BarChip R50 is an environmentally friendly concrete fibre reinforcement from BarChip Inc.

Made with recycled materials, BarChip R50 delivers massive carbon savings to your concrete works, without sacrificing performance.

How much carbon could you save?

Benefits
- Comprehensive design and technical support
- Redistributes load - increased ductility / toughness
- Eliminates corrosion - long term durability
- Eliminates set-up of steel mesh
- 85% reduction in carbon footprint compared to steel
- Safer and lighter to handle than steel
- Reduced wear on concrete pumps and hoses
- Reduced cycle times and maintenance closure
- BarChip fibre is UV stabilised to resist solar deterioration
- Weather proof packaging on multi-stack UPVC pallets

Dosage
BarChip R50 has a regular dosage rate of 4 kg to 6 kg per cubic metre. Dosage rate should be determined based on performance requirements. Regular dose rates may reduce measured slump.

Mixing
BarChip R50 is added “Bags and All” to the mixer with initial batch water. Follow with dry materials and mix at high speed for the required revolutions. Alternative batching techniques can be applied.

Undertake mix design optimisation with BarChip specialists to ensure you’re getting optimal output from your shotcrete mix. For more information view BarChip’s batching and mixing guide.

Pumping
BarChip R50 can be pumped through 50 mm rubber hoses without difficulty. Precautions should be taken to ensure the fibres can pass freely through the hopper grate.

Handling and Storage
BarChip R50 is packed in 3 kg mulchable paper bags (432 kg per pallet) and supplied on durable, recyclable plastic pallets with a fitted rain hood to allow storage outdoors. Bags stored individually must be protected from water damage. For automated dosing BarChip R50 is also supplied in Puck Packaging.

For more information contact your nearest BarChip representative.

Conformity
Conforms to ASTM C 1116 - Type III
Conforms to EN 14889 - 2

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**Product Features** (see SDS for more details)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>BarChip R50</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fibre Class II</td>
<td>For structural use in concrete, mortar and grout</td>
<td>EN 14889 - 2</td>
</tr>
<tr>
<td>Tensile Strength</td>
<td>610 MPa</td>
<td>JIS L 1013/ISO 2062</td>
</tr>
<tr>
<td>Young’s Modulus</td>
<td>10 GPa</td>
<td>JIS L 1013/ISO 2062</td>
</tr>
<tr>
<td>Length</td>
<td>48 mm</td>
<td></td>
</tr>
<tr>
<td>Anchorage</td>
<td>Continuous Embossing</td>
<td></td>
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<tr>
<td>Base Material</td>
<td>Polypropylene</td>
<td></td>
</tr>
<tr>
<td>Alkali Resistance</td>
<td>Excellent</td>
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</tr>
<tr>
<td>ISO 9001:2008 Certification</td>
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<td>JKT0402914</td>
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</table>
BarChip R50 Reduces Your Carbon Footprint.

Carbon Case Study - Permanent Sprayed Concrete Lining

Research has shown that SFRS cannot be expected to achieve a service life of 120 years in aggressive environments (Nordström 2016). To achieve this service life, significant rehabilitation works need to be performed which would greatly increase the carbon footprint of the project. We’ve analysed this carbon footprint for a nominal 8.5 m wide by 6.5 m high 50 km tunnel.

<table>
<thead>
<tr>
<th>Steel Fibre kg CO₂e</th>
<th>Rehabilitation Concrete 2 x 25% (kg CO₂e)*</th>
<th>Rehabilitation Steel 2 x 25% (kg CO₂e)*</th>
<th>Total CO₂ over 120yrs (kg CO₂e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6,973,670</td>
<td>22,422,881</td>
<td>3,486,834</td>
<td>32,883,385</td>
</tr>
</tbody>
</table>

BarChip R50 kg CO₂e | Rehabilitation Concrete | Rehabilitation Steel | Total BarChip R50 (kg CO₂e) | Total Carbon Saving (kg CO₂e) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1,131,218</td>
<td>Not Required</td>
<td>Not Required</td>
<td>1,131,218</td>
<td>31,752,167</td>
</tr>
</tbody>
</table>


A savings potential of 31,752,167 kg of embodied carbon exists over 50 km of tunnelling works, simply by switching to BarChip synthetic fibre reinforcement. That’s equivalent to;

- 10,077 Tonnes of waste recycled instead of land filled.
- 3,353 Homes electricity use for one year.
- 822,894 Tree seedlings grown for 10 years

How much carbon would you save by choosing BarChip R50 synthetic fibre reinforcement?