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TYPES OF AUTOMATIC MIXING SYSTEMS FOR GEOPOLYMER MORTAR / CONCRETE PRODUCTION AND 3D PRINTING

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OUTLINE

GeoMITS introduction

Mixing plants portfolio

Geopolymer productions

Final Properties

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MATERIAL
INNOVATION
TECHNOLOGY
SERVICE

GeoMITS is focalized on :

- **Consulting, R&D and supplying about Geopolymer binders (reactive powders and liquid hardeners) for several applications**
- **Customizing of automatic mixing plants (mobile and fixed central beton) for production from laboratory to industrial scale**
- **360° Service about designing of final geopolymer recipes included choice of best partially reactive aggregate curve**
- **Intermediation between clients and aggregates supplier**

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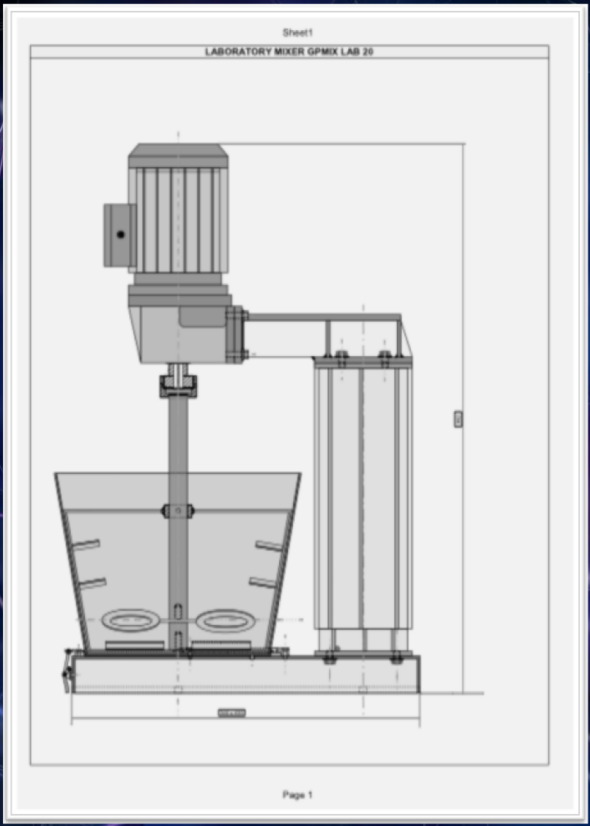
MIXING PLANTS PORTFOLIO



GP LAB MIX 20 system technical features:

- Production of Geopolymer product from 6 to 24 Kg / Batch
- Installed electrical power = 1,5 kw
- Electric power consumption = 1,1 Kw

Keeping an average about 60% of mixer's capacity used per batch , hourly production may change according to the type of Geopolymer binder used and depending on density of final Geopolymer mortar or concrete in production

GP LAB MIX 20 (half automatic)

