TCNA
TILE COUNCIL OF NORTH AMERICA, INC.

PRODUCT TESTING SERVICE

100 Clemson Research Blvd. • Anderson, SC 29625 • Tel (864) 646-TILE • Fax (864) 646-2821

TCNA TEST REPORT NUMBER: TCNA-424-12

TEST REQUESTED BY: E-Stone
Attn: Livio Magni
8041 Haywood Taylor Blvd.
Sebring, FL 33870

TEST SUBJECT MATERIAL: Identified by client as: **Karma 952 1.5 x 3**

TEST DATE: 8/22/12-9/19/12

TEST PROCEDURE: **ANSI A137.2 Section 7.7: "Test Method for Evaluating - Shear Bond Strength of Glass Tile"**

-Eight specimens were adhered to 2 x 7 x 15-½-inch concrete blocks according to A137.2 section 7.7.
-TCNA thin-set testing mortar was used to bond the tiles to the block. Mapei Kerapoxy was used to grout the tiles.
-Four shear specimens were allowed to cure for 28 days at room temperature and four shear specimens were allowed to cure for 21 days at room temperature and were then submerged in water for 7 days.
-All specimens were loaded in shear at a rate of 200 psi/min.

TEST RESULTS:

	28 day dry shear strength (psi)	Failure Mode	21 day dry, 7 day submerged shear strength (psi)	Failure Mode
Specimen 1	186 psi	Cohesive within thin-set	90 psi	Cohesive within thin-set
Specimen 2	167 psi	"" ""	66 psi	"" ""
Specimen 3	152 psi	"" ""	162 psi	"" ""
Specimen 4	147 psi	"" ""	121 psi	"" ""
Average	163 psi		110 psi	

[The ANSI A137.2 Specification for Glass Tile states that the average shear bond strength shall be 150 psi or greater after 28 day dry curing and 100 psi or greater after 21 day dry and 7 day submerged curing.]

Katelyn Simpson
Laboratory Manager

9/25/12
Date

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Attn: Livio Magni
8041 Haywood Taylor Blvd.
Sebring, FL 33870

TEST SUBJECT MATERIAL: Identified by client as: **Karma 952 1.5 x 3**

TEST DATE: 8/27/12-8/28/12

TEST PROCEDURE: **ANSI A137.2 Section 7.9: "Test Method for Determining Thermal Shock Resistance of Glass Tile"**
-Five whole tiles were subjected to ten cycles of thermal shock per section 8.2 (immersion test) of ASTM C484 except the high end temperature was set to 160±9°F per ANSI A137.2 section 7.9.
-The tiles were inspected for failure using a solution of methylene blue prior to cycle one and immediately following cycle ten.

TEST RESULTS:

	Observations
Specimen 1	None
Specimen 2	None
Specimen 3	None
Specimen 4	None
Specimen 5	None

[The ANSI A137.2 Specification for Glass Tile states: "the tile shall show no evidence of degradation, chipping, or cracking."]

Katelyn Simpson
Laboratory Manager

9/25/12
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TCNA TEST REPORT NUMBER: **TCNA-424-12** **PAGE: 1 OF 1**

TEST REQUESTED BY: E-Stone
Attn: Livio Magni
8041 Haywood Taylor Blvd.
Sebring, FL 33870

TEST SUBJECT MATERIAL: Identified by client as: **Karma 952 1.5 x 3**

TEST DATE: 8/28/12

TEST PROCEDURE: **ASTM C648: "Standard Test Method for Breaking Strength of Ceramic Tile"**
-Ten whole glass tiles were tested.
-The tiles were loaded at a rate of 1000 pounds per minute.
-A ball bearing triangular support was used to hold the tiles during loading.
-Testing was performed on an Instron Universal Tester, model #3385-H

TEST RESULTS: The average breaking strength of ten (10) tiles was: **649 lbf**.

The individual results of breaking strength are as follows:

Specimen 1:	**625 lbf**
Specimen 2:	**679 lbf**
Specimen 3:	**729 lbf**
Specimen 4:	**557 lbf**
Specimen 5:	**549 lbf**
Specimen 6:	**886 lbf**
Specimen 7:	**555 lbf**
Specimen 8:	**750 lbf**
Specimen 9:	**695 lbf**
Specimen 10:	**467 lbf**

[The ANSI A137.2 Specification for Glass Tile states that the average breaking strength shall be **250 lbf** or greater for fused or low temperature mosaic glass tile or **350 lbf** or greater for cast mosaic glass tile.]

