and brilliance. They are universally compatible with solve borne, water borne and 100% UV system.








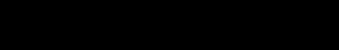
Their characteristics are:

- good light fastness
- good over lacquering resistance
- good compatibility with a wide variety of solvents
- good storage stability
- low viscosity and fast drying.

ModerTol® FW liquid dyes are primarily for interior wood stains. Their transparency is highlighting the wood grain to provide an esthetical dimension. Furthermore they can be used in tinted clear coats for brilliant and intense tones for other deco and industrial application.

Product Range

The chemical character of ModerTol® FW liquid dyes range are :

ModerTol® FW		Chemical Character
	Lemon Yellow FW	24 Azo free
	Yellow FW	1:2 Co
	Orange FW	1:2 Cr
	Red FW	1:2 Cr
	Bordeaux FW	1:2 Cr
	Blue FW	Anthraquinone
	Brown FW	1:2 Cr
	Black FW	1:2 Cr



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Properties

The main solvent, solid dye content, density and PH value of ModerTol® FW liquid dyes range are

Top Coat	Main solvent	Solids%	Density (23°C)g/cm³	pH
Lemon Yellow FW	ME	25~30	1.04	4.0
Yellow FW	ME	25~30	1.04	5.0
Orange FW	ME	25~30	1.02	4.5
Red FW	ME	25~30	1.03	4.0
Bordeaux FW	ME	25~30	1.02	4.0
Blue FW	ME	25~30	1.00	4.0
Brown FW	ET	30~35	1.03	6.0
Black FW	ME	25~30	1.06	4.5

- The solvent ME and ET was special used code for modern dyestuffs & pigment Co.,Ltd. Only
- Concentration is a standard value and can vary $\pm 5\%$ since the product is controlled for color strength
- Density measured according EN ISO 2811
- pH value of 3%(delivery form) in water borne wood stains according DIN ISO 976

Light Fastness

ModerTol® FW liquid dyes are tested in water borne wood stain at 3% delivery from with/ without the addition of light stabilizers in the wood stain and/or in the top coat. Results after 100h artificial light fastness test according DIN EN ISO 11341

The use of light stabilizers obviously improves the color stability of ModerTol® FW liquid dyes on wood. The light stabilizers can be incorporated into wood stains or split between wood stain and top coat. Eg: Ciba product LIGNOSTAB 1198

Wood stain	Non-stabilizer	+1% Lignin stabilizer	+1% Lignin stabilizer
Top Coat	No Top Coat	Non-stabilizer	+5% Light stabilizer
Lemon Yellow FW	4-5	6	8
Yellow FW	6-7	7D	8
Orange FW	5-6	7D	8
Red FW	5-6	6-7	8
Bordeaux FW	5	6	8
Blue FW	4-5	6	8
Brown FW	6-7	7-8	8
Black FW	6-7	7-8	8

- Standard Wool Blue scale ISO 105-B01C
- Lignin stabilizer % Delivery form on total stain
- Light stabilizer % delivery form on total stain

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Features **Different between Water-based and Solvent based wood coating system as bellowed:**

Features	Pure Water-based system	Water & Solvent based system	Solvent based (PU& NC) system
Trend	Now a day & Future	Now a day	Old
Colorant Type	Acid dye	Solvent Acid dye	Pigment or Solvent dye
Environment Friendly	Yes	No	No
Heavy metal contain Rohs Standard	Pass	Fail	Fail
Drying time	Hand touch 20min Exactly drying 1 hr	Hand touch 10min Exactly drying 2 hr	Hand touch 30min Exactly drying 12 hr
Color Change	stable	Stable to easy	easy
Dilute	Pure-Water	Water or Solvent	Benzene
Flammable	No	Yes (Dilute Solvent)	Yes
Reusable	Yes	Yes	Not easy
Amount usage	Save 30%	Standard	Standard
Weathering	Better	OK	Bad



