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

Dr. Alex Reggiani, GeoMITS, Italy
OUTLINE

GeoMITS introduction
Mixing plants portfolio
Geopolymer productions
Final Properties
GeoMITS is focused 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
GP LAB MIX 20 (half automatic)

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 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 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.
Control Panel
Loading of Geopolymer’s reactive powders
Loading of Hardener
Loading of premixed Aggregates
Mixing cycle of a geopolymer mortar
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
HUMID EARTH CONCRETE
HUMID EARTH CONCRETE
CASTABLE GP
CASTABLE GP
CASTABLE GP
AIR CURING
WATER IMMERSION CURING
# FINAL PROPERTIES

<table>
<thead>
<tr>
<th>Sample</th>
<th>Density (g/cm³)</th>
<th>Mechanical strenght (24h) MPa</th>
<th>Mechanical strenght (7d) MPa</th>
<th>Mechanical strenght (28d) MPa</th>
<th>Frost/Defrost cycles</th>
<th>Acid / Base resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>3D GP STD</td>
<td>2 - 2,2</td>
<td>F = 3 – 5</td>
<td>F = 4,5 – 6,5</td>
<td>F = 5 – 9</td>
<td>300</td>
<td>&lt; 2% (HCl)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C = 12 – 20</td>
<td>C = 20 – 35</td>
<td>C = 33 – 50</td>
<td>500</td>
<td>0% (MgSO₄)</td>
</tr>
<tr>
<td>TEGOLA GP</td>
<td>1,3 – 1,5</td>
<td>F = 2,5 – 3,5</td>
<td>F = 3 – 4</td>
<td>F = 4,5 – 5,5</td>
<td>&gt; 1000</td>
<td>&lt; 3% (HCl)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C = 11 – 13,5</td>
<td>C = 15 – 18</td>
<td>C = 24,5 – 30</td>
<td>(250 years)</td>
<td>&lt; 1% (MgSO₄)</td>
</tr>
<tr>
<td>HUMID EARTH (Hand Pressed)</td>
<td>2 – 2,5</td>
<td>F = 3,5 – 5</td>
<td>F = 4,5 – 6</td>
<td>F = 5,7 – 7,5</td>
<td>200</td>
<td>&lt; 5% (HCl)</td>
</tr>
<tr>
<td>(Industrial press)</td>
<td></td>
<td>C = 10 – 12,5</td>
<td>C = 16 – 25</td>
<td>C = 27 – 40</td>
<td>500</td>
<td>&lt; 1% (MgSO₄)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt; 1% (HCl)</td>
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<td></td>
<td></td>
<td></td>
<td>0% (MgSO₄)</td>
</tr>
<tr>
<td>CASTABLE GP</td>
<td>1,9 – 2</td>
<td>F = 3,5 – 4,5</td>
<td>F = 5 – 6</td>
<td>F = 7 – 10,5</td>
<td>300</td>
<td>&lt; 2% (HCl)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C = 25 – 30</td>
<td>C = 40 – 55</td>
<td>C = 60 – 75</td>
<td>500</td>
<td>0% (MgSO₄)</td>
</tr>
</tbody>
</table>
Thanks for kind attention
CONTACTS

info@geomits.com
Admin. +39 391 7611455
R&D Lab +39 338 9906859
www.geomits.com