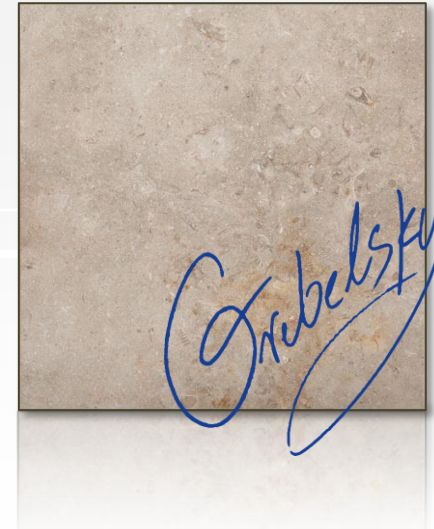


Grey Gold



Exterior Usage:

Suitable for paving and cladding applications in freezing and non-freezing conditions.

Durability:

Suitable for most commercial and/or high traffic areas.

Usage in wet conditions:

Suitable for wet surroundings.



Other Names:

Ramon Gray Gold
Silver Gold
Jerusalem Gray Gold
Jerusalem Fossil

Stone Type:

Limestone

Quarry Location:

Mitzpe Ramon,
Grebelsky Quarry

Special Notes:

- Application of a sealer is recommended. (Note: It is advised to apply a sealer prior to grouting.)

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Date of issue: 28/06/2013

Test report n° 13-2365-006/E

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Sample description

RAMON GREY – GREY GOLD

Client

A.Grebelsky & Son (Jerusalem Marble)
Company #510234574
4 Hamelacha St. Hartuv A, Industry Zone 99065
Israel

provenance

Client's works

type of specimen

Natural stone slabs and cubes

Sampler

Client

Date of sampling

Not declared

Date of delivery

14/04/2013

Number of entrance

13-2365

Date of entrance

10/05/2013

test start

10/05/2013

test end

28/06/2013

Reference

Initial type testing for CE mark according to :
EN 1341 :2013
EN 1469 :2004
EN 12057 :2004
EN 12058 :2004

* Test not accredited by ACCREDIA

supply information by client

N.A. not applicable

** test performed by an external qualified laboratory

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NATURAL STONE TEST METHODS – PETROGRAPHIC EXAMINATION ** (UNI EN 12407:2007)

MACROSCOPIC DESCRIPTION

Natural stone slabs 180 x 90 x 30 mm with sawn surface finish.

Beige fossiliferous sedimentary rock, with heterogeneous structure for the presence of stylolites sometimes opened and compositional patches. There is common presence of bioclasts (bivalves and gastropods).

It is not possible to appreciate micro constituents iso-orientation as well as alteration traces. The rock looks massive, reacts with HCl and can be scratched with a metallic blade as it has a carbonatic origin.



Photo 1: macroscopic look of the POORLY WASHED BIOSPARITE commercially named "Ramon Grey – Grey Gold", (Stereomicroscope 10m)

* Test not accredited by ACCREDIA

supply information by client

N.A., not applicable

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Test report n° 13-2365-006/E

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MICROSCOPIC DESCRIPTION

Calcareous rock with heterogeneous structure for the presence of stylolites sometimes opened and compositional patches.

The texture is organic- sedimentary with maximum dimensions equal to 4 mm and with granular support.

There are abundant allochemical compounds among which bivalves, gastropods, echinoderms, algae, organogenic scraps. The original aragonite composing most of the bioclasts (bivalves and gastropods) was dissolved and the mould filled with an equant calcite spar cement. Only few original structure of bivalves' shells are preserved.

There are no terrigenous compounds.

Orthochemical compounds are made by sparite, both as coarsely crystalline calcite which filled the mould of the molluscan fragments with dark micritic envelopes, and for fenestral porosity. Opaque minerals as microgranulation are widespread in the section.

The micritic matrix, locally re-crystallizing, is heterogeneously widespread.

