

Technical Information

GL18



Glaze Catalogue

In this Technical Information bulletin we are introducing a selection of glazes for earthenware, tableware and art ceramics, stove tiles and stoneware.

Additionally, several useful specialty frits for glaze corrections are listed.

A catalogue with the most common glaze defects is provided as well.

At the end of this bulletin, a table with the glaze properties is given.

The here mentioned glazes and frits resemble only a small selection of our complete product range. Please let us know if your desired glaze is not included.

For assistance in selecting and adapting your glazes, please call our technical service department.

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Transparent Glazes, Lead Free



VTR 40 539 F

transparent, glossy

temperature range: 1040 to 1100 °C

The glaze VTR 40 539 F is a universally suitable glaze for earthenware, tableware and art ceramics.

It develops colors well, including pink stains (CaSnSiCr) and inclusion pigments, also with coloring oxides. Granulated glazes and stains can be stirred in.

Interesting crystalline eliminations can be achieved with the addition of 248 030 (0.6 to 2.0 g for 100 g of glaze).



VTR 166

transparent, glossy

temperature range: 1040 to 1100 °C

The glaze VTR 166 is an economic alternative to the glaze VTR 40 539 F, but more viscous.

It shows a good development of colors as well with almost all stains and inclusion pigments, but only limited with cobalt aluminate blue and not with pink (CaSnSiCr).

Specialty: together with the glaze 40 660 F or the frit 90 710, good results are obtained for the inclusion pigments 270 547 and 270 548.



VTR 320

transparent, glossy

especially low temperature range: 920 to 980 °C

The color development of this glaze is good, although at 920 °C it reaches its limits.

The glaze VTR 320 is only partially suitable for the inclusion pigments 270 547 and 270 548. Pink stains (CaSnSiCr) turn brown.



VTR 102

transparent, glossy

temperature range: 980 to 1070°C

The glaze VTR 102 is a soft glaze for earthenware, tableware and art ceramics. It can be blended especially well with the glaze VTR 166, with a recommended ratio of 30:70.

The color development is excellent with all stains, especially in the low temperature range.

VTR 102 is recommended for **pink stains** (CaSnSiCr). It is not suitable for CoAl blue and has only limited suitability for cobalt silicate blue and the inclusion pigments 270 547 and 270 548.



VTR 40 271 TM

transparent, glossy

temperature range: 1060 to 1100 °C

The glaze VTR 40 271 TM is the **best choice for pink stains**. It is suitable for earthenware, tableware and stove tiles.

The color development of stains is good, but not with coloring oxides.

Specialty: The addition of 6 to 8 g alumina to 100 g of glaze results in a matt glaze that may be colored with all kinds of stains.

Transparent Glazes, Lead Containing



VTR 40 134 F

transparent, glossy

PbO 39 weight %

temperature range: 950 to 1040 °C

The glaze VTR 40 134 F is a typical glaze for **pink stains**. It can be easily colored with stains, especially with pink (CaSnSiCr).

VTR 40 134 F is a perfect choice in underglaze painting.



VTR 17

transparent, glossy

PbO 43 weight %

temperature range: 950 to 1040 °C

The glaze VTR 17 is usable for art ceramics and stove tiles, especially for raw bodies.

It may be colored with stains and oxides, but not with pink (CaSnSiCr).

The color development in a gas kiln is better than in the electrical kiln.



VTR 39

transparent, glossy

PbO 2 weight %

temperature range: 980 to 1020 °C

The glaze VTR 39 is suitable for earthenware and art ceramics.

It may be colored with stains, except with pink.



VTR 40 5245 F

transparent, glossy

PbO 14 weight %

temperature range: 1040 to 1080 °C

The glaze VTR 40 5245 F is universally suitable transparent glaze for earthenware, art ceramics and stove tiles.

It is especially suitable for raw bodies in gas kilns. With stains and coloring oxides it shows a good color development. Granulated glazes and stains may be stirred in.

Matt Glazes



VTR 40 525 F

matt, colorless, lead free

temperature range: 1020 to 1100 °C

The glaze 40 525 F is a universally suitable matt glaze for earthenware, tableware, art ceramics and stove tiles.

It develops color stains nicely, even pink (CaSnSiCr) and all inclusion pigments. Additionally, granulated glazes and stains may be used.

In the upper temperature range (1080 to 1120 °C) the surface is silk-matt.

Specialty: the addition of 15 % zircon silicate results in a smooth, white matt surface.



VTR 40 545 TM

colorless, silk-matt, lead free

temperature range: 1020 to 1080 °C

The glaze 40 545 TM is a **matt basic glaze for effect-building components**, suitable for earthenware, art ceramics and stove tiles.

It is perfect for color stains.

Interesting oversaturation effects are created by the addition of all kinds of granulated glazes, stains and frits. These effects are enhanced by additions of 248 030, 238 512 or 298 026.

Opaque Glazes



VBC 13

opaque, glossy, lead free

temperature range: 980 to 1060 °C

The glaze VBC 13 is suitable for earthenware, tableware and art ceramics.

It fires well on raw bodies in gas kilns.

At firing temperatures higher than 1020 °C it may be used for majolica painting.