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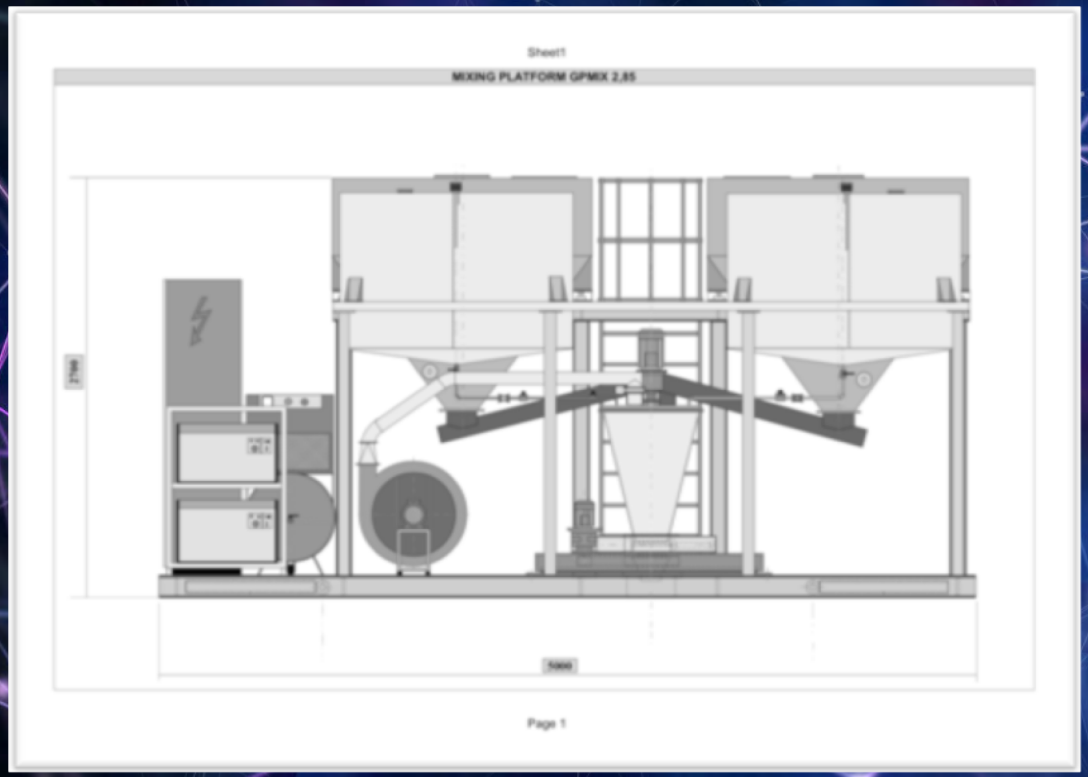
MIXING PLANTS PORTFOLIO



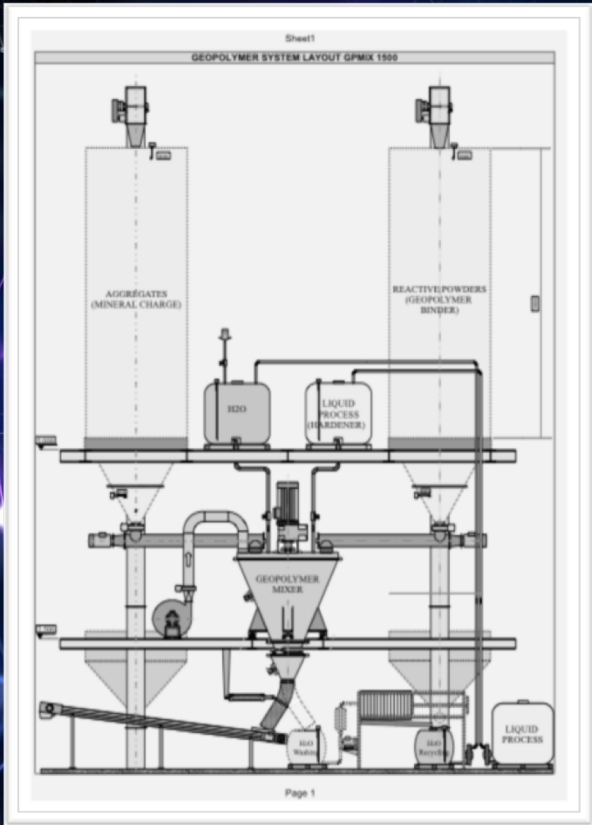
GP MIX 2.85 automatic and mobile system. Technical features:

- Production of Geopolymer product from 400 to 2000 Kg / h (2 mixers)
- Installed electrical power = 12 kw
- Electric power consumption =7 Kw
- 2 diesel generators included

Keeping an average about 60% of mixer's capacity used per batch , hourly production may change according to the type of Geopolymer binder used and depending on density of final Geopolymer mortar or concrete in production.