Katelyn Simpson
Laboratory Manager

9/25/12
Date

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CENTRO CERAMICO
CENTRO DI RICERCA E SPERIMENTAZIONE
PER L'INDUSTRIA CERAMICA
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Via Martelli, 26 - 40138 **Bologna**
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CERTI.CER.
LABORATORIO DI ZONA
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Tel. e Fax. (0536) 802154

Part. IVA 0094778-0375

Bologna, 09/04/03

Spett.le
TREND GROUP S.p.A.
V.le dell'Industria, 42
36100 VICENZA

TEST LABORATORY

TEST REPORT N° 490/03

concerning mosaic

(translation of test report Nr. 489/03 of 09/04/03)

Requested by:	TREND GROUP S.p.A. V.le dell'Industria, 42 36100 VICENZA
On (date):	17/02/03
For the sample marked: "KARMA".	

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Membro ASTM
American Society for Testing and Materials

CERLABS EUROPEAN NETWORK OF NATIONAL CERAMIC LABORATORIES - ITALIAN MEMBER

DESCRIPTION OF THE SAMPLE: Sheets 32,8 x 32,8 cm of glass mosaic 2,0 x 2,0 x 0,3 cm, marked "KARMA".
MANUFACTURER: TREND GROUP S.p.A.
SAMPLING DETAILS: - Where: -------- - Date: -------- - By whom: CUSTOMER - How (methods): --------
DATE OF RECEIVAL IN LABORATORY: 19/02/03

TEST PERFORMED:

			Date of starting	Date of ending
[X]	ASTM C 373 / 88 (99)	Water absorption, bulk density, apparent porosity, and apparent specific gravity of fired whiteware products.	03/03/03	17/03/03

ASTM C 373/88 (99) - Water absorption, bulk density, apparent porosity, and apparent specific gravity of fired whiteware products.

RESULTS:

- APPARENT POROSITY

Apparent porosity (%) of each test specimen:

Test specimen	1	2	3	4	5
P	0,6	0,6	0,8	1,1	1,3

P average (%): 0,9

- WATER ABSORPTION

Water absorption (%) of each test specimen:

Test specimen	1	2	3	4	5
A	0,4	0,4	0,4	0,5	0,6

Average water absorption (%): 0,5

- APPARENT SPECIFIC GRAVITY

Apparent specific gravity (g/cm^3) of each test specimen:

Test specimen	1	2	3	4	5
T	2,6	2,6	2,6	2,6	2,5

T average (g/cm^3): 2,6

- BULK DENSITY

Bulk density (g/cm3) of each test specimen:

Test specimen	1	2	3	4	5
B	2,5	2,5	2,5	2,5	2,5

B average (g/cm3): 2,5

Prof. Carlo Palmonari
DIRECTOR

CENTRO CERAMICO
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Via Valled'Aosta,1 - 41049 **Sassuolo**
Tel. (0536) 802154
Part. IVA 0094778-0375

Bologna, 09/04/03

Spett. le
Trend Group S.p.A.
V.le dell'Industria, 42
36100 VICENZA

TEST LABORATORY

TEST REPORT N° 477/03

concerning mosaic

(traslation of test report Nr. 475/03 of 09/04/03)

Requested by:	Trend Group S.p.A. V.le dell'Industria, 42 36100 VICENZA
On (date):	17/02/03
For the sample marked: "KARMA".	

