BORAL Building something great

ENVISIA®

High performance low carbon concrete for complex and heavily loaded structures

ENVISIA® is an advanced high performance concrete developed to reduce carbon while meeting strict engineering requirements.

It delivers excellent early age strength, low shrinkage and s uperior long term durability, making it ideal for high rise construction, large commercial projects and civil infrastructure with tight construction timelines.

ENVISIA® provides the performance needed for heavily reinforced elements, complex formwork and demanding structural applications.



ENVISIA®

ENVISIA® has excellent early age strength and drying shrinkage characteristics.

It can be used for all standard post tensioned concrete applications and their low shrinkage characteristics provides engineers and architects with more design options.

ENVISIA® has a light colour which provides architectural benefits, and has excellent resistant to chloride ingress making it suitable for marine environments.

Product Details

Boral's ENVISIA® concrete is a low carbon concrete product which complies with AS 1379 and has excellent engineering properties. It contains supplementary cementitious materials to reduce the portland cement and the minimum portland cement reduction compared to the GBCA and ISC reference case is 50%. ENVISIA® combines a proprietary cement technology (ZEP®) which gives it good early age strength, low shrinkage characteristics and excellent durability characteristics in a marine environment.

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Features and Benefits

- Low portland cement.
- Low embodied carbon and achieves up to 50 per cent reduction in shrinkage when compared to conventional sustainable concrete mixes.
- Very low drying shrinkage.
- Good early age strength, suitable for all standard post tension applications.
- Excellent resistance to chloride ingress.
- Light colour provides architectural benefits and enhances use of coloured oxides.
- Good off-form finish.
- Suitable for projects targeting a GBCA[1] or ISC[2] rating.
- Improved early age strength and drying shrinkage compared to the ENVIROCRETE® and ENVIROCRETE® PLUS products.

Environmental properties

Reduction in portland cement[3]	Up to 50%
Reduction in portland cement[3] (Typical range)	50% - 70%*
Reduction in embodied carbon[4]	Up to 60%

* subject to technical review and local availability.

Typical GWP reduction (AUSLCI)[5]

NSW - Sydney	41.0%
VIC - Melbourne	29,4%
QLD - Brisbane	35,4%
WA - Perth	39.9%
SA - Adelaide	56.3%

Engineering and durability properties

Early age strength	●●●
Drying shrinkage	●●●●
Durability in a marine environment	●●●●
Patented ZEP™ activator	ZEP™ Activator Technology

Legend: ● Good ●● Very Good ●●● Excellent ●●●● Superior

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Applications	
Standard Mixes - Footpaths, house slab, driveways and others	■
Piling - All types of piling	■
Columns - Vertical applications	■ ■ ■
Wall/Stairs - All wall applications	■ ■ ■
Blockfill - Blockfill / Corefill	■ ■
PT Slabs - Post Tension / High early strength	■ ■ ■
Precast - High early strength	■ ■ ■
Shotcrete - All shotcrete mixes	■ ■ ■
Footing - General footing mixes	■ ■ ■
Colour Mixes - Boral Colori® mixes	■ ■ ■
Exposed - Exposé® range	■
Polished - Boralstone® range	■ ■ ■
Tilt-up - Cast insitu / high early strength	■ ■ ■
Slipform / Jumpform - High early strength	■ ■ ■
High Strength - up to 65MPa	■ ■ ■
Industrial Flooring - Warehouses / Factories	■
Other Applications	High Slump & Piling Shotcrete/Poolmix Colori® Coloured Concrete Boralstone® Decorative Concrete (Honed & Polished) Self Compacting Burnished Marine Grade

Legend: ■ Good ■ ■ Better ■ ■ ■ Best

Compliance	
AS 1379 Specification for Basic Assessment	Complies
Compressive Strength (MPa)	20MPa - 80MPa
Flexural Strength (MPa)	Up to 30% improvement over conventional concrete for similar/low compressive strength
Workability	ENVISIA® can be placed, pumped and finished like conventional concrete.

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20MPa	
Compressive Strength - 1 day (MPa)	~ 5
Compressive Strength - 7 days (MPa)	~20
Compressive Strength - 28 days (MPa)	20
Dry Shrinkage - microstrain (50% RH) - 56 days	<500
Nominal Dry Shrinkage - microstrain (50% RH) - 56 days	Up to 40MPa 20mm - 400 Up to 40MPa 10mm - 450
Maximum Dry Shrinkage - microstrain (50% RH) - 56 days	Up to 40MPa 20mm - 450 Up to 40MPa 10mm - 500
Post tensioned applications (MPa@days) - 22MPa @ days	N/A
Post tensioned applications (MPa@days) - 25MPa @ days	N/A