Effect and Oversaturation Glazes



VBC 43 554 TM

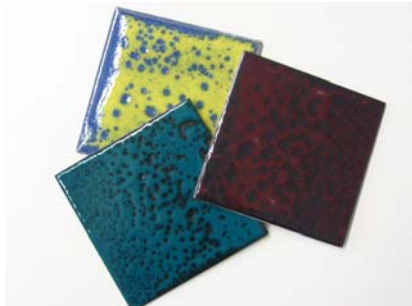
beige, silk-matt, low degree of crystalline eliminations, lead free

temperature range: 1020 to 1140 °C

The glaze VBC 43 554 TM is ideal for earthenware, stove tiles and art ceramics.

It can be colored with stains and is suitable for granulates.

The addition of 248 030 and 298 026 enhances the effects.



VBC 43 556 TF

beige, slight silk-matt effects, lead free

temperature range: 1020 to 1080 °C

The glaze VBC 43 556 TF is a versatile earthenware glaze, ideal also for stove tiles.

The coloring with stains is limited, but the coloring with frits and oxides is possible.

The addition of all kinds of granitis enhances the oversaturation effects. 248 030, 238 512 and/or 298 026 also show interesting effects.



Specialty: the use of a base glaze 43 556 TF, colored with stains, together with a top glaze of VTR 166 with 40 660 F or of 40 539 F, also colored with oxides, creates a very interesting appearance.

Example 1			
Base glaze:		Top glaze:	
43 556 TF	100	VTR 166	70
240 942	8	40 660 TF	30
		270 548	8

The red is very similar to a selenium red, but this special effect cannot be achieved with a selenium glaze.

Example 2			
Base glaze:		Top glaze:	
43 556 TF	100	40 539 F	100
220 946	5	270 968	15

The base glaze may preferably be colored dark. The top glaze may be colored as pleases, but preferentially in contrasting colors to the base glaze.

Fine or strong effects are created when using different layer thicknesses of base and/or top glaze. They can be adjusted individually according to demand.



VBC 49 872 TM

opaque, silk-matt, lead free

temperature range: 1000 to 1080 °C

This is a silky-elegant effect glaze for earthenware, stove tiles and art ceramics.

The glaze is suitable for creating pastel shades by the use of color stains.

A surface refinement is achieved by the addition of 2 % 248 030.

Granitis enhance the eliminations significantly.

Example for a very elegant surface:

49 872 TM	100
248 030	2
zircon silicate	8
Stir into the glaze slip:	
50 559 GY	15
59 570 GY	15



Stoneware Glazes



VTR 40 581 E

transparent, glossy, lead free

temperature range: normal firing 1190 to 1250 °C, fast firing 1260 °C (4 hours)

The glaze VTR 40 581 E is a versatile stoneware glaze, easy to color with stains, with high brilliance and perfectly suitable for tableware.

The addition of granitis, like 248 030, results in nice effects. Blended with 10 % aluminium oxide, a colorless matt glaze is obtained, whereas 15 % zircon silicate create a glossy white glaze.

Specialty: the addition of 5 to 15 % of the frit FTR 90 023 F lower the melting point of the glaze VTR 40 581 F to 1140 to 1180 °C.



Crystals

The glaze 40 581 E as base glaze in combination with a top glaze and with 248 030 develops crystals of different sizes.

Example:

Base glaze:

40 581 E, with zircon and stains

Top glaze:

kaolin	103
238 495	103
lithium carbonate	52
zinc oxide, lead free	52
alumina	31
FTR 90 564 M	175
FTR 90 5158 M	484

When adding 1 to 2 % of 248 030 to the top glaze, interesting „dissolutions“ and crystalline effects are created. The addition of 3 to 5 % of 248 030 to the top glaze cause the formation of crystals.

The size and intensity of the crystals can be influenced by the quantity of 248 030 added to the top glaze and/or by the layer thickness of the top glaze. Depending on the body and on the firing conditions, the effects have to be adjusted individually.



VTRS 115

transparent, glossy, lead free

temperature range: 1150 to 1200 °C

The glaze VTRS 115 is a basic glaze for stoneware, for fired and for raw bodies.

It is well suitable for ZrSiV and ZrSiPr stains and common inclusion pigments.



VTRS 115 with raw material mixture and FTR 90 564 M

temperature range: 1150 to 1220 °C

Different blending ratios show a fired surface from matt to glossy.

Slight effects may be combined with all kinds of stains.

270 547 and 270 548 develop nicely in the glossy version up to 1180 °C.