Discontinuity: they are mainly opened stylolites and micro fractures and also alternatively intergranular pores and fenestral ones.

Alteration: none.

* Test not accredited by ACCREDIA

supply information by client

N.A. not applicable

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Test report n° 13-2365-006/E

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PHOTOGRAPHIC DOCUMENTATION

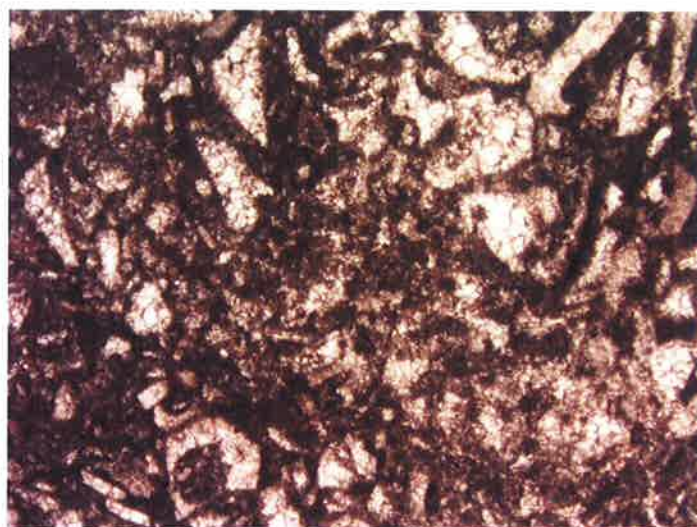


Photo 2: look of the material in thin section. There are a lot of bioclasts mould with dark micritic envelopes and filled with sparite. (25 m. Nicols //).

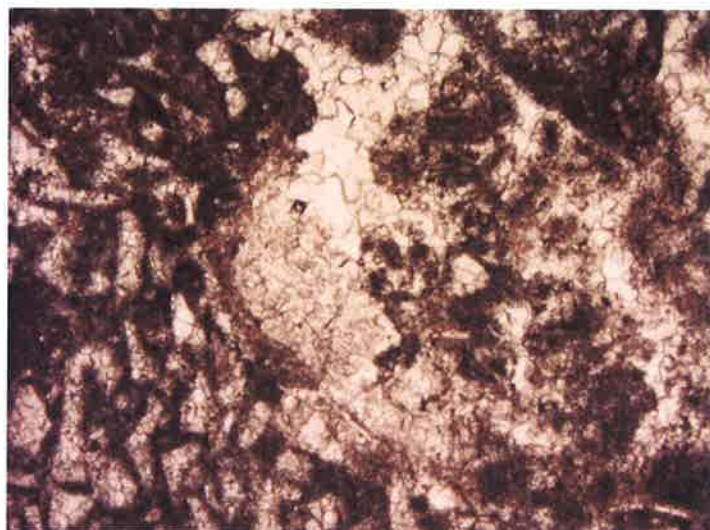


Photo 3: on the right a fenestral pore calcitized by sparite with micritic lumps inside. On the left calcitic mould of organogenic grit. (25 m. Nicols //).

PETROGRAPHIC DEFINITION (UNI EN 12670:2003):

Commercial definition:

RAMON GREY – GREY GOLD

Petrographic definition

poorly washed biosparite

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supply information by client

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Test report n° 13-2365-006/E

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DETERMINATION OF WATER ABSORPTION AT ATMOSPHERIC PRESSURE (UNI EN 13755:2008)

SPECIMEN	specimen dimensions (mm)			Dry specimen (g)	Saturated specimen (g)	Water absorption (%)
n.	L	l	h	m _d	m _s	A _b
ASS - 1	52,8	52,8	52,1	384,23	385,31	0,3
ASS - 2	52,7	52,7	52,0	382,88	384,12	0,3
ASS - 3	52,7	52,6	52,2	383,64	384,85	0,3
ASS - 4	52,8	52,7	51,7	382,61	383,85	0,3
ASS - 5	52,9	51,8	52,7	383,20	384,27	0,3
ASS - 6	52,7	51,8	52,9	383,79	384,90	0,3
mean water absorption (%)						0,3±0,1

