

Technical Information

DF40

Onglaze and Inglaze Relief Colours for Porcelain, Bone China, Vitreous China, Earthenware and Tiles

In this Technical Information Ferro presents the relief colours. With these colours, thickly printed reliefs on porcelain, bone china, vitreous china, earthenware and tiles may be achieved.

All mentioned relief colours have a glossy surface after firing.

Screen Printing

We recommend polyester screens with 24-77 threads/cm.

In combination with other decorating colours, interesting effects can be obtained. If for example a coloured underlayer (e.g. printed with Series 64 colours) is overprinted with the relief colour 10 5008, a transparent relief layer is formed on top of the coloured decoration.

Alternatively, the onglaze relief colours can also be mixed with decorating colours. An addition of up to 10% decorating colour to transparent relief fluxes creates brilliant colour reliefs. If a white relief colour is used, the resulting reliefs have a pastel shade.

For all standard methods, Ferro offers suitable media and covercoats. Further detailed technical information can be found in our **CerDePrint Media Guide**.

Storage

The colours should be stored in a dry place.

Opened containers should be closed carefully. To ensure that the colours have not absorbed any humidity, we recommend drying the colour powder at approx. 130 °C prior to mixing.

Firing Conditions

The firing ranges for the different substrates are listed in the following table 1.

Substrate	Onglaze	Inglaze
Porcelain	820-880 °C	1180-1220 °C
Bone China	750-880 °C	950-1050 °C
Vitreous China	750-850 °C	950-1050 °C
Earthenware	650-740 °C	950-1050 °C
Tiles	800-880 °C	950-1050 °C

The optimum firing result depends on the firing temperature, on the total firing time, the soak time and not least on the properties of the glaze. To achieve an optimized firing result, we therefore recommend the user to check under his own individual conditions.

Heavy Metal Release

Correctly processed, decorations produced with the mentioned onglaze and inglaze colours reach lead release values well under the limits of DIN 51032. They are resistant according to DIN 51031/32 (exception: colour 19 43001, a colour for tile decoration).

Our safety data sheets, which are available for every product, provide you with useful advice for working with our products.

Table 2: The available relief colours

Reference	Colour Shade	Onglaze	Inglaze	Porcelain	Vitreous China	Bone China	Earthenware	Tiles	lead free	c.t.e. [x10 ⁻⁷ /°K]	Firing Temperature [° C]
10 55050	Transparent	x		x	x	x	x		x	43	840 - 880
19 1635	White	x			x	x	x		x	60	830 - 860
19 1636	White	x		x	x	x	x		x	51	840 - 880
19 30152	White	x		x	x	x	x		x	49	840 - 880
19 54002	White	x			x	x	x		x	75	820 - 860
10 122	Transparent	x		x	x	x	x			48	850 - 950
10 153	Transparent	x			x	x	x			53	800 - 850
10 5008	Transparent	x			x	x	x			56	820 - 880
19 083	White	x						x		60	780 - 850
19 2001	White	x		x	x	x	x			48	850 - 1000
19 2002	White	x		x	x	x	x			48	850 - 1000
19 43001	White	x						x		49	780 - 910
19 44000	White	x			x	x	x			70	780 - 850
19 5009	White	x			x	x	x			56	820 - 880
10 8007	Transparent		x	x	x		x		x	54	1180 - 1220
19 185	Semitransparent		x	x	x		x		x	40	1150 - 1250
19 8006	White		x	x	x		x			49	1180 - 1220

¹ GHS symbol 09, H phrase 411² GHS symbol 07, 08, 09, H phrases 302, 332, 360Df, 373, 410

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