

GENERAL COMMERCIAL TERMS TECHNISTONE, a.s.

- Part I: General commercial conditions for sale
- Part II: Complaint rules
- Part III/1: General technical manual
- Part III/2: Technical manual for tiles installation
- Part III/3: Manual for cleaning and maintenance
- Part III/4: Technical manual for fabrication shops

PART III/4**TECHNICAL MANUAL
FOR FABRICATION SHOPS****INSTRUCTION FOR PROFESSIONAL FABRICATION OF
ENGINEERED STONE****Technistone®****Technistone, a.s.**

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1. Characteristic of Material

Engineered stone Technistone®

Technistone® is produced from high-quality natural raw materials (quartz, granite), mirror and glass granulates, from a small amount of color pigments, quality polyester resin and selected additional ingredients for ensuring high durability, resistance, consistency, and required design. More than 90% of the product mass is formed by natural components.

2. Basic Recommendations

2.1. Storage

Technistone® material is recommended for interior use only, therefore it is necessary to store this material in roofed places, which protect slabs against atmospheric influences (e.g. UV-light).

2.2. Realization

If you got the order (kitchen worktop, vanity top) which needs more than one slab (304 x 140 cm), it is necessary to check the color shade of these slabs for comparison. It is necessary to take into account also different color of light (sun, artificial light, etc.). As first engineered stone producer Technistone® offers the customer sophisticated method of precise shade evaluation of each slab to enable comfort handling and fabrication. Each slab has own color shade mark consisting from three numbers. Marking is printed in slabs bar code sticker.

If the order is only for one slab, we recommend checking the quality of the surface in horizontal position - when the slab lies on the table for cutting.

2.3. Cutting operations

Table for cutting operations has to be fixed and absolutely straight. Please, every time check the table before you start working, any roughness could cause slippage of the slab during the manufacturing.

Cutting disc has to be sufficiently sharp, i.e. the whole segments of diamond disc have to be exposed. In the case, when segments are smooth, it is necessary to regenerate the disc in some abrasive material (e.g. sandstone).

Figure 1: Regeneration of disc in abrasive material



3. Machines and operations recommended for fabrication shops

3.1. Bridge saw

- sufficient cooling by water is necessary
- centered diamond cutting disc of saw is essential
- cutting speed recommended at about 30 m/sec (max 38 m/sec) according to diamond cutting disc type
- **use diamond cutting disc with medium hardness, do not use high hardness types (the slab may crack!)**
- **cutting with auxiliary cuts, these cuts minimize the possibility of cracking (see below)**

Figure 2: Bridge saw



Linear cutting speed adjustment (necessary to adjust according to used saw type and other conditions):

- TS product line: Granite, Crystals with grain over 2,5 mm
 - ✓ thickness 10 mm: up to 2 m/min
 - ✓ thickness 20 mm: up to 1,8 m/min
 - ✓ thickness 30 mm: up to 1 m/min
- TS product line: Mirror, Sand, Crystals with grain up to 2,5 mm
 - ✓ thickness 10 mm: up to 1,6 m/min
 - ✓ thickness 20 mm: up to 1,5 m/min
 - ✓ thickness 30 mm: up to 0,8 m/min

Cut outs (hole) cutting speed adjustment (necessary to adjust according to used saw type and other conditions):

- ✓ thickness 10 mm: up to 1 m/min
- ✓ thickness 20 mm: up to 0,9 m/min
- ✓ thickness 30 mm: up to 0,5 m/min
- ✓ start with lower revolutions and subsequently increase the speed

3.2. CNC machine

- follow instruction of CNC machine producer for engineered stone or granite working
- individual adjustment according to the used material, cutting, grinding and drilling
- sufficient cooling by water is necessary

Figure 3: CNC machine



3.3. Hand working

- sufficient cooling by water (very important)
- edges polishing adjust according to quality of the cut edge, start with the tool of class from 60 to 220, finish with the tool of class from 800 to 1500
- careful and safe handling (wet conditions!) with the manual grinding machine
- drilling without impact!
- do not clean product with strong, not recommended chemicals
- proper light conditions for inspection process

Figure 4: Hand working



4. How to avoid slabs cracking

Choice of suitable disc for bridge saw and CNC machine is very important. **It is necessary to use diamond cutting disc with medium hardness**, high hardness types may cause slabs cracking.

We recommend cutting with auxiliary cuts at slab margins. For internal cuts it is necessary to do these auxiliary cuts every time! These auxiliary cuts minimize the possibility of cracking (see Figure 5).

It is necessary to check continuously the quality of cutting disc, exposed segments of cutting disc must not be smooth!