GP MIX 2.85 (automatic-mobile)

MIXING PLANTS PORTFOLIO



GP MIX 1500 system technical features:

- Production of Geopolymer product from 1500 to 8000 Kg / hours
- Installed electrical power = 52,6 kw
- Electric power consumption = 27 Kw

Keeping an average about 60% of mixer's capacity used per batch , hourly production may change according to the type of Geopolymer binder used and depending on density of final Geopolymer mortar or concrete in production

GP MIX 1500 (automatic-central beton)

GP MIX 2.85

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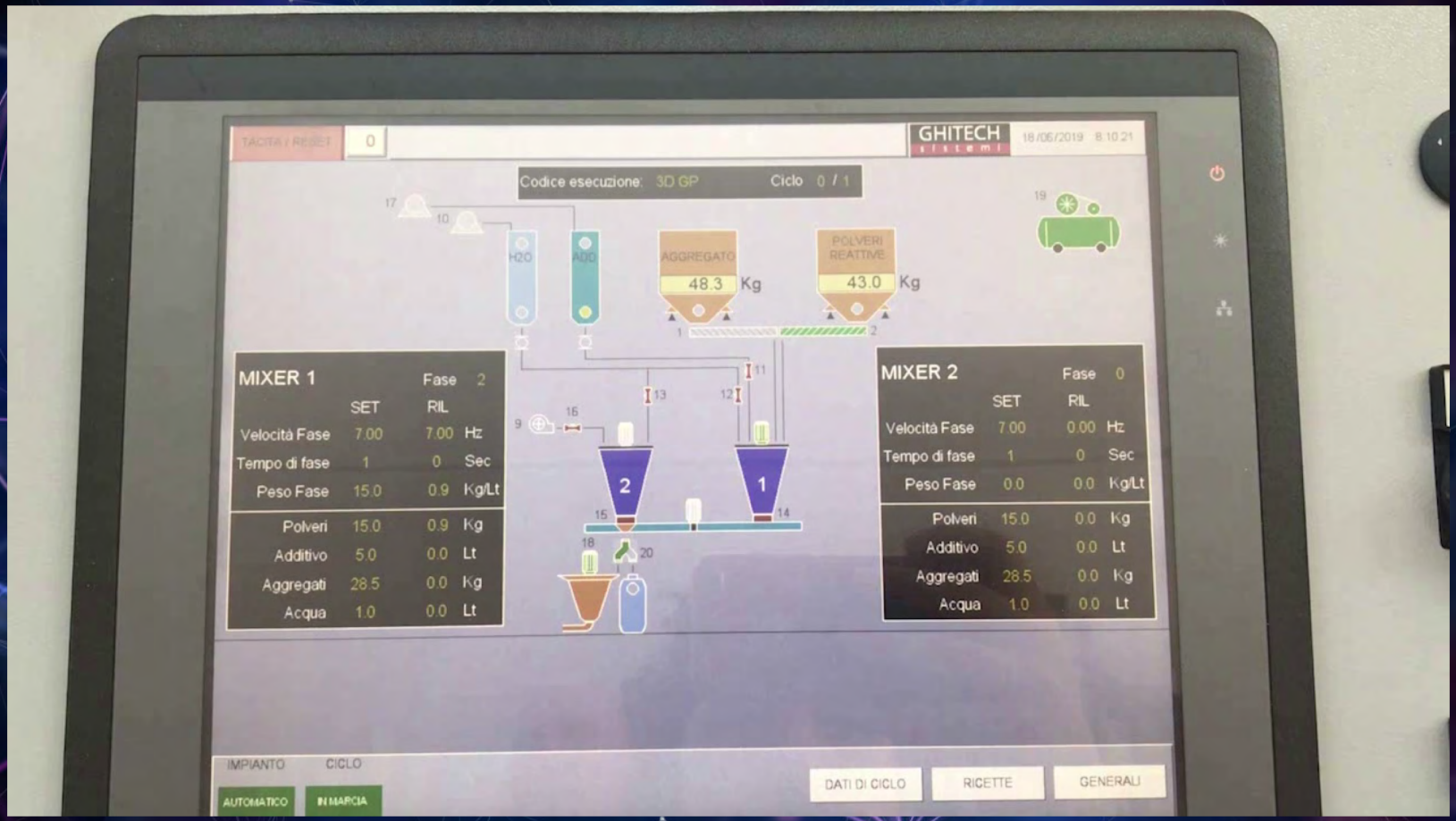
Control Panel

