Innovative 2017 Geopolymer products prepared with automatic industrial mixers

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Renca RUS, LLC (Joint Italian and Russian company)
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Automatic 5 liter Mixer for geopolymers for R&D, university and laboratory testing
Wood-based geopolymer composite
Hemp based geopolymer composite

**Cream colored Metakaolin based:** Density from 0,5 to 1 g/cm³; Flexural Strength > 15MPa (only engraved on surface) after 28 days; Compressive Strength > 50 MPa after 7 days, > 100MPa after 28 days (difficult to break, very elastic);

**Rose colored Metakaolin based:** Density from 0,7 to 1 g/cm³; F > 15MPa (only engraved on surface) after 28days; Compressive Strength > 50 MPa after 7 days, > 100MPa after 28 days (difficult to break, very elastic);

**Dark grey fly ash/slag based:** Density from 0,75 to 1,2 g/cm³; F > 15MPa (only engraved on surface) after 28days; Compressive Strength > 50 MPa after 7 days, > 100MPa after 28 days (difficult to break, very elastic).
Fir wood based geopolymer composite
Lolla (similar to rise-husk) based geopolymer composite
Foamed geopolymer
Structural (heavy) GP foams

White colored Metakaolin/slag based Density about 0.7 g/cm³, Flexural Strength after 28 days = 3.7 MPa, Compressive Strength after 28 days = 16.2 MPa.

Cream colored Metakaolin based Density about 0.6 g/cm³, Flexural Strength after 28 days = 3.6 MPa, Compressive Strength after 28 days = 12.8 MPa.

Rose colored metakaolin/slag based Density about 0.65 g/cm³, Flexural Strength after 28 days = 4 MPa, Compressive Strength after 28 days = 11.5 MPa.

In all foams it is possible to add nano additive for hydrorepellency.
Thermal-insulating (lightweight) GP foams

**White colored Metakaolin/slag based**
Density about 0,28 g/cm³, Flexural Strength after 28days = 1 MPa, Compressive Strength after 28days = 2,2 MPa. Lambda 0,062.

**Cream colored Metakaolin based**
Density about 0,3 g/cm³, Flexural Strength after 28days = 1,6 MPa, Compressive Strength after 28days = 2,8 MPa. Lambda 0,065.

**Light brown colored zeolite/slag based**
Density about 0,26 g/cm³, Flexural Strength after 28days = 1,5 MPa, Compressive Strength after 28days = 2,5 MPa. Lambda 0,06.
Sprayed geopolymer fire-resistant foam S.C.GP-G6

Passed the Fire-resistance test at 1000°C for 2 hours in compliance to REI 120 Italian standard for fire protection

Compressive strength: 2.5–4.5 MPa
Flexural strength: 1.5–2.6 MPa
Setting Time: 90 minutes
Expansion: 80%
Density: 0.3 g/cm³
Thermal conductivity: $\lambda = 0.065$

This product could be used to pass resistance to fire test and to protect metals from fire and also from penetration of chlorine ion so to avoid oxidation.

www.renca.ru  www.geomits.com
Passive Cooling Insulation
Geopolymer concrete blocks
Geopolymer concrete blocks (water/oil repellent)

**Whitish colored Metakaolin/slag based**
- Density about 2.2 g/cm³
- Flexural Strength after 7 days = 5.5 MPa
- Compressive Strength after 7 days = 10.4 MPa
- Completely water/oil repellent after 4h.

**Rose colored Metakaolin/slag based**
- Density about 2.1 g/cm³
- Flexural Strength after 7 days = 3.5 MPa
- Compressive Strength after 7 days = 5.8 MPa
- Very cheap product not treated for water repellency.

**Grey fly ash/slag based**
- Density about 2.2 g/cm³
- Flexural Strength after 7 days = 3.3 MPa
- Compressive Strength after 7 days = 6.8 MPa
- Completely water/oil repellent after 4h.
Geopolymer mortars for Venice restoration
(including low-thickness continuous GP floorings)
Self-cleaning geopolymer concrete
Using sea water and sea sand in geopolymer concrete
According to World Cement Magazine, fresh water consumption in Dubai for concrete production in 2013 was 9.5 million cubic meters.
200 Olympic Swimming Pools
Raw materials and by-products suitable for GP production supplied by our company:

- **GGBS**
  - ground granulated blastfurnace slag

- **Metakaolin**
  - kaolin burned at 750°C

- **Fly-ash**
  - type F

- **Microsilica**
  - silica fume

- **Soluble silicates**
  - Na- and K-based water glass

www.renca.ru
geopolymer cement and geopolymer reagent 
geosilicate™:
Thank you!

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