Examples:

glossy:

VTRS 115	25
FTR 90564 M	17
raw material mixture	58

matt:

VTRS 115	15
FTR 90 564 M	23
raw material mixture	62

strongly matt:

VTRS 115	5
FTR 90 564 M	10
raw material mixture	85

Raw material mixture for the glaze VTRS 115:

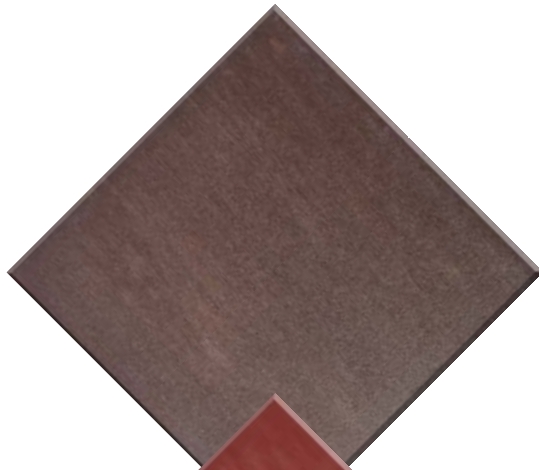
238 495	99
zinc oxide, lead free	123
silica	148
kaolin	173
calc spar	210
sodium feldspar	247

The addition of 2 % 248 030 to the blends shows slight crystalline eliminations in the case of the glossy version and interesting eliminations in the matt versions.

The exchange of the more viscous frit 90 564 with the frit 11.37048.09 is possible. The eliminations are then decreased or totally avoided. The firing temperature may then be increased to 1250 °C.