Loading of Geopolymer's reactive powders

Loading of Hardener

Loading of premixed Aggregates

Mixing cycle of a geopolymer mortar



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Casting of final geopolymer product

Geopolymer production

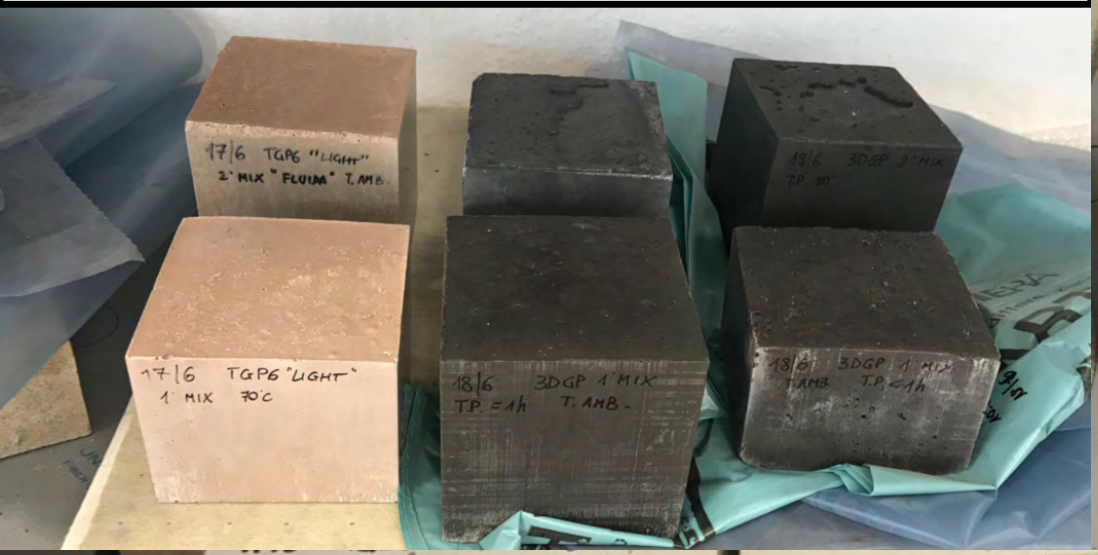
3D GP STANDARD MORTAR

HUMID EARTH CONCRETE

TEGOLA GP MORTAR

CASTABLE GP

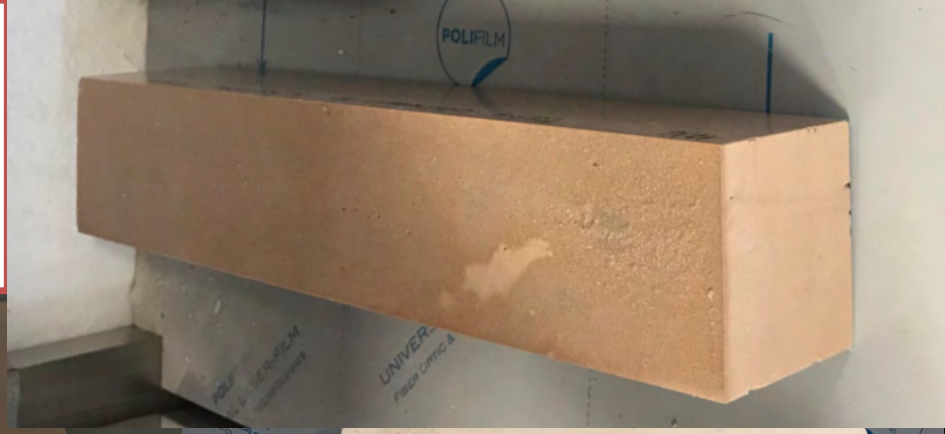