32MPa	
Compressive Strength - 1 day (MPa)	~ 7
Compressive Strength - 7 days (MPa)	~28
Compressive Strength - 28 days (MPa)	32
Dry Shrinkage - microstrain (50% RH) - 56 days	<500
Nominal Dry Shrinkage - microstrain (50% RH) - 56 days	Up to 40MPa 20mm - 400 Up to 40MPa 10mm - 450
Maximum Dry Shrinkage - microstrain (50% RH) - 56 days	Up to 40MPa 20mm - 450 Up to 40MPa 10mm - 500
Post tensioned applications (MPa@days) - 22MPa @ days	22MPa @ 4 days 22MPa @ 5 days
Post tensioned applications (MPa@days) - 25MPa @ days	Contact Boral Technical Services

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40MPa	
Compressive Strength - 1 day (MPa)	~ 12
Compressive Strength - 7 days (MPa)	~40
Compressive Strength - 28 days (MPa)	40
Dry Shrinkage - microstrain (50% RH) - 56 days	<500
Nominal Dry Shrinkage - microstrain (50% RH) - 56 days	Up to 40MPa 20mm - 400 Up to 40MPa 10mm - 450
Maximum Dry Shrinkage - microstrain (50% RH) - 56 days	Up to 40MPa 20mm - 450 Up to 40MPa 10mm - 500
Post tensioned applications (MPa@days) - 22MPa @ days	22MPa @ 3 days 22MPa @ 4 days 22MPa @ 5 days
Post tensioned applications (MPa@days) - 25MPa @ days	25MPa @ 3 days 25MPa @ 4 days 25MPa @ 5 days

50MPa	
Compressive Strength - 1 day (MPa)	~ 18
Compressive Strength - 7 days (MPa)	~48
Compressive Strength - 28 days (MPa)	50
Dry Shrinkage - microstrain (50% RH) - 56 days	<450
Nominal Dry Shrinkage - microstrain (50% RH) - 56 days	50MPa 20mm – 450 50MPa 20mm – 500
Maximum Dry Shrinkage - microstrain (50% RH) - 56 days	50MPa 20mm – 500 50MPa 20mm – 550
Post tensioned applications (MPa@days) - 22MPa @ days	22MPa @ 3 days 22MPa @ 4 days
Post tensioned applications (MPa@days) - 25MPa @ days	Contact Boral Technical Services

>50MPa
Contact Boral Technical for more information

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Content Declaration (% by Weight) - NSW (Refer to EPD for TfNSW & Special applications)	
General purpose cement	5–17%
Ground granulated blast furnace slag	8–12%
Fly ash	0–3%
Silica fume	-
Coarse aggregate	36–50%
Manufactured sand	8–38%
Natural sand	0–38%
Admixtures	<0.6%
Steel Fibres	-
Water	6–9%

Concrete Mixes (Covered by EPD - NSW)	
Low carbon concrete products for special applications	• ENVIROCRETE® PLUS 20MPa • ENVIROCRETE® PLUS 25MPa • ENVIROCRETE® PLUS 32MPa • ENVIROCRETE® PLUS 40MPa • ENVIROCRETE® PLUS 50MPa • ENVIROCRETE® PLUS 65MPa • ENVIROCRETE® PLUS 80MPa
Concrete products for special applications	• ENVISIA® 50MPa PRECAST TUNNEL SEGMENTS
Fibrecrete products	• ENVISIA® 32MPa 20KG STEEL FIBRE • ENVISIA® 40MPa 20KG STEEL FIBRE • ENVISIA® 50MPa 20KG STEEL FIBRE • ENVISIA® 32MPa 25KG STEEL FIBRE • ENVISIA® 40MPa 25KG STEEL FIBRE • ENVISIA® 50MPa 25KG STEEL FIBRE • ENVISIA® 32MPa 30KG STEEL FIBRE • ENVISIA® 40MPa 30KG STEEL FIBRE • ENVISIA® 50MPa 30KG STEEL FIBRE

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Content Declaration (% by weight) - VIC	
General purpose cement	4–11%
Ground granulated blast furnace slag	6–12%
Fly ash	–
Silica fume	–
Coarse aggregate	35–50%
Manufactured sand	0–20%
Natural sand	22–40%
Admixtures	<0.8%
Steel Fibres	–
Water	6–8%
Concrete Mixes (Covered by EPD - VIC)	
Low carbon concrete products	• ENVISIA® 20MPa • ENVISIA® 25MPa • ENVISIA® 32MPa • ENVISIA® 40MPa • ENVISIA® 50MPa • ENVISIA® 65MPa • ENVISIA® 80MPa
Low carbon concrete products for special applications	Contact Boral Technical Services
Content Declaration (% by weight) - QLD	
General purpose cement	3-10%
Ground granulated blast furnace slag	5-14%
Fly ash	-
Silica fume	-
Coarse aggregate	38-50%
Manufactured sand	0-22%
Natural sand	10-40%
Admixtures	<0.4%
Steel Fibres	-
Water	6-9%