Stove Tiles

Fashionable colors for superior designs



Variation 1: Brown wipede

Underglaze

40 525 F
ZrSiO₄
230 967
260 952
260 954
260 955

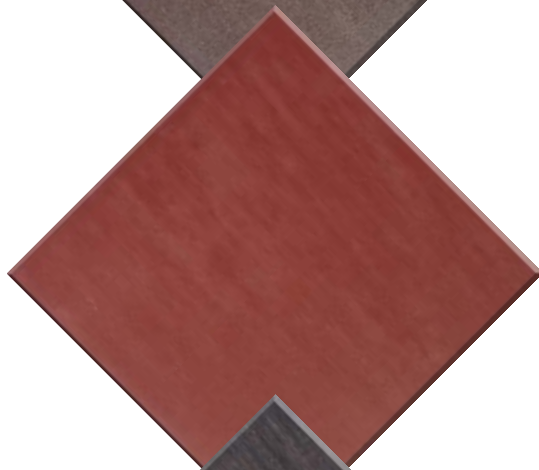
100,0
2,0
1,0
1,0
0,6
3,0

spray evenly

Decorating glaze

40 525 F 100,0
ZrSiO₄ 2,0
250 942 0,6
260 946 7,0
260 952 1,0

sprinkle thickly and wipe with a
sponge immediately



Variation 2: Red wipede

Underglaze

40 525 F
260 952
270 944

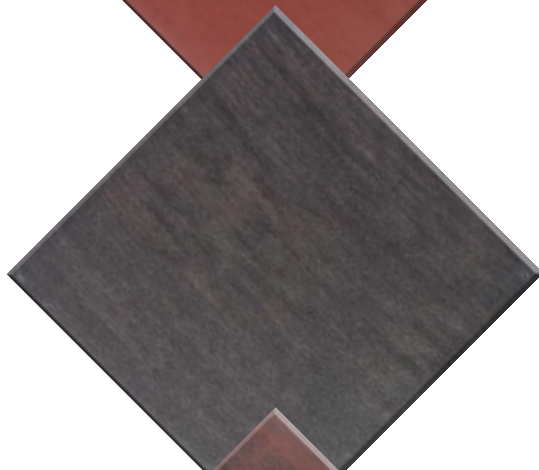
100,0
4,0
5,0

spray evenly

Decorating glaze

40 525 F 100,0
230 942 5,0
260 952 0,5
270 946 1,0

sprinkle thickly and wipe with a
sponge immediately



Variation 3: Dark brown wipede

Underglaze

40 525 F
240 942
260 955

100,0
2,0
8,0

spray evenly

Decorating glaze

40 525 F 100,0
230 946 2,0
230 967 2,0
260 946 2,0
260 952 0,4
270 946 2,0

sprinkle thickly and wipe with a
sponge immediately



Variation 4: Dark red wipede

Underglaze

40 525 F
260 952
270 944

100,0
4,0
5,0

spray evenly

Decorating glaze

40 525 F 100,0
240 942 2,0
260 955 8,0

sprinkle thickly and wipe with a
sponge immediately

Stylish design in up-to-date combinations

Orange in combination with chocolate brown



Orange

Underglaze; evenly sprayed

40 525 F	100,0
238 512	6,0
SnO ₂	5,0
ZnO ¹	7,0

Stippling glaze 1

Stippling glaze 2

40 525 F	100,0	VTR 102	100,0
230 944	5,0		
230 967	1,0		
270 946	1,0		

Chocolate brown

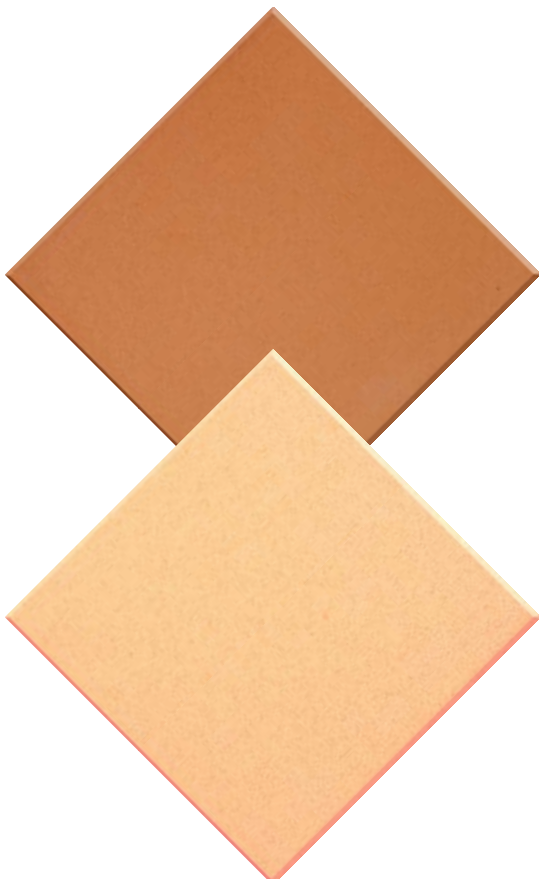
Underglaze; evenly sprayed

40 525 F	100,0
ZrSiO ₄	2,0
230 967	1,0
260 952	1,0
260 954	0,6
260 955	3,0

Stippling glaze 1

Stippling glaze 2

40 525 F	100,0	VTR 102	100,0
240 942	2,0		
260 955	8,0		



Yellow - orange in combination with sand

Yellow - orange

Glaze, evenly sprayed

40 545 TM	100,0
230 967	7,5
270 946	2,0
248 030	2,0
248 030, only stirred in	

Sand

Underglaze; evenly

Decorating glaze; sprinkled

FCM 61094	100,0	40 545 TM	100,0
		230 944	4,0
		230 967	1,0
		260 946	4,0



Rosé in combination with dark brown

Rosé underglaze

40 525 F	100,0
230 942	1,5

Rosé stippling glaze

40 525 F	100,0
230 942	2,0
260 946	2,0
270 944	1,0

Dark brown

Underglaze, evenly sprayed

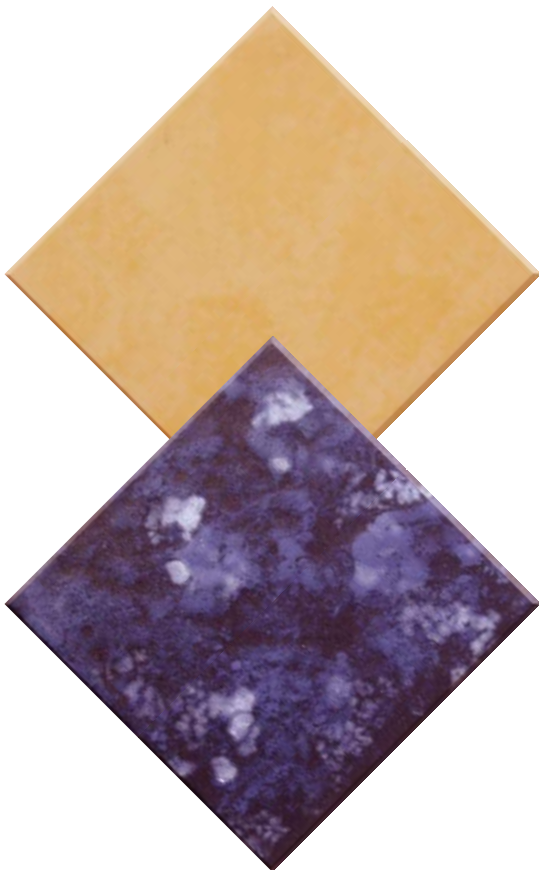
40 525 F	100,0
240 942	2,0
260 955	8,0

Stippling glaze 1

40 525 F	100,0
ZrSiO ₄	2,0
230 967	1,0
260 952	1,0
260 954	0,6
260 955	3,0

Stippling glaze 2

VTR 102	100,0
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Sunny yellow in combination with blue

Sunny yellow underglaze

40 525 F	100,0
230 967	2,0

Sunny yellow stippling glaze

40 525 F	100,0
230 967	8,0

Blue

Underglaze, evenly sprayed

40 525 F	100,0
220 946	5,0
240 942	2,0

Stippling glaze 1

40 525 F	100,0
250 946	6,0

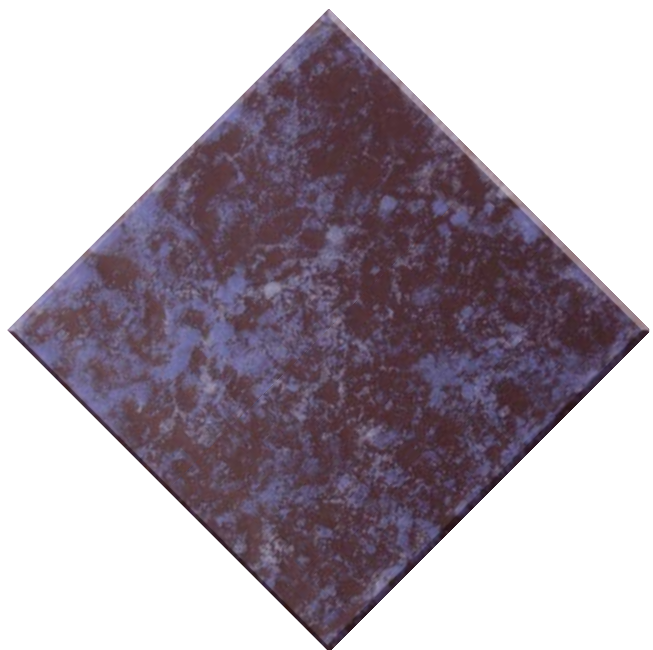
Stippling glaze 2

40 525 F	100,0
250 946	6,0

Stippling glaze 3

VTR 102	100,0
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Conventional colors with a modern touch