Optimal cutting speed is marked by the producer of cutting disc, **it is necessary to take into account also thickness of the slab** (recommended cutting speeds see section 3).

Figure 5: Demonstration of auxiliary cuts (red marked)

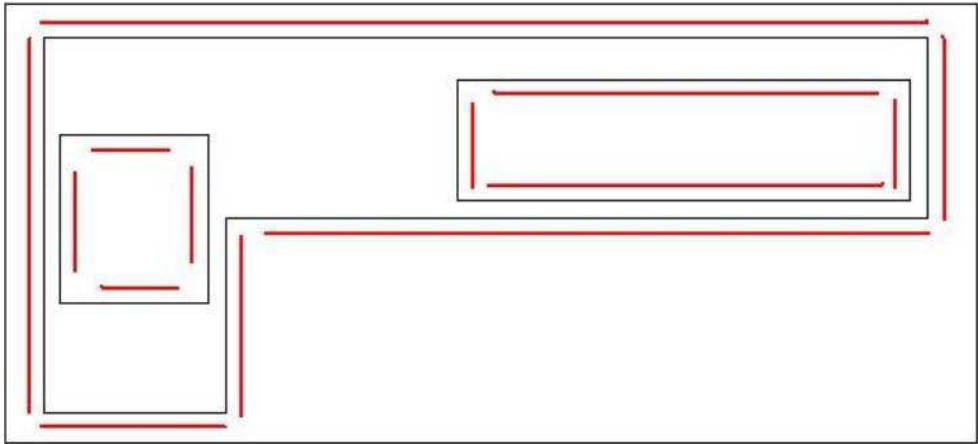
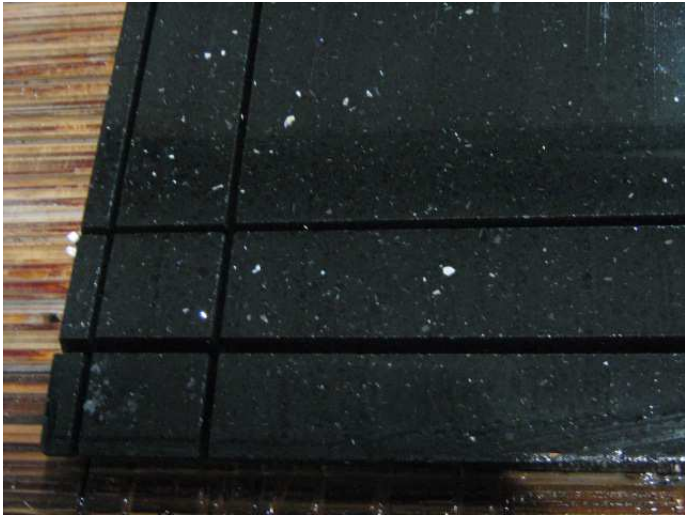


Figure 6: Demonstration of machined slab



5. Important warnings

- ✓ Technistone® material is recommended for interior use only, therefore it is necessary to store this material in roofed places, which protect slabs against atmospheric influences (e.g. UV-light).
- ✓ For protection against slabs bending it is necessary to keep conditions of storing, which are described in GCT – part I (vertical position, wooden lathes,..).
- ✓ For eventual subsequent claim it is necessary to keep with the slab also the bar code sticker, which is situated every time on shorter side of the slab (there are information about lot number and color shade code etc.). For effective claim solving it is necessary to provide photo of claimed defect, photo of the whole slab and photo of bar code sticker. More information see GCT – part II (Complaint Rules of company Technistone).
- ✓ **Producer of Technistone® material is not responsible for any consequences deriving from infringement of these regulations and described warnings!**

6. Recommended sealants and adhesives

6.1. Technistone silicone sealant

At the installation the producer recommends to use the following jointing materials. If silicone sealant is used it is necessary to use a neutral type only!

Neutral silicone sealant Technistone is single – component sealant executed in the form of solid paste. As the paste is extruded out of the package, it turns vulcanized into a silicone rubber by air humidity. Vulcanization starts on the surface and penetrates the mass; the speed of this process depends on the relative air humidity. As per decrees by the Health Ministry of the Czech Republic, Technistone sealant can be used in direct contact with foodstuffs and meals. The sealant shades are based on Technistone color range (see in the table below).

