

## Product Description

Neocrete D5 Green is an innovative, multifunctional admixture for concretes, mortars, dry building mixtures, grouts and cements. It significantly increases the strength of concrete, allowing a substantial reduction in cement content and carbon footprint. Alternatively, D5 Green can be used to boost early and ultimate strength of concrete, and decrease setting time.

D5 Green is made from naturally occurring pozzolans and a modified superplasticiser. It does not contain substances that are harmful to people or the environment and is fully compliant with the Living Building Challenge. D5 Green is suitable for potable water storage.



## Product Uses

### Reduce cement and carbon footprint

Using D5 Green, cement content can be reduced by up to 20%, significantly reducing the carbon footprint of concrete without impairing its performance.

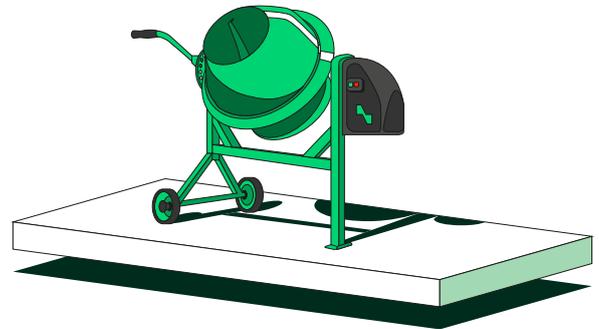
When used with supplementary cementitious materials (SCMs) cement content can be reduced by up to 40% without impairing the early or ultimate strength of concrete.

### Increase strength of concrete

- Accelerate strength gain: target 28-day strength is achieved by day 7
- Increase ultimate concrete strength by 25-35%
- Increase day 1 strength by 70-140%

### Produce watertight concrete

- Make concrete watertight for hydrostatic pressure up to 35 bars.
- Heal cracks up to 0.5 mm wide with no human intervention
- Seal cold joints



## Sustainability

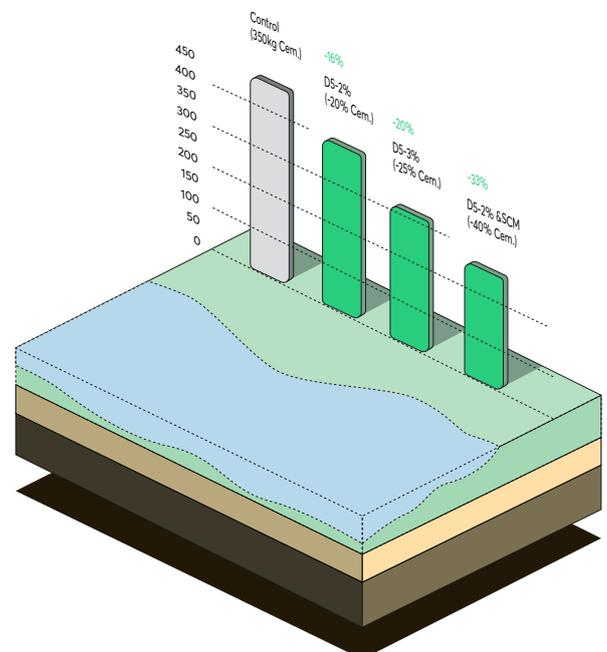
An independent cradle-to-gate life-cycle analysis (LCA) of D5 Green demonstrated a significant reduction of embodied greenhouse gas (eCO<sub>2</sub>) per cubic meter of concrete from using D5.

- Up to 20% eCO<sub>2</sub> reduction from the use of D5 Green
- Up to 33% eCO<sub>2</sub> reduction when D5 Green is used in combination with SCMs

Please visit [neocrete.co.nz](http://neocrete.co.nz) for the full report.

### Use D5 Green to qualify for sustainability benchmarks:

- Green Star – achieve maximum credits for cement reduction, apply for extra points for innovation
- Living Building Challenge – use D5 Green on projects seeking to obtain Living Building Challenge accreditation. The D5 Green declare label can be found at [www.declare.living-future.org/products/d5-green](http://www.declare.living-future.org/products/d5-green)



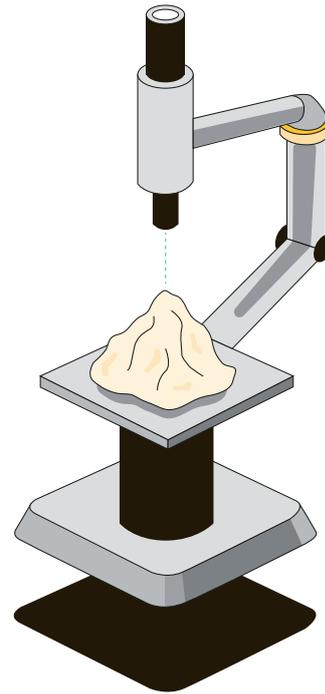
## Product Data

Form:	Powder
Colour:	Light beige to light brown
Dosage:	2-3% of total cementitious material
Specific gravity:	2.9 t/m <sup>3</sup>
Chloride content:	0.05% – 0.07%
Air-entrainment:	Adds an additional 1% - 2%
TEA content:	D5 Green does not contain TEA
Red List chemicals:	None, please refer to D5 Green Declare Label

Packaging:	1 kg and 3 kg water soluble bags, 10, 14 and 15 kg biodegradable bags, 1 ton plastic bulk bags
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## Storage

Storage and shelf life:	36 months in dry conditions in original factory packaging
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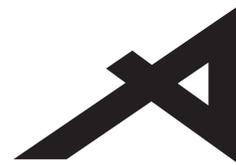
## Appraisals and Testing

BRANZ appraisal 1144 – Concrete containing D5 Green has enhanced durability and increased strength.