Variation 1 Black - blue marbled

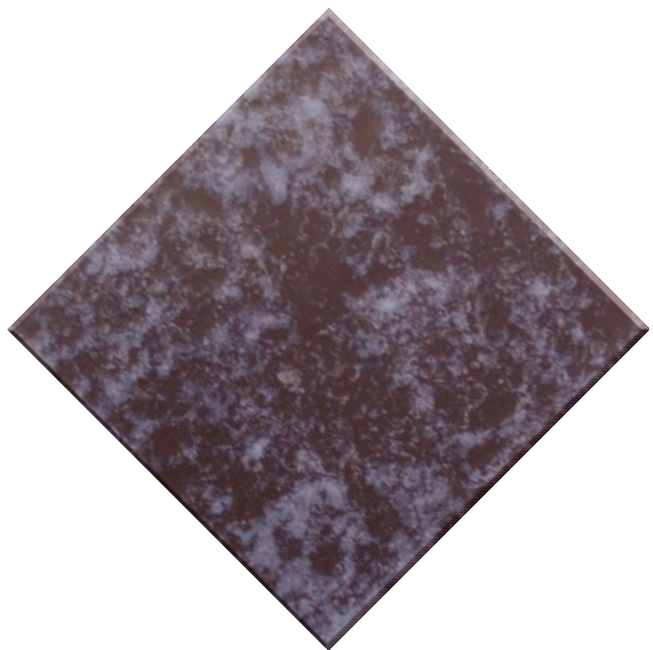
Underglaze, evenly sprayed

40 525 F	100,0
230 942	5,0

Stippling glaze 1

Stippling glaze 2

40 525 F	100,0	40 525 F	100,0
250 946	6,0	250 946	6,0
		CK-15063	0,4



Variation 2 Black - grey marbled

Underglaze, evenly sprayed

40 525 F	100,0
230 942	5,0

Stippling glaze 1

Stippling glaze 2

40 525 F	100,0	40 525 F	100,0
250 942	6,0	250 946	6,0

Up-to-date designs show the latest trends



Combination A

43 554 TM	100,0
230 944	6,0
230 967	4,0
270 944	0,5
stir into the ready to use glaze slip	
279 992 GR	2,0

40 525 F	100,0
260 952	4,0
270 944	10,0
stir into the ready to use glaze slip	
43 557 GR	4,0
47 319 GR	4,0

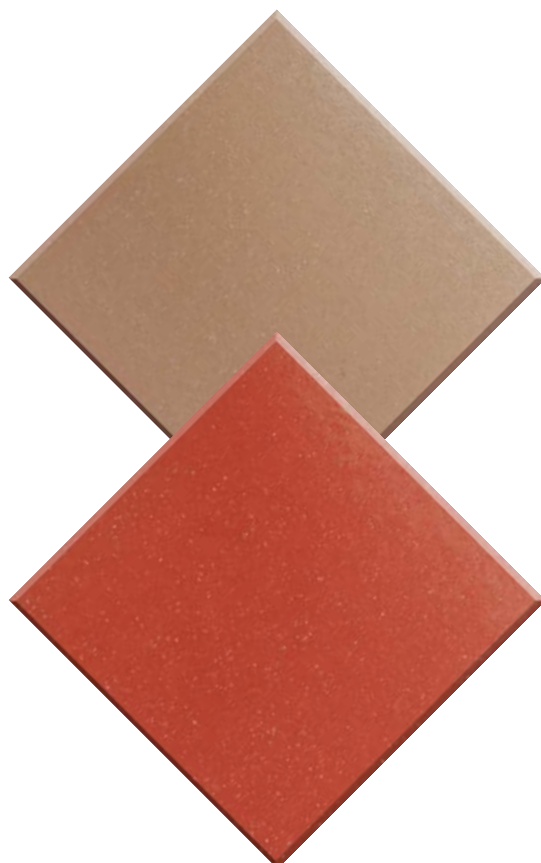


Combination B

43 554 TM	100,0
ZrSiO ₄	10,0
230 967	0,6
259 969	0,2
260 954	1,0
stir into the ready to use glaze slip	
50 559 GY	5,0
59 570 GY	5,0

40 525 F	100,0
ZrSiO ₄	5,0
210 960	1,2
259 969	3,8
260 954	1,6
stir into the ready to use glaze slip	
269 984 GR ¹	2,0