For more information see web sites: www.technistone.eu

Review of color shades of neutral silicone sealant Technistone:

Shade of the color	Usage
1. transparent	universal using
2. white	Crystal Polar White, Crystal Diamond, Crystal Quartz White, Starlight White, Translucent Snow White
3. black	Starlight Black, Gobi Black, Crystal Pure Black
4. grey	Starlight Grey, Gobi Grey
5. brown	Taurus Brown Pearl
6. beige	Crystal Royal, Crystal Dark Shell
7. red	Starlight Ruby



6.2. Recommended adhesives



6.2.1. Akemi - Color Spectrum Bonding System MIXBOND

AKEMI Color Spectrum Bonding System MIXBOND is a complete colour system consisting of 15 different coloured MIXBOND adhesives.

AKEMI Colour Spectrum Bonding System MIXBOND is 2-component epoxy-acrylate based adhesives.

(note: till 2Q/2011 polyester- based adhesives!)

Applied directly or mixed with each other, any desired colour shade can be exactly colour-matched. Easy application: dosing ratio 10:1 (adhesive : hardener) measured by the length of the lines of the material pressed out.

Adhesive shades are based on Technistone color range - see in the table below or on our web sites.

For more information also see: www.akemi.de

Production Group (Commercial Names)	Color Code	2200	1110	1300	1500	2020	1000	1210	1400	1100	1910	1730	1610	1740	1810	1820	
	Material	Transparent	White	Yellow	Blue	Brown	Black	Red	Green	White	Khaki	Beige	Cream	Beige	Grey	Grey	
MIRRORS (Fresh, Starlight, Translucent, Venetian)	Fresh Brown						2	4									
	Fresh Green	x															
	Fresh Orange	3		3				2									
	Fresh Red			1				6									
	Starlight Black						x										
	Starlight Brown					5	3										
	Starlight Desert	7				1				1				3			
	Starlight Green	6					0,5		2	0,5							
	Starlight Grey					0,5	1				1					4	
	Starlight Red	5				2				4							
	Starlight Ruby	4					0,5	10									
	Starlight Sand	8				0,5					0,5	5		2			
	Translucent Ice	12								0,5							3
	Translucent Onyx	15		0,5			1					1,5			3		
	Translucent Snow White				0,5						10						
Please note: All ratios are measured in cm, x denotes a 100% color match.																	

Production Group (Commercial Names)	Color Code	2200	1110	1300	1500	2020	1000	1210	1400	1100	1910	1730	1610	1740	1810	1820
	Material	Transparent	White	Yellow	Blue	Brown	Black	Red	Green	White	Khaki	Beige	Cream	Beige	Grey	Grey
GRANITE (Taurus, Karpat, Sonora, Classic)	Sonora			1		0,5				1		3		6		
	Taurus Brown Pearl	5				5	4				2			1		
	Taurus Gold					0,5					1,5	0,5		4		
	Taurus						9				1					1
Please note: All ratios are measured in cm, x denotes a 100% color match.																

Production Group (Commercial Names)	Color Code	2200	1110	1300	1500	2020	1000	1210	1400	1100	1910	1730	1610	1740	1810	1820
	Material	Transparent	White	Yellow	Blue	Brown	Black	Red	Green	White	Khaki	Beige	Cream	Beige	Grey	Grey
CRYSTAL (Crystal, Classic)	Crystal Creme Beige										1,5	3				
	Crystal Diamond									5						0,5
	Crystal Polar White				0,5					10						
	Crystal Royal		2			0,5							4			
	Crystal Quartz White									5					0,5	0,5
	Crystal Sahara						0,5				3		3			
Please note: All ratios are measured in cm, x denotes a 100% color match.																

Production Group (Commercial Names)	Color Code	2200	1110	1300	1500	2020	1000	1210	1400	1100	1910	1730	1610	1740	1810	1820
	Material	Transparent	White	Yellow	Blue	Brown	Black	Red	Green	White	Khaki	Beige	Cream	Beige	Grey	Grey
SAND (Gobi, Elegance)	Elegance Concrete Grey						2				6				1	4
	Elegance Dark Grey					1	3				3					
	Elegance Prairie	10		6					3	0,5						
	Gobi Black						12									0,5
	Gobi Brown					3	5	1			1					
	Gobi Grey						3				2					4
Please note: All ratios are measured in cm, x denotes a 100% color match.																



6.2.1. Akemi – Color system COLOUR BOND

AKEMI Colour system Colour BOND is a complete colour system consisting of 50 different colours.

Adhesives have very good adhesion on engineered stone as well as on natural stone. Are available in 250ml cartridges.

AKEMI Colour system COLOUR BOND is 2-component epoxy-acrylate based adhesives.

(note: till 2Q/2011 polyester- based adhesives!)

Adhesive shades are based on Technistone color range - see in the table below or on our web sites.

For more information also see: www.akemi.de

Akemi offers also coloured silicone sealants Composil.