3D GP STANDARD MORTAR



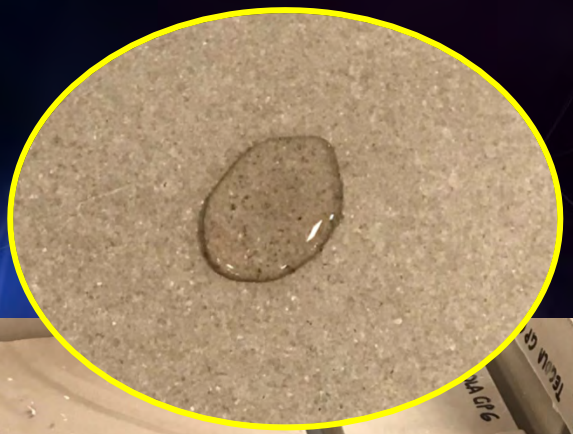
Water repellency

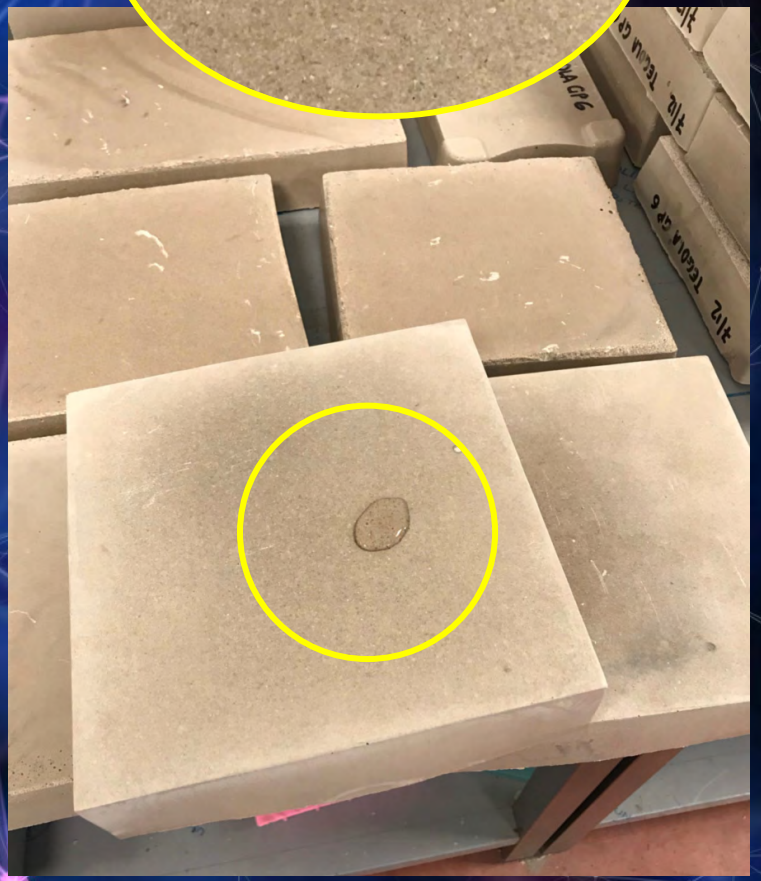
Test under sea water

TEGOLA GP MORTAR



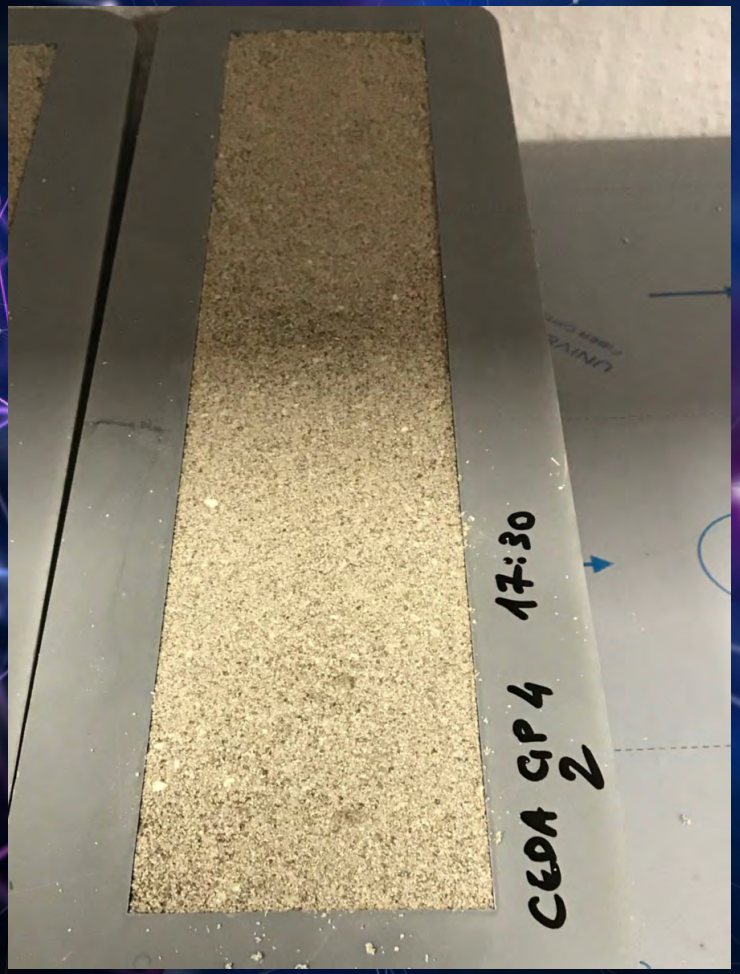
TEGOLA GP MORTAR