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Formulation guidelines

- ModerTol® liquid dyes range find universal application in both solvent borne and water borne wood stains
- Recommended concentrations are 0.1% to 3% depending on depth of shade required.
- ModerTol® liquid dyes formulations can be used in wood stain direct on wood highlighting the wood grain or in tinted clear coats for brilliant and intense tones
- ModerTol® liquid dyes can be used in combinations with effect pigments to create new styling on wood

Note: prior use compatibility test are always recommended. For further advice concerning specific formulations and applications, please contact your Local EAC sales representative or technical service specialist for assistance

Water borne and solvent borne starting point formulation for ModerTol® liquid dyes are described

Top Coat	Water borne stain	Solvent borne stain
ModerTol® liquid dyes	3	3
Water, Deionised	87	
ME or ET or Alcohol solvent	10	40
Ethanol		40
1-propanol		17
Total	100	100

Guide formulation for color shade with ModerTol® liquid dyes

ModerTol®			
	Mahogany Dark	Walnut Brown	American Walnut
Yellow FW	---	1.00	1.45
Orange FW	1.17	---	---
Red FW	1.3		0.55
Brown FW	---	2.00	1.00
Black FW	0.53	---	---
Solvent/ Water	9700	97.00	97.00
Total	100	100	100

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Guide formulation for Popular Color Shade

ModerTol®			
	Mahogany Dark	Walnut Brown	American Walnut
Yellow FW	---	1.00	1.45
Orange FW	1.17	---	---
Red FW	1.3	---	0.55
Brown FW	---	2.00	1.00
Black FW	0.53	---	---
Solvent/ Water	97.00	97.00	97.00
Total	100	100	100

ModerTol®			
	Red Brown	Dark Brown	Wenge Black
Yellow FW	1.65	1.25	1.25
Orange FW	---	---	---
Red FW	0.85	---	0.25
Brown FW	---	1.25	3.50
Black FW	2.50	2.50	---
Solvent/ Water	95.00	95.00	95.00
Total	100	100	100



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Temperature stability

ModerTol ® FW liquid dyes exhibit good storage stability at temperatures above 0°C-40°C.

pH stability

ModerTol ® FW liquid dyes are tested at 3% delivery form in water borne wood stain at adjust pH value, and store for 30 days at room temperature. The pH value has a strong influence on the color and stability of dyes and should be therefore controlled before application.

Over- lacquering resistance

ModerTol ® FW liquid dyes are tested at 3% delivery form in water borne wood stain and over- lacquered with water borne transparent top coat. Bleeding of the dye into the top coating is assessed using ISO grey scale.

Heat stability

ModerTol ® FW liquid dyes are tested in water borne wood stain at 3% delivery from with/ without the addition of light stabilizers in the wood stain and/or in the top coat. Results after 100h artificial light fastness test according DIN EN ISO 11341

The use of light stabilizers obviously improves the color stability of ModerTol ® FW liquid dyes on wood . The light stabilizers can be incorporated into wood stains or split between wood stain and top coat.

ModerTol ®	pH 4-6	pH7-9	pH10-12	Over-lacquering resistance	Heat stability
Lemon Yellow FW	●	●	●	3-4	160°C
Yellow FW	●	●	●	4-4	200°C
Orange FW	●	●	●	4	180°C
Red FW	●	●	●	4	160°C
Bordeaux FW	●	●	●	4-5	200°C
Blue FW	●	●	●	5	160°C
Brown FW	●	●	●	5	240°C
Black FW	●	●	●	4	240°C

1. ● = stable solution
2. Ph stability measured according DIN ISO 976
3. Over-lacquering resistance determined according EN ISO 4618, grey scale rating according ISO 105-A02
4. Heat stability determined according EN ISO 12944-5



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Additional Information

Safety and Handling

Handle and open container with care. Avoid vapor formation and ignition sources. Ensure good local exhaust ventilation. Do not eat, drink or smoke at the work place, take precautionary measures against static discharges as described on supplied canister.

Storage

Keep away from food and drink. Keep containers tightly closed in a dry, cool and well ventilated place. Protect from heat and sources of ignitions. The goods should be stored in accordance with local regulations for storage of flammable liquids.

