

Notation

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|--------------------|---|
| H | specimen's height, mm |
| M_T | applied torque, N·m |
| N_c | number of cyclic loading |
| N_l | number of loading set |
| f | frequency, Hz |
| p | mean normal stress, kPa |
| q | deviator stress, kPa |
| r_i | specimen's inner radius, mm |
| r_o | specimen's outer radius, mm |
| u_a | pore air pressure, kPa |
| u_w | pore water pressure, kPa |
| δ | cyclic torsional angle, rad |
| ϕ | angle of internal friction, deg |
| γ_a | double amplitude of torsional shear strain, — |
| $\gamma_{z\theta}$ | torsional shear strain, — |
| η | effective stress ratio, — |
| v | specific volume, m^3/Mg |
| ρ | bulk density, Mg/m^3 |
| σ_1 | major principal stress, kPa |
| σ'_1 | effective major principal stress, kPa |
| σ_2 | intermediate principal stress, kPa |
| σ'_2 | effective intermediate principal stress, kPa |

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|------------------|---------------------------------------|
| σ_3 | minor principal stress, kPa |
| σ'_3 | effective minor principal stress, kPa |
| σ_c | confining stress, kPa |
| σ'_c | effective confining stress, kPa |
| σ_h | horizontal stress, kPa |
| σ_m | mean normal stress, kPa |
| σ'_m | effective mean normal stress, kPa |
| σ'_n | effective normal stress, kPa |
| σ_{oct} | octahedral normal stress, kPa |
| σ_v | vertical stress, kPa |
| τ | shear stress, kPa |
| τ_A | cyclic shear stress, kPa |
| τ_f | shear stress at failure, kPa |
| τ_{oct} | octahedral shear stress, kPa |
| τ_r | residual shear stress, kPa |
| τ_{vh} | horizontal shear stress, kPa |
| $\tau_{z\theta}$ | cyclic torsional shear stress, kPa |
| χ | wet area per unit gross area,— |

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