AKEMI				
Engineered Stone Name	Colour Bond	Composil	Colour Code	Colour Group
	2 Component Adhesive Art. No.	1 Component Silicone Art. No.	for Colour Bond & Composil	for Colour Bond & Composil
Crystal Absolute White	47014	40404	1130	white
Crystal Arctic	47011	40402	1100	white
Crystal Beach	47073	40431	1720	beige
Crystal Colorado	47071	40422	1700	beige
Crystal Creme Beige	47079	40428	1760	beige
Crystal Diamond	47011	40402	1100	white
Crystal Polar White	47011	40402	1100	white
Crystal Quartz White	47065	40418	1640	cream
Crystal Savannah	47075	40424	1715	beige
Crystal Topaz	47064	40417	1630	cream
Elegance Cream	47066	40419	1650	cream
Gobi Black	47003	40408	1020	black
Gobi Grey	47081	40432	1800	grey
Gobi White	47083	40434	1815	grey
Kalahari	47079	40428	1760	beige
Karpat Arizona	47079	40428	1760	beige
Starlight Black	47005	40410	1020	black

AKEMI				
Engineered Stone Name	Colour Bond	Composil	Colour Code	Colour Group
	2 Component Adhesive Art. No.	1 Component Silicone Art. No.	for Colour Bond & Composil	for Colour Bond & Composil
Starlight Blue	47097	40446	1960	khaki
Starlight Brown	47106	40451	2050	brown
Starlight Grey	47082	40433	1805	grey
Starlight Ruby	47023	40412	1220	red
Starlight White	47065	40418	1640	cream
Taurus Nordic	47003	40408	1020	black



6.2.2. Confiad adhesives

Confiad methyl methacrylate adhesive (acrylic adhesive) was specially formulated for the solid surface industry. Dosing ratio 10 : 1, supplied in readily dispensable cartridge packages. The whole system provides an unlimited color variety for achieving "seamless" joints in Quartz Engineered Stone.

Confiad offers excellent adhesion to all types of solid surfaces, including engineered stone.

Adhesive shades are based on Technistone color range - see in the table below or on our web sites.

For more information see: www.confriad.com

Production Group (Commercial Names)	Material	Applicable Confiad
SLATE SURFACE	Crystal Colorado SL	O-Cream
	Crystal Diamond SL	D-White
	Elegance Cream SL	G-White
	Gobi Black SL	K-Black
	Gobi Grey SL	P-Grey
	Gobi Mahogany SL	Brown
	Taurus Porphyry SL	A-Brown

Production Group (Commercial Names)	Material	Applicable ConfiAd	Material	Applicable ConfiAd
MIRRORS (Fresh, Starlight, Translucent, Venetian)	Fresh Brown	V-Walnut	Starlight Red	M-Bead
	Fresh Green	Leaf	Starlight Ruby	Y-Red
	Fresh Orange	Orange	Starlight Sand	N-Bead
	Fresh Red	A-Red	Starlight Sapphire	I-Blue
	Starlight Aquamarine	D-Leaf	Starlight Violet	Y-Violet
	Starlight Azurite	Z-Violet	Starlight White	C-White
	Starlight Black	P-Onyx	Starlight Yellow	A-Gold
	Starlight Blue	N-White	Translucent Grey	L-Black
	Starlight Brown	I-Walnut	Translucent Ice	Grey
	Starlight Citrine	W-Cream	Translucent Onyx	Translucent
	Starlight Desert	Bead	Translucent Snow White	M-White
	Starlight Emerald	A-Leaf	Venetian Day	M-White
	Starlight Green	N-Leaf	Venetian Night	M-Blue
	Starlight Grey	D-Mist	Venetian Sunset	S-White

Production Group (Commercial Names)	Material	Applicable ConfiAd
GRANITE (Taurus, Karpát, Sonora, Classic)	Classic Beige	P-Cream
	Classic Black	K-Black
	Classic Grey	Y-Grey
	Classic White	M-White
	Sonora	Z-Cream
	Sonora Light	O-Cream
	Taurus	Grey
	Taurus Blue Bahia	Magic
	Taurus Brown Pearl	L-Brown
	Taurus Gold	E-Beige
	Taurus Nordic	T-Blue
	Taurus Porphyry	I-Walnut
	Karpát Arizona	F-Cream

Production Group (Commercial Names)	Material	Applicable ConfiAd
CRYSTAL (Crystal, Classic)	Classic Ice	S-White
	Classic Nevada	A-White
	Crystal Beach	S-Cream
	Crystal Colorado	Z-Cream
	Crystal Cream Beige	J-Beige
	Crystal Dark Shell	S-Cream
	Crystal Diamond	B-White
	Crystal Olivine	S-Leaf
	Crystal Polar White	D-White
	Crystal Quartz White	B-White
	Crystal Rio	B-White
	Crystal Royal	U-Cream
	Crystal Sahara	Q-Ivory
	Crystal Savannah	Q-Sand
	Crystal Topaz	P-Cream



