

Notes on use of Denka Power CSA-S

These notes are based on recent testing in New Zealand by Cement Research Ltd during 2023.

Recommended dose rates for Denka Power CSA-S are as follows:

- Portland cement only concrete mix - 5% replacement of cement (equivalent to 11% CSA#20)
- GGBS/Portland concrete mix – 3% replacement of cement (ignore GGBS content)
- FA/Portland concrete mix – 5% replacement of cement (ignore FA content)

Some of the mixes tested by Cement Research Ltd contained approx. 33% FA and performed well.

Recommended Water/Cement ratio is greater than or equal to 0.45*

*A 0.45 W/C ratio or greater is suggested from test data using one type of NZ cement.
≥ 0.4 W/C is probably acceptable, depending on the cement source.
Testing to confirm strength of the specific concrete mix is recommended.

Maximum Dose Quantities: Depending on the cement content of the mix, the dose of Denka Power CSA-S will typically be 15 to 20kg/m³. For mixes with original cement contents greater than 400kg/m³, it is generally recommended that Denka Power CSA-S is dosed at a maximum of 20kg/m³. The information on maximum dose is based on data from Denka, Japan, and testing performed by Cement Research Ltd, New Zealand.

Note on Mixing: 10 minutes rapid mixing in the truck is essential to ensure Denka Power CSA-S is uniformly dispersed. Any reduction in this mixing time increases the risk of small pockets of Denka Power CSA-S being present and the formation of small “pop outs” on the slab surface.

Note on Slump: In the field, a slight increase in slump has been reported in some mixes when compared to the original mix (without Denka Power CSA-S added).

Please note that trials should be conducted to confirm the performance of the specific concrete mix used for your project.

These notes should be read in conjunction with the Denka Power CSA-S Recommendations and Denka Power CSA-S Performance Data documents.