Testing at WSP (OPUS) – D5 Green increases the compressive strength of concrete by up to 34%.

Testing at Callaghan Innovation – When D5 Green is used with SCMs the cement can be reduced by up to 40% whilst maintaining early and ultimate strength.

Boral and Cement Australia – Concrete with a 20% cement reduction and containing D5 Green demonstrates improved durability.



**BRANZ Appraised**  
Appraisal No.1144 [2021]

## Health and Safety Information

As a cementitious powder or mixture, D5 may cause skin and eye irritation if not handled with care and may be harmful if inhaled or swallowed. As a precautionary measure, please use outdoors or in a well-ventilated area, and wear personal protective equipment: goggles, gloves and a respirator, ensure access to flowing water. For more information, please refer to Safety Data Sheet on [neocrete.co.nz](http://neocrete.co.nz)

## Disclaimer

Neocrete makes no warranties or representations for usage and/or application of D5 GREEN (the "Product") otherwise than in accordance with this technical data sheet. The buyer must satisfy itself that the Product as ordered is fit and suitable for the purpose for which it is required, and Neocrete expressly negates any express or implied condition that the Product will be suitable for a particular purpose or use for which the buyer may use it. The buyer accepts all risk and responsibility for consequences arising from the use of the Product whether singularly or in combination with other products. In addition, and without limitation, Neocrete will not be liable for any loss of profits or savings, loss of goodwill or any consequential, indirect or special loss, damage or injury of any kind suffered by the buyer or any other person in connection with the supply of the Product.

This disclaimer does not, and does not purport to, restrict or otherwise limit the application of any relevant statutes other than to the extent that such restriction or limitation is lawfully permissible



## Specifying concrete with D5 Green

Concrete containing D5 Green is specified as normal concrete. Concrete containing D5 Green will have lower cement and water contents when compared to standard concrete of an equivalent grade. Enhanced durability is achieved even at lower cement levels due to the reduced permeability of concrete with D5 Green, as per the BRANZ appraisal 1144.

## Batching concrete with D5 Green

Concrete containing D5 Green is batched and supplied as normal concrete in accordance with NZS 3104. Since concrete containing D5 Green will have reduced cement and water contents, trial mixes are strongly recommended to establish the optimum dose rate. Please contact Neocrete for advice on how to optimise the mix design for concrete containing D5 Green. As a general practice please follow the guidelines below.

### Dose rate:

2% - 3% of total cementitious material. Please refer to the Neocrete dosing guide for batching.

### Mixing:

D5 Green should be added into a concrete mixer in dry form together with the sand or cement and should be thoroughly mixed for at least 30 - 60 seconds to ensure even distribution. The D5 Green bags can be fed directly into a wet mixer. When dry-mixing, it is recommended to cut the bags before putting them into the truck to ensure complete dispersion.

### Minimum cement content:

There are no specific requirements for the minimum cement content; however, the best results are achieved with cement contents of 250 kg/m<sup>3</sup> and over. Please contact Neocrete for advice on determining the optimum cement content.

### Water content:

The water content should be reduced by 5 - 10%, compared to control mixes containing standard water reducing admixtures to achieve the same slump. Please contact Neocrete for advice on determining the optimum water content.

### Air-content:

Concrete containing D5 Green will entrain 1 - 2% of additional air, hence no air-entraining admixture is recommended.

### Target slump:

The recommended target slump for concrete containing D5 Green is typically 40 - 60 mm higher than control mixes. Concrete containing D5 Green has higher viscosity, which reduces the risk of segregation at higher slump. Please contact Neocrete for advice on determining the optimum target slump.

### Slump loss:

Concrete with D5 Green sets faster, hence accelerated slump loss can be observed. A set retarder may be required for hot weather conditions or remote locations. Please contact Neocrete for advice on the optimum mix design.

### Admixture compatibility:

For most projects, no water reducing, air-entrainment or waterproofing admixtures are required when using D5 Green. Trials are recommended to determine compatibility and dosage of admixtures in concrete containing D5 Green. Please contact Neocrete for any specific admixture compatibility questions.

### SCM compatibility:

D5 Green is compatible with most SCMs (fly ash, silica fume and most slags). Trials are recommended to determine the compatibility with highly acidic slags.

## Pumping and placing concrete with D5 Green

To achieve the best results, the normal good practices for concrete placing should be observed as per Concrete NZ (former CCANZ) Guide To Concrete Construction.

- All placing and pumping of concrete with D5 Green shall comply with NZS 3109.
- Concrete containing D5 Green is typically batched to a higher slump to account for accelerated slump loss. When requesting slump on site, it is recommended to increase the slump by at least 20 mm.
- D5 Green can also be used on site to restore workability. Please refer to the D5 Green dosing guide for slump correction and contact Neocrete for advice.

## Finishing and curing concrete with D5 Green

To achieve the best results, the normal good practices for concrete finishing and curing should be observed as per CCANZ Guide To Concrete Construction.

### Concrete NZ (former CCANZ) Guide To Concrete Construction.

- All finishing and curing of concrete containing D5 shall comply with NZS 3109.
- A finishing aid is recommended to assist with finishing and to prevent plastic shrinkage cracking.
- Where there is a risk of plastic shrinkage cracking (evaporation rate close to 1.0 kg/m<sup>2</sup>/h) an anti-evaporation agent (finishing aid) shall be applied. This will help to prevent excessive evaporation of water from the concrete surface.