

Memo

Nelson Office

To CETANZ, IANZ

Cc David Alabaster, Rob Damhuis

From Grant Bosma

Date 11/04/2025

Subject Error in NZTA T28: 2024 Formula

All

An error has been identified in the formula in NZTA T28: 2024 clause 6 (d).

Currently it reads:

$$\rho_{corr} = 100 \times \frac{\rho_f \rho_{sdc} \rho_{water}}{(\rho_f P_c) + (\rho_{sdc} \rho_{water} P_f)} \quad (t/m^3)$$

Where ρ_{corr} is the corrected dry density for the aggregate.

The formula returns the correct value if integer values for P_c (percentage coarse aggregate) and P_f (percentage fine aggregate) are used.

However P_c and P_f have been previously defined in T28 as decimal values. Using such values in the formula above returns meaningless numbers.

The T28 formula can be corrected to use decimal values for the coarse and fine aggregate percentages as follows:

(d) Calculate the corrected dry density for the aggregate ρ_{corr} (combined coarse and fine fractions) using the following formula:

$$\rho_{corr} = \frac{\rho_f \rho_{sdc} \rho_{water}}{(\rho_f P_c) + (\rho_{sdc} \rho_{water} P_f)} \quad (t/m^3)$$

Where:

- ρ_{water} = is the density of water and may be assumed to be 1.00.
- P_c = percentage of aggregate retained on the 26.5mm sieve as determined by the particle size distribution test expressed as a decimal
- P_f = percentage of aggregate passing the 26.5mm sieve as determined by the particle size distribution test expressed as a decimal.

Please use the corrected formula above to calculate the Corrected Maximum Dry Density for the aggregate.

In due course T28 will be updated to correct this error for which I apologise.



Grant Bosma

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