Product Overview

- Highly fluid mix (especially suited to pumping up sloped embankments)
- High degree of steel corrosion prevention
- Shrinkage compensated
- Resistant to washout
- Long working life but high early strength gain
- Very high ultimate strength
- High yield
- Low particle size allowing penetration of cracks and fissures

Description

Parex Soil Nailing Grout is a specially formulated Portland cement powder mix designed for grouting the bore of soil/strata nails and anchors.

The mix design consists of a blend of fine and ultra fine cements plus a set of synergistic additives. The grout powder is packaged in 20kg, durable, moisture resistant bags ready for onsite mixing.

High compressive strengths are achieved giving resistance to static and dynamic stresses, once fully cured. Parex Soil Nailing grout has chloride, sulphate and sulphide ion contents below the threshold specified in EN 447 and CARES PT10.

Uses include:
- Grouting of soil nails (cables) for road/rail embankment stabilization.
- Support of cable anchor plates and ground anchors.
- Grouting behind shafts and tunnel linings.
- Underpinning, loose floor and road slabs.

Specification Outline

Grouting works shall be carried out using Parex Soil Nailing Grout as manufactured by Parex Ltd. The product must be stored, handled and used strictly in accordance with the manufacturer’s instructions. The product has been tested to and/or complies with the relevant parts of the following standards: EN445, EN446, EN447, EN196-1, and EN196-3. CARES PT10.

- Particle size: <0.1mm
- Set density: 2150-2050kg/m³
- Working life: >30min at 20°C

Mechanical strength profile (+20°C / 65% RH)

<table>
<thead>
<tr>
<th>Age</th>
<th>1 day</th>
<th>7 days</th>
<th>28 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressive</td>
<td>30MPa</td>
<td>60MPa</td>
<td>75MPa</td>
</tr>
</tbody>
</table>

Typical results from EN445 testing at 33% water content.

<table>
<thead>
<tr>
<th>Test type</th>
<th>Result specified in EN 447:2007 &amp; PT10</th>
<th>Typical test result</th>
</tr>
</thead>
<tbody>
<tr>
<td>2mm sieve test</td>
<td>No lumps</td>
<td>No lumps</td>
</tr>
<tr>
<td>Flow cone</td>
<td>$T_0 &lt; 25s$</td>
<td>$T_0$ 14.5s</td>
</tr>
<tr>
<td></td>
<td>$T_{50} &lt; 25s$ and within 20% of $T_0$</td>
<td>$T_{50}$ 14.3s</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$T_{X50}$ 13.8s</td>
</tr>
<tr>
<td>Bleeding</td>
<td>Bleeding 0.3% max</td>
<td>Bleeding 0.1%</td>
</tr>
<tr>
<td>Volume change</td>
<td>Volume change -1 to 5% max</td>
<td>Volume change -0.27%</td>
</tr>
<tr>
<td>Compressive strength test</td>
<td>&gt; 27 N/mm² @ 7 days</td>
<td>70 N/mm² @ 7 days</td>
</tr>
<tr>
<td>Initial and final setting test</td>
<td>Initial &gt; 3 hours</td>
<td>Initial &gt;6 hours</td>
</tr>
<tr>
<td>(EN196-3)</td>
<td>Final &lt; 24 hours</td>
<td>Final &lt;22 hours</td>
</tr>
</tbody>
</table>

Yield

20kg bag Yield 13.0 litres of mixed material
**Instructions for Use**

**Preparation**
All necessary preparatory work must be completed before the grout is mixed. The fluid nature of the grout at 35% maximum water to powder ratio enables it to flow long distances in well prepared elements. Sufficient head should always be provided by positive pump pressure to ensure grout flow along or upwards in the voids. Site trials may be carried out to confirm that suitable equipment is available and an appropriate water / powder ratio is chosen. A surcharge stand pipe should be allowed for to take up ‘sinkage’ as the grout fills voids. Ensure that enough grout is mixed and available for the grouting operation to be completed in one continuous pour.

**Mixing**
For each 20kg bag of Parex Soil Nailing Grout, a maximum of 7 litres of water are required. For single bag mixes suitable mixing may be achieved using a high torque slow speed drill with a Grout Stirrer. For larger mixes use a colloidal grout mixer pump.

Pour the required quantity of clean water into the mixing vessel. Slowly add the powder to the water whilst continually mixing. Keep the mixed grout in a slow agitating holding tank prior to placing.

**Placing**
Where Parex Soil Nailing Grout will be pumped into place the grout pump should be of the positive displacement type capable of generating at least 10 bars pressure. Up to 40 bars may be required to fill particularly long or high upward running voids. The rate and continuity of placing should be controlled to encourage good penetration of grout into the voids within the void and the expulsion of air from the duct. Do not disturb once grouting has been completed before the grout has hardened.

**Curing**
After grouting has been completed, or when the formwork is removed, any exposed grout must be cured immediately with Polycure at the rate of 10m²/litre. During adverse weather conditions, such as high temperatures and drying winds, a second application of Polycure should be applied after the first application is dry.

**Precautions**
**During Placing**
- Application temperature range +5 to 35°C.
- The substrate must be clean.
- Protect exposed grout from strong direct sunlight, drying winds, driving rain, frost or snow.

**Health and Safety**
Parex Soil Nailing Grout is alkaline when mixed with water and should not come into contact with skin or eyes. Avoid inhalation of dust during mixing and wear safety glasses, dust mask and gloves. If skin contact occurs wash thoroughly with clean water. If eye contact occurs rinse immediately with plenty of clean water and seek medical advice.

Full health and safety data are given in Product Safety Data Sheet. Full health and safety data are given in Product Safety Data Sheet.

**Fire**
Parex Soil Nailing Grout is non-flammable.

**Accreditations**
Parex Limited has an integrated business management system. This is externally accredited by UK CARES to BS EN ISO 9001:2015, BS EN ISO 14001:2015, BS ISO 45001:2018 and BES 6001.

**Packaging and Ordering**
Soil Nailing Grout is supplied in 20kg bags
Product Code: TG 153

For further information and sales, please contact your local Parex office as listed below.

Parex Ltd products are guaranteed against defective materials and manufacture. Products are sold subject to the Parex Ltd Terms and Conditions of Sale, copies of which are forwarded on invoice and are available on request. Parex Ltd endeavours to ensure that the above data and any further advice is correct, however, it cannot accept any direct or indirect liability for the use of its products as such usage is beyond its control.