Note: extended uncertainty of the mean value has been calculated with a coverage factor $k = 2,57$ corresponding to a confidence level of 95 %

* Test not accredited by ACCREDIA

supply information by client

N.A. not applicable

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DETERMINATION OF APPARENT DENSITY (UNI EN 1936:2007) *

specimen	dry specimen (g)	saturated specimen (g)	immersed specimen (g)	Apparent density (kg/m ³)
ASS - 1	384,23	385,63	242,26	2674,6
ASS - 2	382,88	384,51	241,29	2668,0
ASS - 3	383,64	385,01	241,77	2672,9
ASS - 4	382,61	383,97	241,17	2674,0
ASS - 5	383,20	384,66	241,67	2674,5
ASS - 6	383,79	385,17	242,04	2676,0
Mean apparent density (kg/m ³)				2670

DETERMINATION OF OPEN POROSITY (1936:2007)*

specimen	dry specimen (g)	saturated specimen (g)	immersed specimen (g)	Open porosity (%)
ASS - 1	384,23	385,63	242,26	1,0
ASS - 2	382,88	384,51	241,29	1,1
ASS - 3	383,64	385,01	241,77	1,0
ASS - 4	382,61	383,97	241,17	1,0
ASS - 5	383,20	384,66	241,67	1,0
ASS - 6	383,79	385,17	242,04	1,0
Mean open porosity (%)				1,0

HYGROTHERMAL PROPERTIES – TABULATED DESIGN VALUES (UNI EN ISO 10456 :2008)*

APPARENT DENSITY ρ (kg/m ³) ¹	Thermal conductivity λ w/(mK)
2670	2,3

¹ mean apparent density

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DETERMINATION OF FLEXURAL STRENGTH UNDER CONCENTRATED LOAD (UNI EN 12372:2007)

- Load rate: 0,25 MPa/s
- Surface finish: sawn #
- Load orientation: perpendicolar to the utilization plane

n.	L	Supporting distance (l)	b	h	F	R _{TF}
F - 1	182,6	150,5	91,1	31,3	5229	13,2
F - 2	182,6	150,5	91,1	29,0	4753	14,0
F - 3	181,7	150,5	91,0	29,9	5061	14,0
F - 4	180,2	150,5	91,1	30,2	4096	11,1
F - 5	182,3	150,5	91,2	32,6	4921	11,5
F - 6	182,4	150,5	90,4	28,3	4003	12,5
F - 7	181,9	150,5	91,3	30,6	4436	11,7
F - 8	182,4	150,5	90,8	28,4	4796	14,8
F - 9	180,6	150,5	91,1	30,1	4558	12,5
F - 10	180,3	150,5	90,8	30,9	4594	12,0
Mean flexural strenght (MPa):						12,7

Number of specimen	10
Mean Value (MPa)	12,7 ±0,8MPa
Standard deviation	1,23
Coefficient of variation	0,10
Mean logarithmic	2,54
Logarithmic standard deviation	0,095
Minimum value (MPa)	11,1
Maximum value (MPa)	14,8
Lower expected value (MPa)	10,4
Quantile factor K _S	2,10

NOTE: the extended uncertainty of the mean value has been calculated with a coverage factor k = 2,09, corresponding to a confidence level of 95 %

* Test not accredited by ACCREDIA

supply information by client

N.A. not applicable

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Date of issue: 28/06/2013

Test report n° 13-2365-006/E

8/16

**DETERMINATION OF FLEXURAL STRENGTH UNDER CONCENTRATED LOAD (UNI EN 12372:2007)
(after freeze/thaw cycles according to UNI EN 12371:2010)***