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DESCRIPTION OF THE SAMPLE: Sheets 32,8 x 32,8 cm of glass mosaic 2,0 x 2,0 x 0,3 cm, marked "KARMA".
MANUFACTURER: TREND GROUP S.p.A.
SAMPLING DETAILS: - Where: -------- - Date: -------- - By whom: CUSTOMER - How (methods): --------
DATE OF RECEIVAL IN LABORATORY: 19/02/03

TESTS PERFORMED:

			Date of starting	Date of ending
[x]	ASTM C 424/93 (99)	Crazing resistance	20/03/03	25/03/03

ASTM C 424/93 (99) - Crazing resistance

Dye solution: Methylene blue 10 g/l

Time for steam release (min) : 10 min

Steam pressure (KPa)	Nr. of test specimens	Nr. of damaged test specimens
345	20	0
689	20	0

Prof. Carlo Palmonari
DIRECTOR

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Part. IVA 0094778-0375

Bologna, 24/04/03

Spett. le
Trend Group S.p.A.
V.le dell'Industria, 42
36100 VICENZA

TEST LABORATORY

TEST REPORT N° 488/03

concerning mosaic

(traslation of test report Nr. 487/03 of 24/04/03

Requested by:	Trend Group S.p.A. V.le dell'Industria, 42 36100 VICENZA
On (date):	17/02/03
For the sample marked: "KARMA".	

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Membro ASTM American Society for Testing and Materials

CERLABS EUROPEAN NETWORK OF NATIONAL CERAMIC LABORATORIES - ITALIAN MEMBER

DESCRIPTION OF THE SAMPLE: Sheets 32,8 x 32,8 cm of glass mosaic 2,0 x 2,0 x 0,3 cm, marked "KARMA".
MANUFACTURER: TREND GROUP S.p.A.
SAMPLING DETAILS: - Where: -------- - Date: -------- - By whom: CUSTOMER - How (methods): --------
DATE OF RECEIVAL IN LABORATORY: 19/02/03

TESTS PERFORMED:

			Date of starting	Date of ending
[x]	ASTM C 484-99	Determination of resistance to thermal shocks of glaz ceramic tile	30/06/99	08/07/99

ASTM C 484-99- Determination of resistance to thermal shocks of glaz ceramic tile

The test was performed by making ten alternate cycles between 15°C and 145°C according to the test method ASTM C 484-99

RESULTS:

Number of test specimens: 50

Number of test specimens with visible defects: 0

Description of defects :

Prof. Carlo Palmonari
DIRECTOR

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Part. IVA 0094778-0375

Bologna, 09/04/03

Spett.le
TREND GROUP S.p.A.
V.le dell'Industria, 42
36100 VICENZA

TEST LABORATORY

TEST REPORT N° 484/03

concerning mosaic

(translation of test report Nr. 478/03 of 09/04/03)

Requested by:	TREND GROUP S.p.A. V.le dell'Industria, 42 36100 VICENZA
On (date):	17/02/03
For the sample marked: "KARMA".	

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MANUFACTURER: TREND GROUP S.p.A.
SAMPLING DETAILS: - Where: -------- - Date: -------- - By whom: CUSTOMER - How (methods): --------
DATE OF RECEIVAL IN LABORATORY: 19/02/03

TESTS PERFORMED:

			Date of starting	Date of ending
[X]	DIN 51094	Resistance of the colours to the light	03/03/03	31/03/03

DIN 51094 - Resistance of the colours to the light

After the test the proper surface did not show any colour variation.

Prof. Carlo Palmonari
DIRECTOR

Italian Exclusive Partner of CERAM RESEARCH

UKAS TESTING 2397

SASSUOLOLAB S.R.L.

IL PRESENTE RAPPORTO DI PROVA È RILASCIATO IN BASE ALL'ACCREDITAMENTO N. 2397 CONCESSO DALLA UKAS: "Accredited laboratories comply with the requirements of International Standard BS EN ISO/IEC 17025"

LABORATORIO TECNOLOGICO PER PROVE SUI MATERIALI CERAMICI SASSUOLO LAB s.r.l.

Sassuolo, 03/29/2005

Messrs **TREND GROUP S.p.A.**

Viale dell' Industria, 42
36100 VICENZA
(VC)

Confidential Test Report N. 0574/2005 /I

Our ref.num.: 5923
Date of request: 03/21/2005

Test Specimen

"Panel of dimensions 50 x 100 cm covered with mosaics formed by glass tesserae of dimension 2 x 2 cm marked:
KARMA"

Source

Submitted to Laboratory by Client

Date Received

03/21/2005

Time of test execution

start: 03/24/2005 end: 03/25/2005

Test detail / method description / test procedure

" Determination of the anti-slip characteristics - Standard DIN 51130 "

The report relates only to the sample(s) tested. This report must not be reproduced in part without the written permission of Sassuolo Lab, nor used in any way as to lead to misrepresentation of the results or their implications.