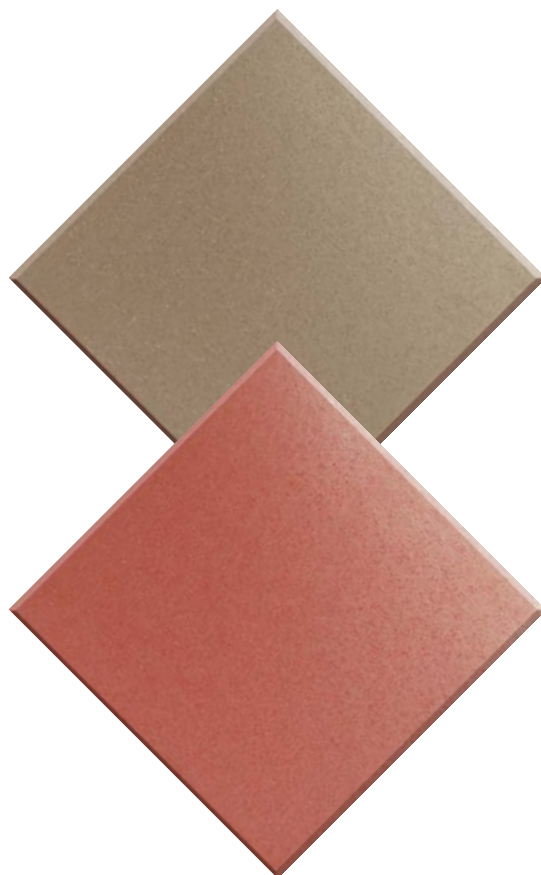
¹ H phrase 412



Combination C

43 554 TM	100,0
ZrSiO ₄	5,0
210 960	0,8
250 942	3,0
260 952	2,0
stir into the ready to use glaze slip	
50 559 GY	5,0
59 570 GY	5,0

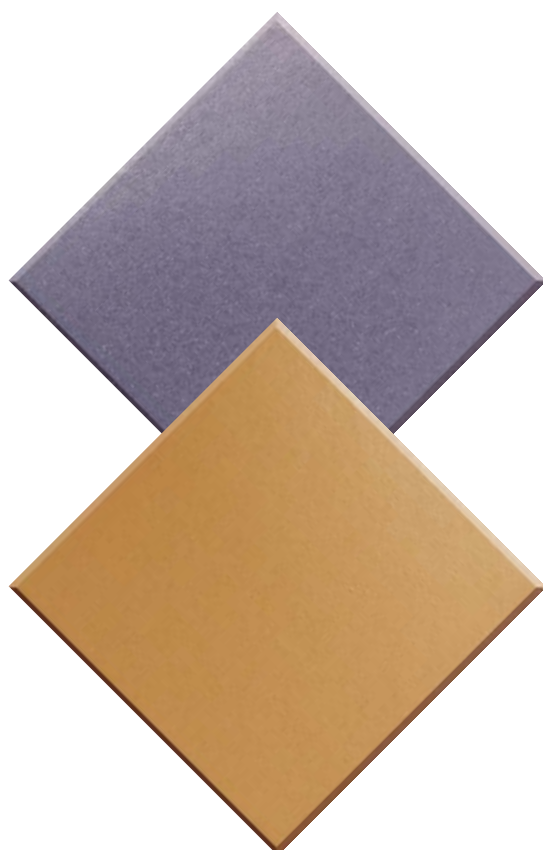
40 525 F	100,0
270 561	12,0
stir into the ready to use glaze slip	
50 559 GY	5,0
59 570 GY	5,0



Combination D

43 554 TM	100,0
ZrSiO ₄	5,0
210 960	1,2
259 969	3,8
260 954	1,6
stir into the ready to use glaze slip	
50 559 GY	5,0
59 570 GY	5,0

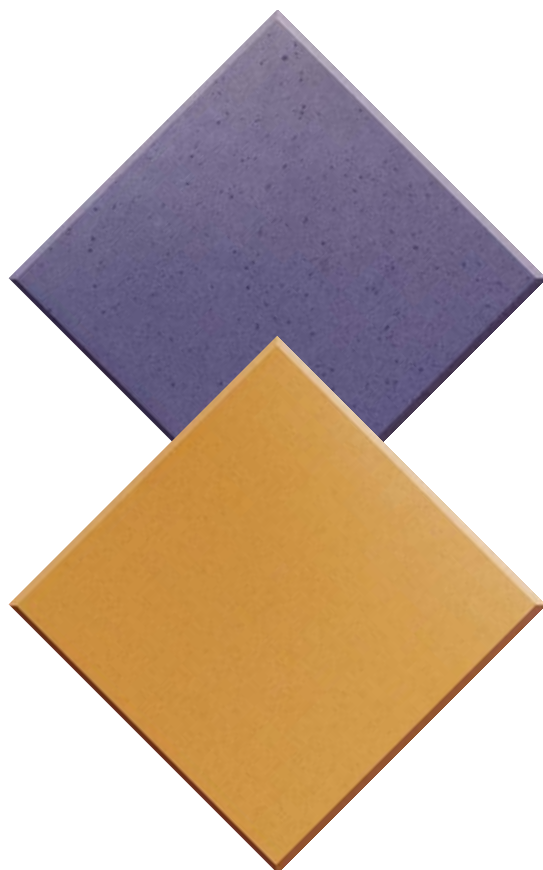
43 554 TM	100,0
270 561	12,0
stir into the ready to use glaze slip	
50 559 GY	5,0
59 570 GY	5,0



