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GD002: Temperature and suction controlled oedometer tests on reconstituted sandy silt

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ABSTRACT: We have performed a series of oedometric compression tests at different temperature and suction levels on a sandy silt (USCS classification: CL-ML) from the region of Sion (Switzerland). Its index properties are: w_L = 25.4%, w_P = 16.7%, I_P = 8.7%. The clayey fraction represents 8%, the silty one about 72% and the sandy one about 20%. Special care was taken in the sample preparation to ensure the reproducibility of the initial state. The sample preparation procedure consisted of mixing a known mass of dry soil with de-aired and demineralised water to an initial water content w = 1.5 w_L (i.e. w = 38%). This water content value was assumed large enough to produce a slurry with no internal fabric. To remove the air bubbles trapped in the slurry, the soil was vibrated. The initial void ratio e0 at the slurry state varied between 0.8 and 1.

We have tested this material in a THM oedometer. This cell enables standard oedometric compression tests by controlling temperature and suction in the sample and determining water retention characteristics under different mechanical and thermal states. Suction is applied through the axis translation technique.

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