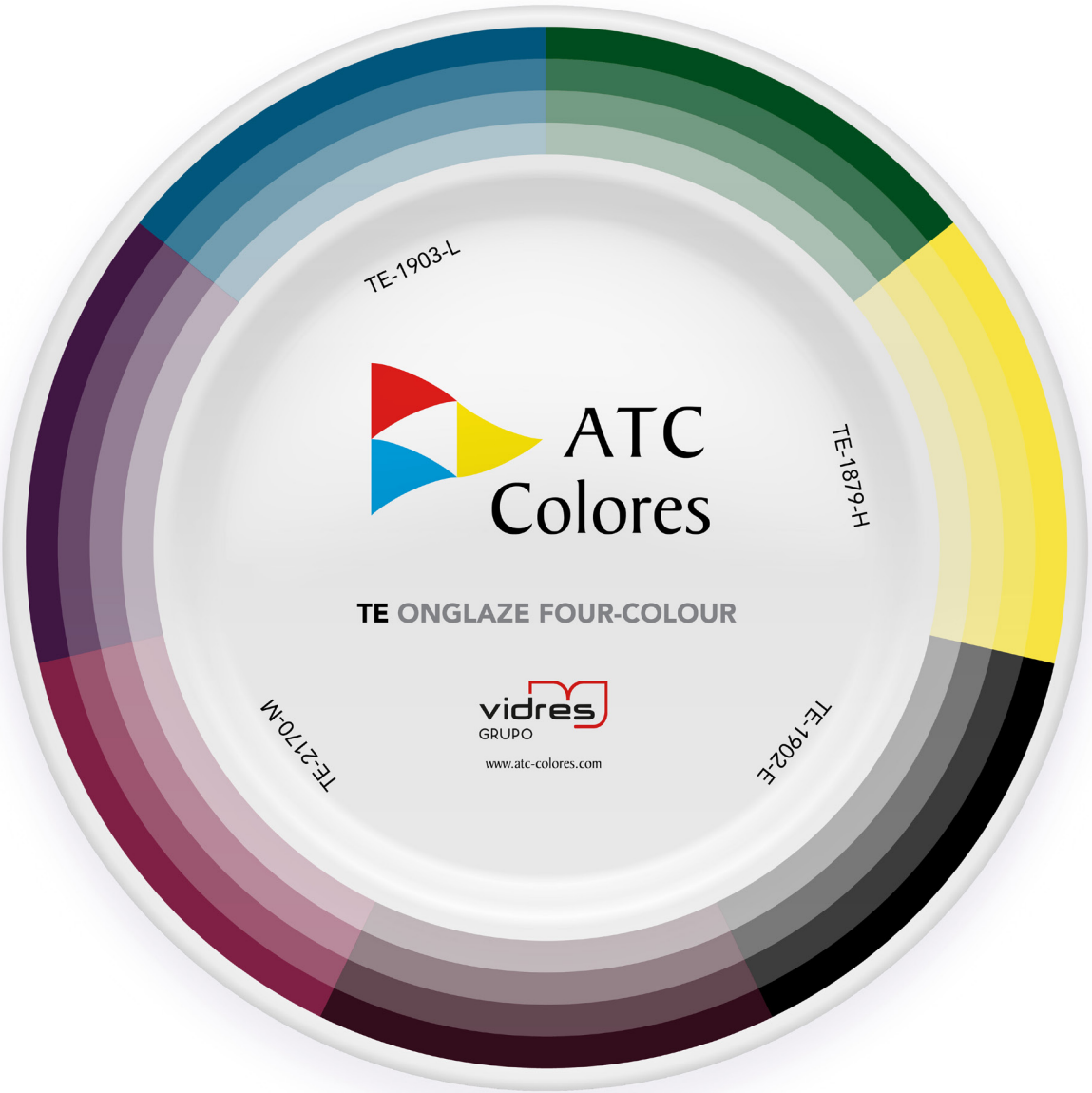
TE SERIES ONGLAZE FOUR COLOUR LEAD CONTAINING FOR TABLEWARE, EARTHENWARE, STONEWARE, PORCELAIN, BONE CHINA & TILE