- Load rate: 0,25 MPa/s
- Number of cycles: 56
- Visual inspection after freeze/thaw cycles: very minor damage (minor rounding of corners and edges) wich does not compromise the integrity of the specimen.
- Surface finish#: sawn
- Load orientation: perpendicolar to the utilization plane

specimen	Dimensions (mm)				Breaking load (N)	Flexural strength (MPa)
n.	L	Supporting distance (l)	b	h	F	R _{TF}
F - 1	182,3	150,5	91,1	31,1	5409	13,9
F - 2	182,2	150,5	91,0	31,0	5234	13,5
F - 3	182,1	150,5	91,1	30,5	5050	13,5
F - 4	181,7	150,5	91,0	31,6	4133	10,3
F - 5	180,3	150,5	91,2	30,5	4989	13,3
F - 6	181,2	150,5	91,3	31,7	4271	10,5
F - 7	181,7	150,5	91,4	28,0	4280	13,5
F - 8	180,3	150,5	91,1	29,2	4839	14,1
F - 9	179,8	150,5	91,2	28,6	4326	13,1
F - 10	179,9	150,5	91,0	28,5	3325	10,2
Mean flexural strenght (MPa):						12,6

Number of specimen	10
Mean Value (MPa)	12,6 ±1MPa
Standard deviation	1,58
Coefficient of variation	0,13
Mean logarithmic	2,52
Logarithmic standard deviation	0,134
Minimum vale (MPa)	10,2
Maximum value (MPa)	14,1
Lower expected value (MPa)	9,4
Quantile factor K _S	2,10

NOTE: the extended uncertainty of the mean value has been calculated with a coverage factor k = 2,09, corresponding to a confidence level of 95 %

* Test not accredited by ACCREDIA

supply information by client

N.A. not applicable

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Test report n° 13-2365-006/E

9/16

Mean flexural strenght (R_{TF}) before freeze/thaw cycles: R_{TF} : 12,7 MPaMean flexural strenght (R_{TF}) after freeze/thaw cycles: R_{TF} : 12,6 MPa

The mean value of flexural strenght is not decreased more than 20 % after the freeze/thaw cycles.

* Test not accredited by ACCREDIA

supply information by client

N.A., not applicable

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Date of issue: 28/06/2013

Test report n° 13-2365-006/E

10/16

DETERMINATION OF THE BREAKING LOAD AT DOWEL HOLE (UNI EN 13364:2003)*

Key

symbol	description
d_1	distance from the hole to the face in the direction of the force in (mm), approximate to 1,0 mm
b_a	maximum distance of the centre of the hole to the fracture edges in (mm), approximate to 1,0 mm
F	Breaking load, in Newton, approximate to 50 N

TEST CHARACTERISTIC

TEST TYPE:	0
HOLE DIAMETER (mm):	10,0
DOWEL DIAMETER (mm):	6,1

Specimen N.	L1	L2	d	Point N.	d (mm)	d ₁ (mm)	b _a (mm)	F (N)
1	198,4	199,5	30,9	1	30,6	11	55	1550
				2	30,8	11	51	1950
				3	30,6	11	35	1650
				4	31,7	12	55	1850
				Mean Value:			11	49
Specimen N.	L1	L2	d	Point N.	d (mm)	d ₁ (mm)	b _a (mm)	F (N)
2	203	205,2	32	1	32,0	10	40	1250
				2	32,0	10	41	1600
				3	32,1	12	38	1700
				4	32,0	11	34	1650
				Mean Value:			11	38
Specimen N.	L1	L2	d	Point N.	d (mm)	d ₁ (mm)	b _a (mm)	F (N)
3	199,8	199	31,5	1	31,4	11	39	1500
				2	31,6	10	40	1100
				3	31,4	12	52	2000
				4	31,5	11	41	1600
				Mean Value:			11	43