Production Group (Commercial Names)	Material	Applicable ConfiAd
SAND (Gobi, Elegance)	Elegance Concrete Grey	F-Mist
	Elegance Cream	C-White
	Elegance Dark Grey	Z-Brown
	Elegance Prairie	K-Leaf
	Gobi Black	D-Onyx
	Gobi Brown	R-Walnut
	Gobi Grey	U-Mist
	Gobi Mahogany	F-Walnut
	Gobi White	E-Ivory



6.2.3. Integra Adhesives

IntegraAdhesives

Integra Adhesives are epoxy-methacrylate adhesives.

Canadian company offers coloured adhesives in cartridges 250ml. Stock and sales for european countries is proceed through Dutch office. The whole system provides an unlimited colour variety for achieving "seamless" joints in Quartz Engineered Stone.

Adhesive shades are based on Technistone color range - see in the table below or on our web sites.

For more information see www.integra-adhesives.com.

Technistone Sheet Name	Integra Signature Collection Colour Match
Classic Beige	Beach -2065
Classic Black	Satin Black - 3062
Classic Grey	Warm Grey - 0290
Classic Ice	White North - 2440
Classic Nevada	White North - 2440
Crystal Beach	Cygnus Pearl - 2195
Crystal Colorado	Alpha Brown - 2006
Crystal Creme Beige	Neutral - 3029
Crystal Dark Shell	Cygnus Pearl - 2195
Crystal Diamond	Glacier White - 306
Crystal Montana	Beige Olimpo - 2060
Crystal Olivine	Velvet Green - 2417 ¹
Crystal Polar White	Glacier White - 3006
Crystal Quartz White	Newport Grey - 2360
Crystal Royal	Neutral - 3029
Crystal Sahara	Diana Pearl - 2200
Crystal Savannah	Alpha Brown - 2006
Crystal Topaz	Neutral - 3029
Elegance Cream	White North - 2440
Elegance Dark Grey	Tiffany Grey - 3022
Elegance Prairie	Custom
Fresh Green	Custom
Fresh Orange	California Poppy - 3047 ¹
Fresh Red	Hot - 3039
Gobi Black	Satin Black - 3062
Gobi Brown	Espresso - 3104
Gobi Grey	Meteor Grey - 2230
Gobi Mahogany	Vela Brown - 2407
Harmonia Altay	Desert - 2197
Harmonia Sierra	Tiffany Grey - 3022
Harmonia Cerros	Alpha Brown - 2006
Karpat Arizona	Beach -2065
Sonora	Beach -2065
Starlight Azurite	Cornflower - 3107 ¹
Starlight Black	Satin Black - 3062
Starlight Blue	Newgale Grey - 2340
Starlight Brown	Vela Brown - 2407
Starlight Citrine	Champagne - 3118
Starlight Desert	Sahara - 2380



Technistone Sheet Name	Integra Signature Collection Colour Match
Starlight Green	Seafoam - 0220
Starlight Grey	Meteor Grey - 2230
Starlight Red	Rosa Stardust - 3087 ¹
Starlight Ruby	Indus Red - 2240
Starlight Sand	Diana Pearl - 2200
Starlight Sapphire	Sapphire - 0210
Starlight Violet	Marone - 3116
Starlight White	Newport Grey - 2360
Taurus	Galaxy Black - 2235
Taurus Blue Bahia	Absolute Grey - 2000
Taurus Brown Pearl	Amazon - 3098
Taurus Gold	Autumn Light - 2032
Taurus Nordic	Dusk - 2207
Taurus Porphyry	Brocade - 3138
Translucent Onyx	Chameleon - 3008
Translucent Snow White	Newport Grey - 2360
Venetian Day	Newgale Grey - 2340
Venetian Night	Dusk - 2207
Venetian Sunset	Diana Pearl - 2200

¹ custom colour, minimum orders may apply

6.2.1. Plexus adhesives

Plexus adhesives are 2-component methyl methacrylate adhesive (acrylic adhesive). Dosing ratio 10 : 1, supplied in readily dispensable cartridge packages. The whole system provides an unlimited color variety for achieving "seamless" joints in Quartz Engineered Stone.

Plexus adhesives offer excellent adhesion to all types of solid surfaces, including engineered stone.

Adhesive shades are based on Technistone color range (color chart will be released in near future).

For more information see: www.itwplexus.com.