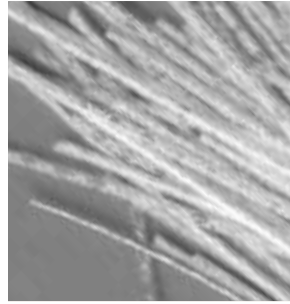
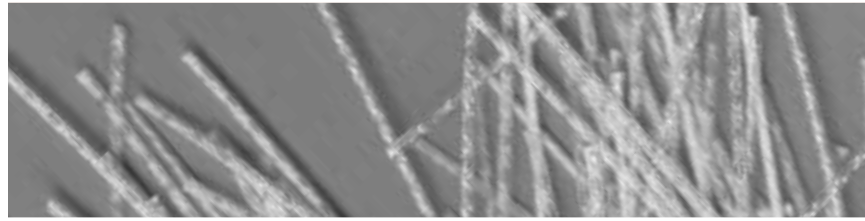


# BarChip<sup>54</sup>

## Concrete Fibre Reinforcement

BarChip 54 is a high performance structural synthetic fibre concrete reinforcement, optimised for sprayed concrete (shotcrete).

Work with BarChip and together we'll unlock the full potential of your shotcrete mix.



Packaged in mulchable paper bags and big bags for automated dosing. Safely stacked 3 pallets high.



### Benefits

- Comprehensive design and technical support
- Redistributes load - increased ductility / toughness
- Eliminates corrosion - long term durability
- Eliminates set-up of steel mesh
- 70% 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

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

Characteristic	BarChip 54	Standard
Fibre Class II	For structural use in concrete, mortar and grout	EN 14889-2
Tensile Strength	640 MPa	JIS L 1013/ISO 2062
Young's Modulus	12 GPa	JIS L 1013/ISO 2062
Length	54 mm	
Anchorage	Continuous Embossing	
Base Material	Virgin Polypropylene	
Alkali Resistance	Excellent	
CE Certification		0120 - GB10/79678
ISO 9001:2008 Certification		JKT0402914

### Dosage

BarChip 54 has a regular dose rate of 3 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 54 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 54 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 54 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 54 is also supplied in Puck Packaging.

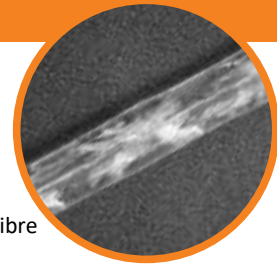
For more information contact your nearest BarChip representative.

### Conformity

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

## BarChip 54 Performance Testing

BarChip 54  
Macro Synthetic Fibre



### Flexural Performance - ASTM C 1609 / C 1609 M

Residual Strength at 0.75 mm Displacement  $f_{600}^{150}$  [MPa]

$f'_c$ [MPa]	Dosage Rate [kg/m <sup>3</sup> ]				
	4	5	6	7	8
25	1.45	1.85	2.25	2.60	3.00
32	1.75	2.15	2.55	2.95	3.35
40	2.00	2.40	2.80	3.20	3.60

Residual Strength at 3.0 mm Displacement  $f_{150}^{150}$  [MPa]

$f'_c$ [MPa]	Dosage Rate [kg/m <sup>3</sup> ]				
	4	5	6	7	8
25	1.30	1.70	2.10	2.50	2.85
32	1.70	2.10	2.50	2.95	3.35
40	2.00	2.45	2.85	3.25	3.70

### Toughness Performance - ASTM C 1550

Energy Absorption at 5 mm Displacement [Joules]

$f'_c$ [MPa]	Dosage Rate [kg/m <sup>3</sup> ]				
	4	5	6	7	8
25	45	53	61	69	77
32	50	58	66	74	82
40	57	65	74	83	91

Energy Absorption at 40 mm Displacement [Joules]

$f'_c$ [MPa]	Dosage Rate [kg/m <sup>3</sup> ]				
	4	5	6	7	8
25	285	340	395	450	505
32	310	370	425	485	540
40	345	410	475	540	600

### Toughness Performance Classes for Sprayed Concrete

Square Panels EFNARC / EN 14488-5 or Round Panels NB 7 / SIA 162

Toughness Classification	Energy absorption at 25 mm [Joules]	Required dosage [kg/m <sup>3</sup> ]
A / E500	500	2.5 to 3.0
B / E700	700	3.5 to 4.0
C / E1000	1000	5

Round Determinate Panels ASTM C 1550 CIA / AuSS\*

Toughness Classification	Energy absorption at 40 mm [Joules]	Required dosage [kg/m <sup>3</sup> ]
Low	280	3.5 to 4.0
Moderate	360	4.5 to 5.0
High	450	6

\* Concrete Institute of Australia / Australian Shotcrete Society

These results are based on samples cast and tested at 28 days of age in NATA certified laboratories.

**Note:** The values presented here are a proposal based on the experience of test results worldwide. The tables give an orientation and need to be verified in-situ by appropriate testing. The performance of FRC is achieved by the composite matrix and not only by the fibres. An ideal mix and application technology has to be applied in order to optimise the results. EPC specialists are available to provide support.

**Barchip Inc.**

info@barchip.com

N. America: +1 704 843 8401

Australia: +61 1300 131 158

EMEA: +353 (0) 1 469 3197

Asia: +65 6835 7716

S. America: +56 2 2703 1563

Brazil: +55 19 3722 2199



**BarChip Inc.**  
The Synthetic Fibre Experts

Distributors are located in other regions. For contact details visit [www.barchip.com](http://www.barchip.com).

Disclaimer: This information has been provided as a guide to performance only, for specific and supervised conditions. The user is advised to undertake their own evaluation and use the services of professionals to determine the product suitability for any particular project or application prior to commercial use. ISO 9001:2008  
© BarChip Inc. 2018. PS54\_2018\_1

[www.barchip.com](http://www.barchip.com)