Combination E

43 554 TM	100,0
250 946	6,0
240 942	0,2
stir into the ready to use glaze slip	
50 559 GY	5,0
59 570 GY	5,0

43 554 TM	100,0
230 944	6,0
230 967	4,0
270 944	0,5
stir into the ready to use glaze slip	
50 559 GY	5,0
59 570 GY	5,0



Combination F

43 554 TM	100,0
250 946	6,0
240 942	0,2
stir into the ready to use glaze slip	
42 246 GR	4,0
45 164 GR	4,0

43 554 TM	100,0
230 946	6,0
230 967	4,0
270 944	0,5
stir into the ready to use glaze slip	
279 992 GR	2,0



Combination G

FCM 61094	100,0
stir into the ready to use glaze slip	
279 992 GR	2,0

43 554 TM	100,0
220 946 ²	5,0
stir into the ready to use glaze slip	
50 559 GY	5,0
59 570 GY	5,0



Combination H

43 554 TM	100,0
stir into the ready to use glaze slip	
279 992 GR	2,0

43 554 TM	100,0
CK-15063	6,0
220 946	3,0
250 946	2,0
stir into the ready to use glaze slip	
42 246 GR	4,0
45 164 GR	4,0

Traditional colors with modern appearance



40 5245 F	100,0
Iron oxide	4,0

40 5245 F	100,0
Copper oxide ¹	3,0
Iron oxide	1,0



40 5245 F	100,0
Copper oxide ¹	4,0
Iron oxide	1,0

40 5245 F	100,0
Iron oxide	4,0
Manganese oxide ²	2,0



40 5245 F	100,0
Iron oxide	4,0
Manganese oxide ²	3,0

40 5245 F	100,0
Copper oxide ¹	4,0
Iron oxide	1,0
Cobalt oxide ³	0,5



40 5245 F	100,0
Cobalt oxide ³	2,0

40 5245 F	100,0
Manganese oxide ²	4,0

¹ GHS symbol 09, H phrase 400

² GHS symbol 07, H phrases 302, 332

³ GHS symbol 08, H phrases 334, 412

Special Frits

FTR 90 255	lead free; frit with a c.t.e. of 40 ($\times 10^{-7}/K$); for correction of hair cracks
FTR 90 710	lead free; an alternative to lead frits (up to 30 % lead); in combination with kaolin and silica suitable as a top coat for traditional firing; for earthenware and tableware
FTR 90 427	lead free; lithium frit; for correction of surface tension; causes effects and crystals; for earthenware and stoneware
FTR 90 428	lead free; together with the frit FTR 90 420 used as a base for effect glazes; for earthenware
FTR 90 420	lead free; ZnBa frit, base for matt elimination glazes; for earthenware
FTR 90 368	lead free; base for calcium containing glazes; for earthenware and tableware
FTR 90 564	lead free; barium frit; to be used instead of barium silicate; causes effects; for earthenware and stoneware
FTR 90 5123 ¹	lead mono silicate
FTR 90 352	lead containing frit with 21.0 weight-% lead; zinc base for silk-matt effect glazes
CE119201000	lead free; barium frit

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



Glaze Defects

Why do glaze defects occur? In the following chapter the most common defects and hints to avoid them are given.

Overfiring or Underfiring

The most common reasons for glaze defects are underfiring or overfiring.

Underfiring causes a dry, scratchy surface. Often this can be cured by a second firing at a higher temperature.

Overfiring causes the glaze to flow. The glaze is then thinner at the top and thicker at the bottom. Sometimes it even drops from the body. Strongly overfired ceramics may also show pinholes and pitting, if the glaze reaches its evaporation temperature. Overfiring cannot be corrected.

Differing Coefficients of Thermal Expansion

The body and the glaze may have very different coefficients of thermal expansion (c.t.e.). If the c.t.e. of the glaze is too high, it might lead to the formation of cracks. If it is too low, it might cause chipping.

A too low c.t.e. might be adjusted by adding 2 to 7 % of the frit 90 167. If the c.t.e. is too high, 5 to 10 % of the frit 90 255 might correct this.

Application Problems and Adhesion of the Unfired Glaze

Wrong application of the glaze is the reason for several glaze defects. A too thin application might result in rough surfaces and also influence the glaze color. A glaze application that is too thick promotes running and blistering. Uneven application causes stains and stripes, in the color as well as in the surface structure.

Mistakes during application also influence the adhesion of the glaze to the body. The body must be clean and dry before the glaze is applied. If a second glaze should be applied on top, the first must be dried completely before doing so. Adhesion problems often cause a rolling off of the glaze.

Adhesion problems might be avoided by testing the glaze slip before application. The weight per litre and the viscosity should be measured.

To keep the glaze slip from settling, a suspending agent should be used. When glazing raw bodies, adhesive should always be used.

Hair Cracks, Chipping and Peeling

Hair crack formation means the formation of a network of finer or thicker cracks in the fired glaze, sometimes directly after firing, sometimes later. Except in some special glazes, the formation of cracks is not desired.