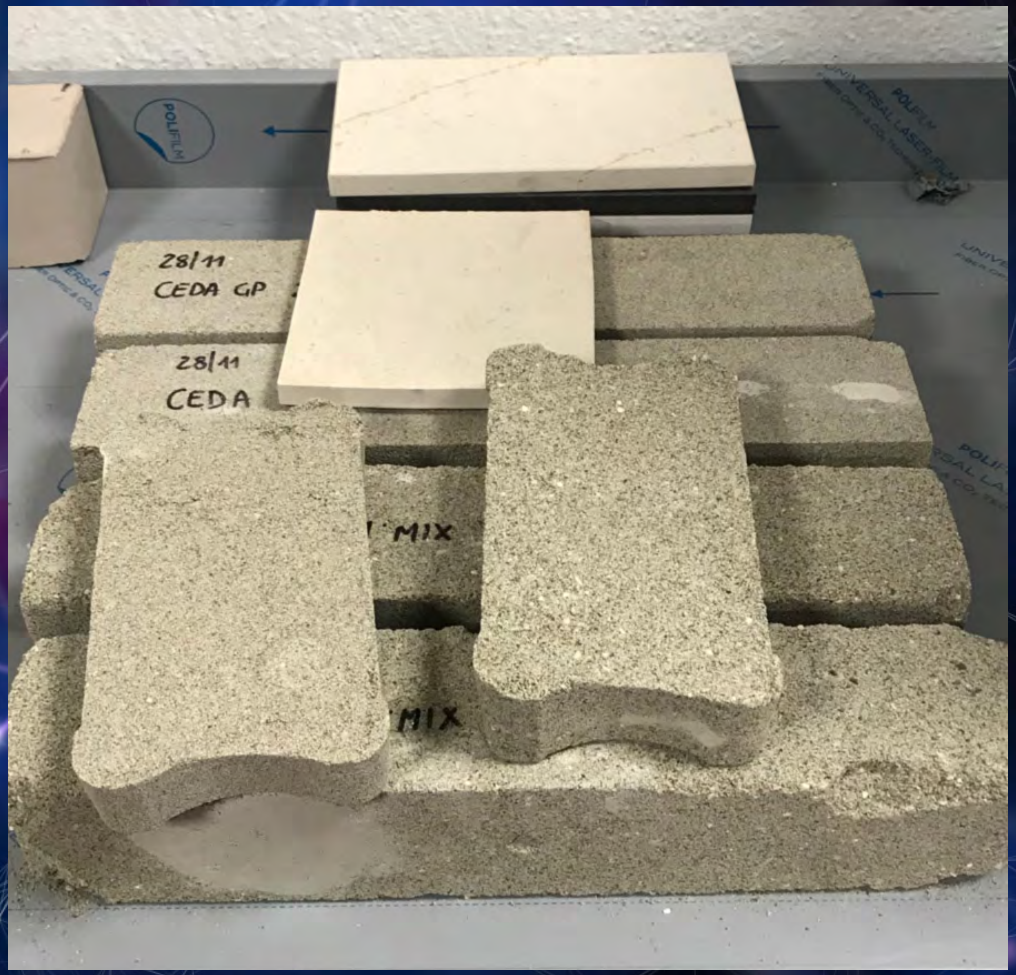




HUMID EARTH CONCRETE

HUMID EARTH CONCRETE





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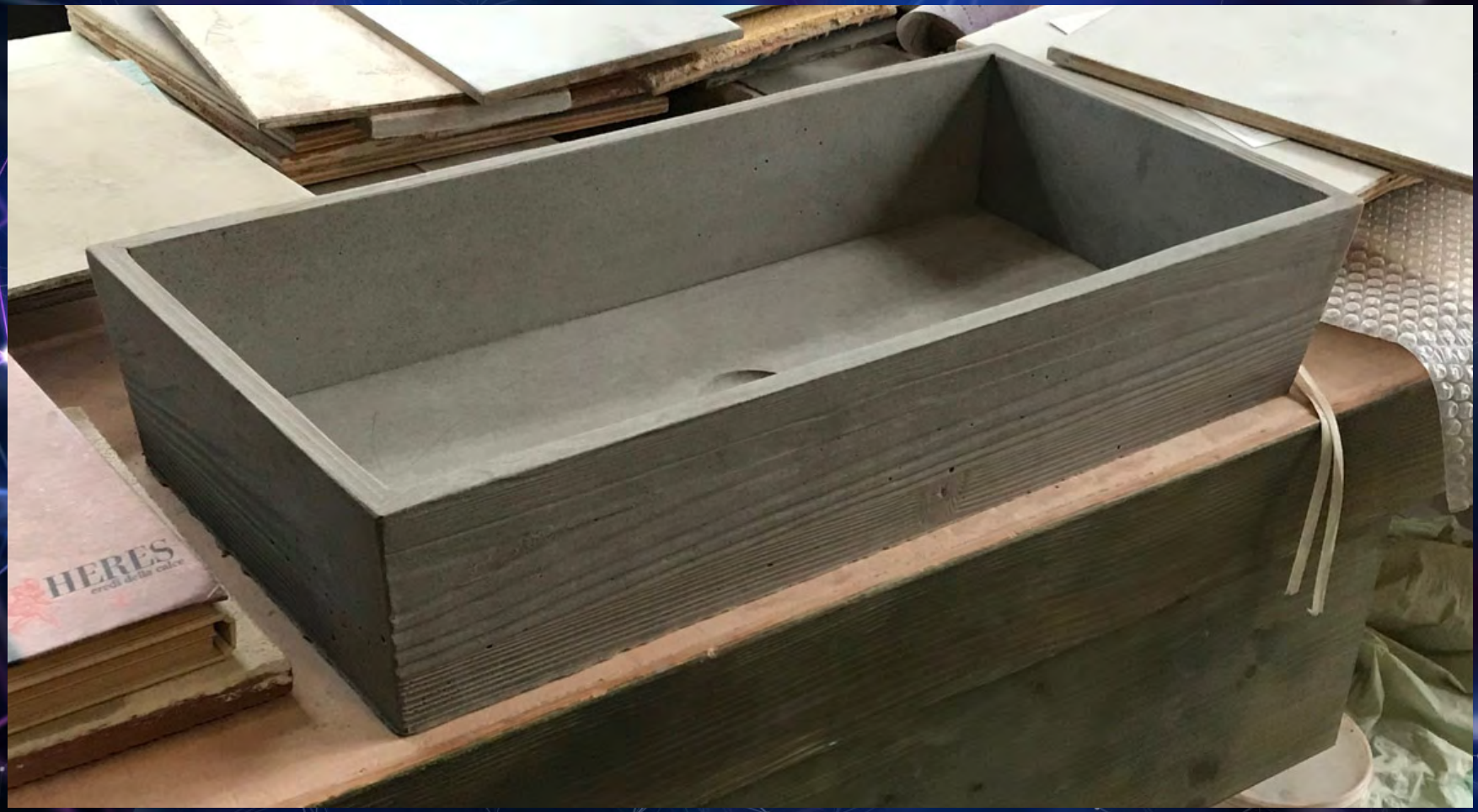
CASTABLE GP