N° of tests	12
Valore medio (N)	1617
standard deviation	260
Coefficient of variation	0,16
Logarithmic mean	7,38
Logarithmic standard deviation	0,17
Minimum value (N)	1100
Maximum value (N)	2000
Lower expected value(N)	1130
Quantile factor K_S	2,06

* Test not accredited by ACCREDIA

supply information by client

N.A. not applicable

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Laboratorio iscritto al Registro Regionale dei Laboratori ai fini dell'autocertificazione (D.G.R. n° 3644/2004)

Laboratorio di ricerca altamente qualificato art. 14 DM 593/2006-G.U. n° 29/2006

Organizzazione con Sistema di Gestione Certificato secondo UNICE: EN ISO/IEC 17025:2005

LAB N°0699

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EA, IAF e ILAC

Signatory of EA, IAF and ILAC
Mutual Recognition Agreements

Date of issue: 28/06/2013

Test report n° 13-2365-006/E

11/16

DETERMINATION OF THE ABRASION RESISTANCE (UNI EN 14157:2005)*
Method A - Wide wheel abrasion test

Specimen N°	groove Length ¹ (mm)
A - 1	25,5
A - 2	23,5
A - 3	26,0
A - 4	23,5
A - 5	23,5
A - 6	25,5
Mean Value	24,5

SURFACE FINISH[#]: SAWN

¹**NOTE:** groove length already corrected joining the calibration factor of 0,4 mm.

DETERMINATION OF THE SLIP RESISTANCE VALUE BY MEANS OF THE PENDULUM TESTER (UNI EN 14231:2004) (USRV)*

Specimen N°	Mean of the two recorded values measured in opposite directions (USRV)
S - 1	43
S - 2	55
S - 3	48
S - 4	52
S - 5	49
S - 6	45
Mean Value	49

- Slider length: 76 mm
- Surface finish[#]: sawn
- Slider and sampling « wet »

* Test not accredited by ACCREDIA

supply information by client

N.A. not applicable

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Laboratorio di ricerca altamente qualificato art. 14 Dm 583/2000-G.U. n° 29/2003

Organizzazione con Sistema di Gestione Certificato secondo UNI-CEI EN ISO/IEC 17025:2005

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Date of issue: 28/06/2013

Test report n° 13-2365-006/E

12/16

DETERMINATION OF THE SLIP RESISTANCE VALUE BY MEANS OF THE PENDULUM TESTER (UNI EN 14231:2004) (SRV)*

- Slider Length: 76 mm
- Surface finish[#]: honed
- Slider and specimen condition: "dry"

Specimen N°	Average value ¹ (SRV "dry")
1	44
2	45
3	44
4	51
5	47
6	48
Average value	47

- Slider Length: 76 mm
- Surface finish[#]: honed
- Slider and specimen condition : "wet"

Specimen N°	Average value ¹ (SRV "wet")
1	6
2	6
3	8
4	15
5	10
6	10
Average value	9

The TRL pendulum tester has a range of reading from 0 to 150, high values indicate good slip resistance.

¹Note: mean value of 5 + 5 individual measurement obtained with orientation A and A to 180°

* Test not accredited by ACCREDIA

supply information by client

N.A. not applicable

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Laboratorio iscritto al Registro Regionale dei Laboratori ai fini dell'autocontrollo (D.G.R.V. n° 3644/2004)

Laboratorio di ricerca altamente qualificato ai sensi della DM 593/2000-G.U. n° 29/2003

Organizzazione con Sistema di Gestione Certificato secondo UNI/EN ISO/IEC 17025:2005

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Date of issue: 28/06/2013

Test report n° 13-2365-006/E

13/16

DETERMINATION OF THE SLIP RESISTANCE VALUE BY MEANS OF THE PENDULUM TESTER (UNI EN 14231:2004) (SRV)*

- **Slider Length: 76 mm**
- **Surface finish[#]: heavy patina**
- **Slider and specimen condition: "dry"**

Specimen N°	Average value ¹ (SRV "dry")
1	44
2	45
3	46
4	47
5	47
6	48
Average value	46

- **Slider Length: 76 mm**
- **Surface finish[#]: heavy patina**
- **Slider and specimen condition : "wet"**

Specimen N°	Average value ¹ (SRV "wet")
1	15
2	10
3	14
4	13
5	12
6	15
Average value	13

The TRL pendulum tester has a range of reading from 0 to 150, high values indicate good slip resistance.