GABBRIELLI

Membro ASTM American Standard Testing Materials

Associato ACIMAC

SOCIO UNI

SASSUOLO LAB s.r.l. ☐ Via Regina Pacis, 72 - 41049 SASSUOLO (MO) ☐ Uff. Comm. e Amm.vo: Tel. ++39 0536 - 811650 ☐ Laboratorio: Tel. ++39 0536 - 810563 Fax.++39 0536 - 811585 ☐ Reg. Impr. di MO - Codice Fiscale: 04015830377 ☐ P.IVA IT: 02442210361 ☐ Cap. Soc. €. 57.720,00 i.v. ☐ R.E.A. di MO 275743

2397

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TREND GROUP S.p.A.

Test specimen

"Panel of dimensions 50 x 100 cm covered with mosaics formed by glass tesserae of dimension 2 x 2 cm marked:
KARMA"

"Information booklet concerning the flooring of working environmental and operational with slippery surfaces, Order Nr. BGR 181, edition October 2003"

Floor test: determination of the anti-slip characteristics: work areas with high slipping risk. Procedure for the stamping test inclined plane (STANDARD DIN 51130)

The test regards the working areas with a high slipping risk: the procedure foresees that a person taking part in the test walks on a an inclined plane, which is floored with the tested material and greased an oil whose viscosity is SAE 10 W 30.
During the execution of the test it is determined if the tested material may be properly laid down in specific work environments.
There is an average inclination which determines the insecurity of the person walking on the inclined plane and causes the classification of the tested material in one of five groups used to determine the sliding resistance.

Inclination angle of the inclined plane: 11,0 °

Classification: R 10

Table with the ratio of the group classification and of the inclination degree

Classification	Inclination angle
n.c. (not classifiable)	lower than 6°
R 9	from 6° to 10°
R 10	over 10° to 19°
R 11	over 19° to 27°
R 12	over 27° to 35°
R 13	over 35°

OPERATORS
(L. Farina)
(T. Fili)

LABORATORIO TECNOLOGICO PER PROVE SUI MATERIALI CERAMICI - SASSUOLO LAB s.r.l.

TECHNICAL MANAGER
(M.L. Simioli)

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Part. IVA 0094778-0375

Bologna, 09/04/03

Spett.le
TREND GROUP S.p.A.
V.le dell'Industria, 42
36100 VICENZA

TEST LABORATORY

TEST REPORT N° 479/03

concerning mosaic

(translation of test report Nr. 473/03 of 09/04/03)

Requested by:	TREND GROUP S.p.A. V.le dell'Industria, 42 36100 VICENZA
On (date):	17/02/03
For the sample marked: "KARMA".	

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(G.U. 20-12-1976 n. 353)

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(G.U. 6-7-1983 n. 183)

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CERLABS EUROPEAN NETWORK OF NATIONAL CERAMIC LABORATORIES - ITALIAN MEMBER

DESCRIPTION OF THE SAMPLE: Sheets 32,8 x 32,8 cm of glass mosaic 2,0 x 2,0 x 0,3 cm, marked "KARMA".
MANUFACTURER: TREND GROUP S.p.A.
SAMPLING DETAILS: - Where: -------- - Date: -------- - By whom: CUSTOMER - How (methods): --------
DATE OF RECEIVAL IN LABORATORY: 19/02/03

TEST PERFORMED:

			Date of starting	Date of ending
[X]	ISO 10545 - 3	Determination of water absorption, apparent porosity, apparent relative density and bulk density	03/03/03	17/03/03

ISO 10545-3 - Determination of water absorption, apparent porosity, apparent relative density and bulk density

6.1 - BOILING METHOD

Water absorption (%) of each test specimen:

Test specimen	1	2	3	4	5
E(b)	0,3	0,3	0,4	0,5	0,7

E(b) Average (%): 04

6.1 - VACUUM METHOD

Water absorption (%) of each test specimen:

Test specimen	1	2	3	4	5
E(v)	0,2	0,2	0,3	0,4	0,6

E(v) Average (%): 0,3

6.2 - APPARENT POROSITY

Apparent porosity (%) of each test specimen:

Test specimen	1	2	3	4	5
P	0,6	0,6	0,8	1,1	1,3

P average (%): 0,9

6.3 - APPARENT RELATIVE DENSITY

Apparent relative density (g/cm3) of each test specimen:

Test specimen	1	2	3	4	5
T	2,6	2,5	2,6	2,5	2,5

T average (g/cm3): 2,5

6.4 - BULK DENSITY

Bulk density (g/cm3) of each test specimen:

Test specimen	1	2	3	4	5
B	2,5	2,5	2,5	2,5	2,5

B average (g/cm3): 2,5

Prof. Carlo Palmonari
DIRECTOR

Centro Ricerca Sperimentazione per l'Industria Ceramica - CENTRO CERAMICO BOLOGNA

CENTRO CERAMICO
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Via Don Minzoni, 61 (Quartiere Ancora)
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Part. IVA 0094778-0375

Bologna, 24/04/03

Spett. le
Trend Group S.p.A.
V.le dell'Industria, 42
36100 VICENZA

TEST LABORATORY

TEST REPORT N° 480/03

concerning mosaic

(traslation of test report Nr. 474/03 of 24/04/03

Requested by:	Trend Group S.p.A. V.le dell'Industria, 42 36100 VICENZA
On (date):	17/02/03
For the sample marked: "KARMA".	

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CERLABS EUROPEAN NETWORK OF NATIONAL CERAMIC LABORATORIES - ITALIAN MEMBER

DESCRIPTION OF THE SAMPLE: Sheets 32,8 x 32,8 cm of glass mosaic 2,0 x 2,0 x 0,3 cm, marked "KARMA".
MANUFACTURER: TREND GROUP S.p.A.
SAMPLING DETAILS: - Where: -------- - Date: -------- - By whom: CUSTOMER - How (methods): --------
DATE OF RECEIVAL IN LABORATORY: 19/02/03

TESTS PERFORMED:

			Date of starting	Date of ending
[X]	UNI EN ISO 10545 - 9	Determination of resistance to thermal shock	20/03/03	16/04/03

UNI EN ISO 10545 - 9 - Determination of resistance to thermal shock

Water absorption (according to ISO 10545 - 3): 0,4

Type of test performed: testing with immersion [x]
testing without immersion [ ]

Number of test specimens with visible defects: 0

Description of the visible defect:

Prof. Carlo Palmonari
Director

Sperimentazione per l'Industria Ceramica - Centro Ricerca CENTRO CERAMICO BOLOGNA

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CENTRO DI RICERCA E SPERIMENTAZIONE
PER L'INDUSTRIA CERAMICA
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CERTI.CER.
LABORATORIO DI ZONA
Via Valle D'Aosta, 1
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Tel. e Fax. (0536) 802154

Part. IVA 0094778-0375

Bologna, 09/04/03

Spett.le
TREND GROUP S.p.A.
V.le dell'Industria, 42
36100 VICENZA

TEST LABORATORY

TEST REPORT N° 483/03

concerning mosaic

(traslation of test report Nr. 481/03 of 09/04/03)

Requested by:	TREND GROUP S.p.A. V.le dell'Industria, 42 36100 VICENZA
On (date):	17/02/03
For the sample marked: "KARMA".	

The results reported relate only to the samples tested.

No responsibility is taken for the accuracy of the sampling unless it is done under our own supervision.

The reproduction of this test report is only authorized in the form of a complete photographic facsimile. Our written approval is necessary for any partial reproduction.

This test report consists of 3 pages this cover included.

Consorzio universitario per la gestione del «Centro di ricerca e sperimentazione per l'industria ceramica». D.P.R. 10-4-1978 n. 806 (G.U 20-12-1978 n. 353)

Laboratorio autorizzato ad effettuare il servizio di rilevamento dell'inquinamento atmosferico Decreto MINISTERO SANITÀ 10-8-1974 (G.U. 14-9-1974 n. 240)

Laboratorio iscritto nell'albo dei «Laboratori Esterni Pubblici e Privati Altamente Qualificati». Decreto MINISTERO RICERCA SCIENTIFICA 6-6-1983 (G.U 6-7-1983 n. 183)

Membro ASTM American Society for Testing and Materials.