There are several reasons for the formation of hair cracks. Normally cracks are occurring if the coefficient of thermal expansion of the glaze is too high. Due to the tension during cooling the glaze is crazing. The addition of the frit 90 255 and/or kaolin might help.

Cracks can also be caused by thermal shock due to a too fast temperature change. Longer soaking times and slower cooling help to avoid these cracks. A thinner layer of glaze or the addition of silica to the body are also advantageous.

In case of porous bodies with unglazed areas, moisture might be absorbed, which may lead to an expansion of the body. Then the body should be fired at a higher temperature or more calc spar should be added to the body.

Peeling and chipping is caused by a glaze c.t.e. that is too low. In this case the frit 90 167 should be added to the glaze.

Firing at lower temperatures and faster cooling could help. Perhaps also the feldspar and/or clay content of the body may be increased.

Very important is the formation of a good intermediate layer, that means the adhesion of the glaze to the body. A good intermediate layer is able to equalize the tension between glaze and body. Longer firing cycles and a sufficient soaking time enhance the formation of the intermediate layer.

Rolling off or Contraction of the Glaze after Firing

When rolling off or contracting, the glaze leaves empty areas on the body after firing.

Rolling off occurs if the glaze is not sticking to the body correctly. This might be the case if the body was not completely free of grease, dirt or moisture, or if the surface of the body is too smooth. Also a too thick layer of glaze can cause adhesion problems. Sometimes a glaze that is milled too fine can be the reason for rolling off.

Rolling off also occurs if the raw glaze was not dried long enough.

Too much opacifier may also lead to rolling off. Matt glazes with a high content of clay tend to rolling off, like too viscous glazes do.

If the surface tension is too high, the glazes might contract to droplets. This can be cured by additions of lithium, alkali or lead, which lower the surface tension.

Blistering and Pinholes

Blisters and pinholes are often formed by evaporating gas from the body or from the glaze while melting during the firing.

In most cases the outgassing process leaves enough time for the glaze to flow back and form an even surface. If there is too much gas or the glaze is too viscous, the glaze might solidify although the gas has not evaporated completely. After firing, blisters and pinholes remain.

Outgassing may have different reasons. Air in the body is often already formed during processing or due to the degradation of finished body material. In order to reduce air bubbles in the body, opening materials can be used.

In the glaze, the formation of blisters is enhanced by too thick glaze layers or too high surface tension or viscosity.

Mistakes during firing also increase the formation of blisters: too high temperature, a reductive kiln atmosphere at the beginning, too short firing cycles or too short soaking times. The kiln should be well ventilated at all times.

Matt Stains, Glossy Areas and Discolorations

One can distinguish between matt areas in a glossy glaze and glossy areas in a matt glaze. Additionally, discolorations or traces on fired pieces may occur.

There are several reasons for matt stains. Among them are inhomogenous glaze applications or too low firing temperatures. The evaporation of fluxes, e.g. lead, during firing leaves no damage if the ventilation flaps of the kiln are left open. If there is excess water during heating, a good ventilation also helps.

Glossy areas often are caused by too thin glaze layers or temperatures that are too high. The kiln atmosphere may be improved by sufficient air supply while heating and slow cooling.

Discolorations often are formed by evaporated metal oxides, which were added to the glaze in pure form or as part of a color stain, e.g. chromium, copper or cobalt oxide. If the evaporation is very high without proper ventilation, even tiny crystals may occur. Only a sufficient ventilation of the kiln may solve the problem.

Glaze Properties

Product no.	Type	% PbO	C.T.E. [10 ⁻⁷ /K]	Tableware/ earthenware	Tableware/ stoneware	Art ceramics/ stove tiles	glossy	matt	Firing temperature °C
VTR 40 539 F	transparent glaze	0	61	x		x	x		1040 - 1100
VTR 166	transparent glaze	0	56	x		x	x		1040 - 1100
VTR 320	transparent glaze	0	62	x			x		920 - 980
VTR 102	transparent glaze	0	64	x		x	x		980 - 1070
VTR 40 271 TM	transparent glaze	0	60	x		x	x		1060 - 1100
VTR 40 5245 F	transparent glaze	14	55	x		x	x		1040 - 1080
VTR 40 134 F	transparent glaze	39	52			x	x		950 - 1040
VTR 17	transparent glaze	43	54			x	x		950 - 1040
VTR 39	transparent glaze	2	60	x		x	x		980 - 1020
VTR 40 525 F	matt glaze	0	57	x		x		x	1020 - 1100
VTR 40 545 TM	matt glaze	0	62	x		x		x	1020 - 1080
FCM 61094	matt glaze	19	55			x		x	1040 - 1100
VBC 49 7654	opaque glaze	0	55	x			x		980 - 1050
VBC 13	opaque glaze	0	58	x		x	x		980 - 1060
VBC 43 554 TM	effect glaze	0	62	x		x		x	1020 - 1140
VBC 43 556 TF	effect glaze	0	65	x		x		x	1020 - 1080
VBC 49 872 TM ¹	effect glaze	0	58	x		x		x	1000 - 1080
VTR 40 581 E	stoneware glaze	0	59		x		x		1190 - 1260
VTRS 115	stoneware glaze	0	66		x		x		1150 - 1200

¹GHS symbol 09, H phrase 411

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