Packaging

ModerTol[®] liquid dyes formulations are offered in 1 ton or 30kg standard pack size unit , standard samples size is 50ml or 100ml .

Trademark

ModerTol[®] is a registered trademark.





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Miscibility

Solvent Miscibility of ModerTol® liquid dyes was tested for stains containing 3% of Modern dye in the test solvent. The condition of the solution immediately after 7 days storage at room temperature was evaluated.

- ModerTol® liquid dyes show unlimited compatibility with alcohols, glycols and glycol ethers.
- For use water, ketones and esters, 10% to 20 % alcohols solvent, ME & ET is recommended.
- For use with aromatic or aliphatic solvents, ME or ET must be present in higher concentrations than aromatic or aliphatic. Ideally the active solvent should be twice the amount of aromatic or aliphatic.

		S* : water 10:90	Ethanol : water 30:70	Ethanol	1-Butanol	1-Propanol	Butyl glycol ether	Acetone	S* : Acetone 10:90	S* : Acetone 25:75	S* : Acetone 50:50	MIBK	Ethyl acetate	S* : Ethyl acetate 20:80	Butyl acetate	S* : Butyl 20 :80	S* : Xylene 20:80	S* : Xylene 50:50
Name	Storage Time																	
Lemon Yellow FW	Initial	●	○	○	○	○	○	-	-	○	○	-	-	○	○	○	○	○
	30 days	●	●	◇	-	-	○	-	-	◇	◇	-	-	-	-	-	-	○
Yellow FW	Initial	○	●	●	○	◇	○	○	○	○	○	◇	-	◇	-	○	-	○
	30 days	○	●	◇	○	-	◇	-	-	◇	◇	-	-	-	-	◇	-	◇
Orange FW	Initial	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○
	30 days	●	●	●	●	●	●	-	-	○	○	-	○	-	○	-	○	○
Red FW	Initial	●	●	○	○	○	○	○	○	○	○	-	-	○	◇	○	○	○
	30 days	●	●	○	○	◇	○	◇	◇	◇	◇	-	-	◇	-	◇	◇	◇
Bordeaux FW	Initial	●	●	●	●	●	●	○	○	○	○	○	-	○	○	○	○	○
	30 days	●	●	●	●	●	●	-	-	○	○	-	○	-	○	-	-	-
Blue FW	Initial	●	●	●	●	●	●	●	●	●	●	-	-	○	-	○	○	○
	30 days	●	●	○	-	◇	●	◇	◇	○	○	-	-	○	-	◇	◇	◇
Brown FW	Initial	○	●	●	-	-	●	○	○	●	●	○	-	○	-	○	○	○
	30 days	○	○	○	-	-	●	○	○	○	○	○	-	○	-	○	○	○
Black FW	Initial	●	●	●	-	-	○	○	○	○	◇	-	-	◇	-	◇	-	○
	30 days	●	◇	○	-	-	◇	-	○	○	◇	-	-	-	-	◇	-	○

S* = ME and ET was special used code for Modern dyestuffs & pigment Co.,Ltd. Only

● = Stable solution,

○ = Stable solution with very slight seeding noticeable,

◇ = Solution with some precipitation or seeding ,

- = Seeding or separation of the mixture

Note: the results of our tests are based on the use of industrial grade solvents. The use of analytical grade containing water or other impurities could give different results.

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Important Notice

Important; the following supersedes Buyer's documents. Seller makes no representation or warranty, express or implied, including of merchantability or fitness for a particular purpose. No statements herein are to be constructed as inducements to infringe any relevant patent. Under no circumstances shall Seller be liable for incidental, consequential or indirect damages for alleged negligence breach of warranty, strict liability, tort or contract arising in connection with the product. Buyer's sole remedy and Seller's sole liability for any claims shall be buyer's purchase price, data and result are based on controlled or lab work and must confirmed by Buyer by testing for its intended conditions of use. The product has not been tested for, and is therefore not recommended for , uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended.

Contact Us

Jeff Chiang

Special Colorant & Chemicals Department

Modern Dyestuffs & Pigments Co., Ltd.

E-mail: jeff@modern.co.th



www.modern.co.th