¹Note: mean value of 5 + 5 individual measurement obtained with orientation A and A to 180°

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N.A. not applicable

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Laboratorio di ricerca altamente qualificato art. 14 DM 593/2000-G.U. n° 29/2003

Organizzazione con Sistema di Gestione Certificato secondo UNI-CEI EN ISO/IEC 17025:2005

DETERMINATION OF THE SLIP RESISTANCE VALUE BY MEANS OF THE PENDULUM TESTER (UNI EN 14231:2004) (SRV)*

- Slider Length: 76 mm
- Surface finish#: tumbled
- Slider and specimen condition: "dry"

Specimen N°	Average value ¹ (SRV "dry")
1	61
2	58
3	60
4	57
5	59
6	62
Average value	60

- Slider Length: 76 mm
- Surface finish#: tumbled
- Slider and specimen condition : "wet"

Specimen N°	Average value ¹ (SRV "wet")
1	42
2	37
3	33
4	34
5	35
6	38
Average value	37

The TRL pendulum tester has a range of reading from 0 to 150, high values indicate good slip resistance.

¹Note: mean value of 5 + 5 individual measurement obtained with orientation A and A to 180°

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N.A. not applicable

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Laboratorio di ricerca altamente qualificato art. 14 D.M. 593/2000-G.U. n° 29/2003

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15/16

DETERMINATION OF THE SLIP RESISTANCE VALUE BY MEANS OF THE PENDULUM TESTER (UNI EN 14231:2004) (SRV)*

- Slider Length: 76 mm
- Surface finish#: stardust
- Slider and specimen condition: "dry"

Specimen N°	Average value ¹ (SRV "dry")
1	80
2	72
3	75
4	70
5	71
6	72
Average value	73

- Slider Length: 76 mm
- Surface finish#: stardust
- Slider and specimen condition : "wet"

Specimen N°	Average value ¹ (SRV "wet")
1	65
2	63
3	62
4	62
5	63
6	64
Average value	63

The TRL pendulum tester has a range of reading from 0 to 150, high values indicate good slip resistance.

¹Note: mean value of 5 + 5 individual measurement obtained with orientation A and A to 180°

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N.A. not applicable

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Test report n° 13-2365-006/E

16/16

DECLARATION OF REACTION TO FIRE CLASS (UNI EN 13501-1:2007)*

REACTION TO FIRE CLASS ¹

A 1

¹ according to Commission Decision n° 96/603/EC.DETERMINATION OF RESISTANCE TO AGING BY THERMAL SHOCK (UNI EN 14066:2004)*
- evaluation of change in mass after the cycles -Cycle description: specimens are heated at 105°C for 18 h and immediately immersed in water at 20°C for 6 h. The total number of cycles are 20.

specimen n°	m ₀ (g)	m _f (g)	Δm (%)	visual description
1	2080,8	2080,4	0,0	not appreciable alteration traces
2	2071,7	2071,0	0,0	not appreciable alteration traces
3	2080,9	2080,3	0,0	not appreciable alteration traces
4	2082,4	2081,8	0,0	not appreciable alteration traces
5	2151,0	2150,5	0,0	not appreciable alteration traces
6	2140,3	2139,9	0,0	not appreciable alteration traces
Mean Value (%)			0,0	

Keym₀ (g) = mass of dried specimen before the testm_f (g) = mass of dried specimen after the test

Δm (%) = mass change after the cycles

Geotechnical Division
The Director
Dr. Geologist Francesco Bazzolo

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