CASTABLE GP

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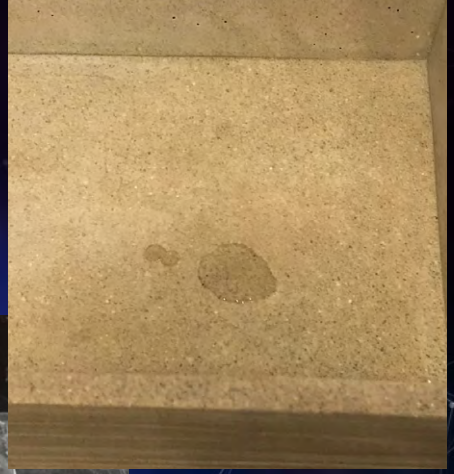

AIR CURING


19/6 DEREFGP7 K16 17.4% + 0.5% H2O
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6/6 K16 PLUS
5/6 3DGREO3 K16 PLUS
9/5 CEMGRITZ - 210 200 -
30/4 DECORGP8/A
5/6 K16 PLUS
3/5 CERMORTAR - 60 C 24 -
22/5 CEMGP6 FN 18012
19/6 DEREFGP6
22/5 CEMGP5 - FN 18022 -
19/6 DEREFGP7

WATER IMMERSION CURING

FINAL PROPERTIES

Sample	Density (g/cm^3)	Mechanical strenght (24h) MPa	Mechanical strenght (7d) MPa	Mechanical strenght (28d) MPa	Frost/Defrost cycles	Acid / Base resistance
3D GP STD	2 - 2,2	F = 3 – 5 C = 12 – 20	F = 4,5 – 6,5 C = 20 – 35	F = 5 – 9 C = 33 – 50	300 500	< 2% (HCl) 0% ($MgSO_4$)
TEGOLA GP	1,3 – 1,5	F = 2,5 – 3,5 C = 11 – 13,5	F = 3 – 4 C = 15 – 18	F = 4,5 – 5,5 C = 24,5 – 30	> 1000 (250 years)	< 3% (HCl) < 1%($MgSO_4$)
HUMID EARTH (Hand Pressed) (Industrial press)	2 – 2,5	F = 3,5 – 5 C = 10 – 12,5	F = 4,5 – 6 C = 16 – 25	F = 5,7 – 7,5 C = 27 – 40 C = 73 – 80	200 500	< 5% (HCl) < 1% ($MgSO_4$) < 1% (HCl) 0% ($MgSO_4$)
CASTABLE GP	1,9 - 2	F = 3,5 – 4,5 C = 25 – 30	F = 5 – 6 C = 40 – 55	F = 7 – 10,5 C = 60 – 75	300 500	< 2% (HCl) 0% ($MgSO_4$)

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Thanks for kind attention

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