

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/m³ 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/m²/h) an anti-evaporation agent (finishing aid) shall be applied. This will help to prevent excessive evaporation of water from the concrete surface.