**H-UKR R cement technical datasheet**

Alkali-activated slag binder

**COLD WEATHER SPECIAL CEMENT**

- Low carbon cement, 0% clinker
- Carbon footprint reduced by 70% compared with a CEM I
- Manufactured in France

**Areas of use**

- Ready-Mix Concrete Plants
- Construction concrete
- Prefabrication (with or without heat treatment)

**Areas of application**

- Reinforced or non-reinforced concrete
- Building (collective housing and individual houses): walls, columns, beams, floors, floor slabs
- Civil engineering: shells, foundations, slip formwork
- Roads and exterior fittings: extruded concrete, pervious concrete, deactivated concrete

**Properties**

- Concrete with a strength class of C16 to C50
- Concrete of any consistency class (S0 to self-compacting SF1)
- Workability for up to 120 minutes
- Site work rate maintained in cold weather (Outside temp. ≥ 5°C)

### Chemical characteristics (%)

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SiO₂</td>
<td>33.57</td>
</tr>
<tr>
<td>Al₂O₃</td>
<td>8.67</td>
</tr>
<tr>
<td>Fe₂O₃</td>
<td>0.34</td>
</tr>
<tr>
<td>CaO</td>
<td>37.35</td>
</tr>
<tr>
<td>MgO</td>
<td>6.17</td>
</tr>
<tr>
<td>SO₃</td>
<td>0.32</td>
</tr>
<tr>
<td>K₂O</td>
<td>0.93</td>
</tr>
<tr>
<td>MnO</td>
<td>0.14</td>
</tr>
<tr>
<td>P₂O₅</td>
<td>0.01</td>
</tr>
<tr>
<td>Cl⁻</td>
<td>0.01</td>
</tr>
<tr>
<td>S²⁻</td>
<td>0.71</td>
</tr>
<tr>
<td>Insoluble residue</td>
<td>0.27</td>
</tr>
<tr>
<td>Alkali equivalent (Na₂Oeq)</td>
<td>7.43</td>
</tr>
</tbody>
</table>

### Physical and mechanical characteristics

- **Density (g/cm³)**: 2.83
- **Blaine surface area (cm²/g)**: 5580
- **Heat of hydration after 41 hours (J/g)**: 220
  - After 120 hours (J/g): 229
- **Colorimetry (L)**: 90

**Compression in MPa**

<table>
<thead>
<tr>
<th>Time</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 days</td>
<td>31.4</td>
</tr>
<tr>
<td>7 days</td>
<td>44.4</td>
</tr>
<tr>
<td>28 days</td>
<td>57.7</td>
</tr>
</tbody>
</table>

*According to protocol NF EN196-1*

---

These values are given by way of an indication only. Auto-control results are available on request.

---

8.11.22 edition
Maturity method study: winter conditions

Results of maturity method study at early age of different cements subjected to a day/night temperature cycle of 4 - 12°C:

In winter conditions, the mechanical behaviour at early age of H-UKR R cement based concretes and accelerated CEM II/A and accelerated CEM III/A based concretes is similar.

The addition of an accelerator to the CEM III/B based concrete failed to achieve the performances of the H-UKR R cement based concrete.

H-UKR cement performs well regardless the temperature conditions. Formwork can be removed after 16 hours and so site work rates can be maintained during winter periods.

Recommendations for use

- Use clean aggregate, free of organic materials
- Only use the admixtures recommended by HOFFMANN GREEN CEMENT
- Take all precautions to prevent drying out in hot or windy weather by always curing with the products proposed by HOFFMANN GREEN CEMENT (do not wet cure)
- Use suitable personal protective equipment (PPE): trousers, long-sleeved clothing, gloves, waterproof shoes, goggles etc.
- Do not pour at temperatures below +5°C or temperatures above +18°C

The storage life of H-UKR R cement is 9 months (when stored in a dry place).

The product is available:
- in bulk (maximum 30t tank)
- in 1t big bags