CERLABS EUROPEAN NETWORK OF NATIONAL CERAMIC LABORATORIES - ITALIAN MEMBER

DESCRIPTION OF THE SAMPLE: Sheets 32,8 x 32,8 cm of glass mosaic 2,0 x 2,0 x 0,3 cm, marked "KARMA".
MANUFACTURER: TREND GROUP S.p.A.
SAMPLING DETAILS: - Where: -------- - Date: -------- - By whom: CUSTOMER - How (methods): --------
DATE OF RECEIVAL IN LABORATORY: 19/02/03

TEST PERFORMED:

	Date of starting	Date of ending
[X] ISO 10545 - 12 Determination of frost resistance	06/03/03	27/03/03

ISO 10545 - 12 - Determination of frost resistance.

Number of specimens in the test sample:	80
Water content before the freeze-thaw test:	0,4
Water content after the freeze-thaw test:	0,4

Description of defects before the test:

Damages on the proper surface and the edges of specimens after the freeze-thaw test:

Number of damaged specimen after 100 cycles from -5° C to +5° C:	0

Prof. Carlo Palmonari
DIRECTOR

Centro Ricerca Sperimentazione Ceramica - CENTRO CERAMICO BOLOGNA

CENTRO CERAMICO
CENTRO DI RICERCA E SPERIMENTAZIONE
PER L'INDUSTRIA CERAMICA
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Tel. e Fax. (0536) 802154

Part. IVA 0094778-0375

Bologna, 09/04/03

Spett.le
TREND GROUP S.p.A.
V.le dell'Industria, 42
36100 VICENZA

TEST LABORATORY

TEST REPORT N° 482/03

concerning mosaic

(translation of test report Nr. 476/03 of 09/04/03)

Richiesto da:	TREND GROUP S.p.A. V.le dell'Industria, 42 36100 VICENZA
In data:	17/02/03
Per il prodotto contrassegnato: "KARMA".	

The results reported relate only to the samples tested.

No responsibility is taken for the accuracy of the sampling unless it is done under our own supervision.

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Consorzio universitario per la gestione del «Centro di ricerca e sperimentazione per l'industria ceramica»
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Decreto MINISTERO RICERCA SCIENTIFICA 6-6-1983
(G.U. 6-7-1983 n. 183)

Membro ASTM
American Society for Testing and Materials.

CERLABS EUROPEAN NETWORK OF NATIONAL CERAMIC LABORATORIES - ITALIAN MEMBER

DESCRIPTION OF THE SAMPLE: Sheets 32,8 x 32,8 cm of glass mosaic 2,0 x 2,0 x 0,3 cm, marked "KARMA".
MANUFACTURER: TREND GROUP S.p.A.
SAMPLING DETAILS: - Where: -------- - Date: -------- - By whom: CUSTOMER - How (methods): --------
DATE OF RECEIVAL IN LABORATORY: 19/02/03

TEST PERFORMED:

			Data inizio	Data fine
[X]	ISO 10545 - 13 § 8	Determination of chemical resistance - Glazed tiles	17/03/03	24/03/03

ISO 10545 - 13 § 8 - Determination of chemical resistance - Glazed tiles

Test solution used	RESISTANCE CLASS OF TEST SPECIMENS				
	1	2	3	4	5
Household Chemicals: Ammonium Chloride 100 g/l	A	A	A	A	A
Swimming pool salts: Sodium hypochlorite 20 mg/l	A	A	A	A	A
Acids: Hydrochloric acid 3 % V/V	LA	LA	LA	LA	LA
Citric acid 100 g/l	LA	LA	LA	LA	LA
Alkali: Potassium Hydroxide 30 g/l	LA	LA	LA	LA	LA
Acids: Hydrochloric acid 18 % V/V	HA	HA	HA	HA	HA
Lactic acid 5 % V/V	HA	HA	HA	HA	HA
Alkali: Potassium Hydroxide 100 g/l	HA	HA	HA	HA	HA

Pencil test and/or reflection test are applicable: YES

CLASSIFICATION	
L = Low concentration chemicals	
H = High concentration chemicals	
Pencil test and/or reflection test are applicable:	
Class A	no visible effect
Class B	definitive change in appearance
Class C	partial or complete loss of the surface

Prof. Carlo Palmonari
DIRECTOR