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.



www.atc-colores.com
Carretera Villarreal, km 55
12200 Onda, (Castellón) SPAIN
Telf: +34/964 60 11 00
Fax: +34/964 60 05 43

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TECHNICAL DATA SHEET AND USAGE

The TE Serie are only four colours to achieve full-color decoration for Onglaze or Third Fire application .The colours can be used on Lead Free substrates and glazes providing a range of colours designed for maximum miscibility and optimal metal release when color detail is not requiered.

MAIN PROPERTIES

High color intensity

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

Excellent particle size powder distribution

The particle size of the colors will vary depending on the composition, in this series the Typical Diameter particle D50=3-5 microns and D90=15-20 microns with trace residue on a 120 s sieve.

Very good resistance

Mechanical durability is widely resistant showing good resistance, however, it is necessary for users to determine metal release and durability, according to their own production conditions.

Low thermal expansion coefficient

The Coefficient of thermal expansion is 75-78 x 10^{-7}·1/K (20 to 400°C) and it is suitable for different materials.

MISCIBILITY AND COMPATIBILITY

All colours are designed for maximum intermixing.

APPLICATION

DIRECT SCREEN PRINTING AND DECALS

For screen printing directly or for decal transfers a 120T - 73T polyester mesh can be used or 230/200/300 GP Stainless Steel Mesh.

On substrate such as hard and soft paste porcelain with a lower co-efficient of thermal expansion the recommended permitted layer thickness should not exceed 20 microns in order to avoid cracking or flaking of the enamels and must be observed where several layers are are built up or applied or one thick layer, customers must assess suitability including re-fired pieces, thicker layers are possible on vitreous bodies, Bone China etc

TE Colours can be used on Lead Free Glazes but this dynamic might increase metal release so it is necessary for customers to determine the outcome under there own conditions.

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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 colors can supplied as dry powder for painting directly onto glazed ware and also in the following mediums:

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

FIRING RECOMMENDATIONS

For cycles of 4 hours or more the following temperatures are recommended:

Hard Paste Porcelain	800 - 850 degrees
Soft Paste Porcelain	790 - 840 degrees
Vitreous Tableware	780 - 820 degrees
Bone China	780 - 820 degrees
Earthenware/Tiles	760 - 850 degrees

Fast firing and shorter cycles are possible:

850-880 degrees/60-90 min

Firing affect metal release and durability so it is best determined depending on cycle profile.

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ACID AND ALKALI RESISTANCE

The chemical resistance of the fired color layers is influenced by the color deposit, the firing conditions and the glaze. The colors could show a very slight visible attack with 4%acetic acid solution (22+-2°C, 24h) as well as with 5% sodium carbonate solution (60+-2°C, 32h). We recommend carrying out tests under industrial conditions.

METAL RELEASE CHARACTERISTICS

Every effort is made to manufactured these colors with the lowest metal release possible, there are in the order of tipically less than 0.3% Lead and 0.03% Cadmium respectively under normal application conditions and optimal firing and experience show results well below current permissible limits for tableware.

Metal release conditions can be influenced by deposit weight, glaze composition, firing conditions (firing cycle and kiln atmosphere), etc. and, in general, the higher the cycle temperatures, the better metal release and greater durability will be obtained. Under some conditions, note that the lining of kilns previously used to fire Low-Sol or Lead products is known to release volatile metals detectable in the test.

REFERENCES

	Colour	Reference		Colour Composition	Pantone
Main Group:		TE-1902-E	Negro	Cr-Fe-Co	Black C
		TE-1879-H	Amarillo	Pb-Sb	106 C
		TE-1903-L	Cyan	Co-Cr-Al-Zn	308 C
		TE-2170-M	Magenta	Sn-Al-Au	216 C

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