

## KD SERIES LEAD FREE INGLAZE COLOURS FOR PORCELAIN

The Colour Chart shows an approximate impression of the basic colours for a first selection of colours. For exact reproduction of a colour tone it is absolutely necessary to test a sample under original conditions.



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### TECHNICAL DATA SHEET AND USAGE

The KD Series provide a compact range of lead free colours for Inglaze application. The colours can also be used under Low Solubility Glazes and provide a compact intense range of colours designed for maximum miscibility.

#### MAIN PROPERTIES

##### High color intensity

The highest intensity is obtained by printing the colours without flux addition. Gloss and intensity can be fine-tuned by adding a higher or lower amount of flux.

##### Excellent particle size powder distribution

The particle size of the colours will vary depending on the composition with trace residue on a 120 s sieve.

##### Very good resistance

Mechanical and chemical resistance is generally determined by the glaze used.

##### Low thermal expansion coefficient

The Coefficient of thermal expansion is different depending on the composition and it is suitable for Porcelain Technology.

#### MISCIBILITY AND COMPATIBILITY

All colours are designed for maximum intermixing and the use of different Fluxes and White is suitable to create pleasing pastel shades.

For dilution of colours, in order from highest to lowest melting, we can use the fluxes below:

KD-10012 TRANSPARENT SOFT FLUX  
KD-10013 TRANSPARENT FLUX

For create pastel shades, we can use:

KD-10005 WHITE

#### APPLICATION

##### DIRECT SCREEN PRINTING AND DECALS

For screen printing directly we recommend using either a 73T or 90T Mesh or 230/200 GP Stainless Steel Mesh

120T can be used for most KD colours to achieve halftone effects.

To avoid cracking, chipping, and flaking issues it is recommended not to exceed 25 microns thickness equivalent to 62T or double printing using a 73T such an excessive colour deposit can also be detrimental to durability.

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As a guide, recommended mixing ratios and mediums below:

Reference	Description	Parts medium per 10 parts of colour	Water Media	Oil-based Media
L427	WATER MISCIBLE MEDIUM	3,5	✓	
W172	WATERBASED PRINT MEDIUM	3,5	✓	
M286D	SEMI-THIXO S/PRINT MEDIUM	6		✓
M286T	THIXOTROPIC S/P MEDIUM	8		✓
M51D	SCREEN TRANSFER MEDIUM	5		✓
M6	DIRECT PRINT MEDIUM	3,5		✓

### HANDPAINTING-MACHINE BANDING AND LINING & SPRAYING OR AEROGRAPHING

The colours can be supplied as dry powder for painting directly onto glazed.

The colours can also be supplied with or in the following mediums:

Reference	Description	Parts medium per 10 parts of colour	Water Media	Oil-based Media
W108	WATERBASED HAND PAINT MEDIUM	6	✓	
W157/B	WATERBASED HAND PAINT MEDIUM	8,5	✓	
M162N	GELLED BANDING MEDIUM	6		✓
M9	HAND PAINTING MEDIUM	3,5		✓

### **FIRING RECOMMENDATIONS**

Dependant on the substrate, glaze type and application we generally recommend the colours are fired between 1160-1240°C. Firing stability is significantly influenced by firing cycle times and kiln density as well as by the types of substrates, glaze, and thickness of application.

As a guide:

Hard Paste Porcelain	1180 - 1250 Celsius degrees
Soft Paste Porcelain	1160 - 1230 Celsius degrees

Conventional cycle: 1180 Celsius degrees/4-4,5h/ 20' soak

We recommend testing under the customers firing own conditions.

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### ACID AND ALKALI RESISTANCE

The chemical resistance of the fired colour layers is influenced by the colour deposit, the firing conditions, and the glaze.














### METAL RELEASE CHARACTERISTICS

Every effort is made to make these colours technically lead free, however, lead residues may be analytically detectable due to production processes but are on the order of less than 0.2% lead and 0.05% cadmium, respectively, under normal application conditions and optimal firing.

Metal release conditions can be influenced by deposit weight, substrate glaze, firing cycle, etc. and, in general, the higher the cycle temperatures, the better metal release and greater durability will be obtained.

The solubility of some particular colours can affect the metal release in the case of cadmium colors, in particular KD-10007 and KD-8219.

### REFERENCES

	Colour	Reference		Colour Composition	Pantone
Main Group:		KD-10005	White	Zr-Si	
		KD-10001	Green	Cr-Si-Al	357 C
		KD-10002	Strong Yellow	Pr-Zr-Si	101 C
		KD-10003	Golden Brown	Cr-Fe-Zn-Al	174 C
		KD-10004	Reddish Brown	Cr-Fe-Zn	4102 C
		KD-10006	Turquoise	V-Zr-Si	7688 C
		KD-10007	Red	Cd-S-Se-Zr-Si	2348 C
		KD-10008	Royal Blue	Co-Si	2118 C
		KD-10009	Beige	Fe-Pr-Zr-Si-Cr-Fe-Zn-Al	2429 C
		KD-10010	Yellow	Pr-Zr-Si	100 C
		KD-7661/B	Black	Cr-Fe-Co-Ni-Zn	Black C
		KD-7662/B	Navy Blue	Co-Si	3584 C
		KD-8219	Apple Grey	V-Pr-Cd-S-Se-Zr-Si	5655 C
		KD-10012	Transparent Soft Flux	-	
		KD-10013	Transparent Flux	-	

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