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Concrete Mixes (Covered by EPD - QLD)	
Low carbon concrete products for special applications	• ENVISIA® 20 MPa • ENVISIA® 25 MPa • ENVISIA® 32 MPa • ENVISIA® 40 MPa • ENVISIA® 50 MPa

Content Declaration (% by weight) - SA	
General purpose cement	4-8%
Ground granulated blast furnace slag	6-13%
Fly ash	-
Silica fume	0-1%
Coarse aggregate	41-42%
Manufactured sand	8-11%
Natural sand	22-30%
Admixtures	<0.8%
Steel Fibres	-
Water	6-9%

Concrete Mixes (Covered by EPD - SA)	
Low carbon concrete products for special applications	• ENVISIA® 20 MPa • ENVISIA® 25 MPa • ENVISIA® 32 MPa • ENVISIA® 40 MPa • ENVISIA® 50 MPa • ENVISIA® 65 MPa • ENVISIA® 80 MPa

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Content Declaration (% by weight) - WA Perth Region	LOW CARBON CONCRETE PRODUCTS
General purpose cement	4-15%
Ground granulated blast furnace slag	4-13%
Silica fume	0%
Coarse aggregate	38-46%
Manufactured sand	7-13%
Natural sand	0-32%
Admixtures	<0.7%
Steel Fibres	0%
Water	7-8%

Content Declaration (% by weight) - WA Perth Region	LOW CARBON CONCRETE PRODUCTS - FOR SPECIAL APPLICATIONS
General purpose cement	1-40%
Ground granulated blast furnace slag	0-27%
Silica fume	<3%
Coarse aggregate	0-46%
Manufactured sand	4-53%
Natural sand	7-37%
Admixtures	<0.7%
Steel Fibres	0%
Water	6-35%

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Concrete Mixes (Covered by EPD - WA Perth Region)	
Low carbon concrete products	• ENVISIA® 20 MPa • ENVISIA® 25 MPa • ENVISIA® 32 MPa • ENVISIA® 40 MPa • ENVISIA® 50 MPa • ENVISIA® 65 MPa
Low carbon concrete products for special applications	• ENVISIA® 80 MPa • ENVISIA® 32 MPa PTA TRACK SLAB • ENVISIA® 40 MPa INDUSTRIAL FLOOR CONCRETE • MRWA ENVISIA® SLIPFORM 32 MPa

Content Declaration (% by weight) - NT	
Density	2,330-2,380 kg/m^3
General purpose cement	6-11%
Ground granulated blast furnace slag	4-13%
Fly ash	-
Silica fume	-
Coarse aggregate	40-45%
Manufactured sand	15-25%
Natural sand	5-20%
Admixtures	<0.7%
Steel Fibres	-
Water	7%

Concrete Mixes (Covered by EPD -NT)	
Low carbon concrete products	• ENVISIA® 20 MPa • ENVISIA® 25 MPa • ENVISIA® 32 MPa • ENVISIA® 40 MPa • ENVISIA® 50 MPa • ENVISIA® 65 MPa
Low carbon concrete products for special applications	Contact Boral Technical Services

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Content Declaration (% by weight) - TAS	
General purpose cement	8-13%
Ground granulated blast furnace slag	3-9%
Fly ash	-
Silica fume	-
Coarse aggregate	36-41%
Manufactured sand	9-17%
Natural sand	19-28%
Admixtures	<0.3%
Steel Fibres	-
Water	7-9%

Concrete Mixes (Covered by EPD -TAS)	
Low carbon concrete products	• ENVISIA® 25 MPa • ENVISIA® 32 MPa • ENVISIA® 40 MPa • ENVISIA® 50 MPa

[1] Green Building Council of Australia (GBCA).
[2] Infrastructure Sustainability Council (ISC).
[3] Using the reference case from the GBCA Design and As-Built v1.3 rating tool.
[4] Using a reference case calculated from the GBCA upfront embodied carbon emissions calculator for concrete with GP cement.
[5] Minimum GWP reduction compared to AusLCI (v47) 0% SCM reference case for equivalent strenth grade.

CONTACT BORAL'S CONCRETE TEAM 1300 267 251

The information in this product sheet and any advice given should be viewed as a guide only. Boral recommends obtaining technical advice prior to construction. To ensure the information you are using is current, Boral recommends you review the latest building information available on the Boral website.

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