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Table S1

Symbol	Units	Definition	Symbol	Units	Definition
Φ	-	Total hydraulic head	K_{ij}	m/s	Hydraulic conductivity tensor
v	ms ⁻¹	Apparent seepage velocity	g	m/s ²	Gravitational acceleration
k_{ij}	m ²	Permeability tensor	ν	s/m ²	Kinematic viscosity of fluid
δ_{ij}	-	Kronecker's delta	c_1	-	Crack density at the percolation threshold
λ	-	Connectivity	F_0	-	Dimensionless crack density (=tr F_{ij})
P_{ij}	m ²	Tensor related to crack geometry with aperture	τ	-	Tortuosity
ρ	m ⁻³	Number of Cracks per unit volume	L	m	Flow path length
r	m	Crack radius	a	m	Straight-line distance
t	m	Crack aperture	β	-	Constrictivity
n_i, n_j	-	Direction cosines of $\mathbf{n}$	A	-	Cross-sectional area
$E(\mathbf{n}, r, t)$	-	Density function of n, r, t	T_{ij}	-	Crack network parameter
N_{ij}	-	Fabric tensor	Λ_{ij}	-	Modified correction factor
$m(\mathbf{q})$	m ⁻¹	Crack number per unit length of intersected scan line	V	m ³	Volume
t_0	m ⁻¹	Initial aperture of crack	$m^{(V)}$	-	total number of cracks in volume
σ'_n	Pa	Effective normal stress	s	m ²	Crack surface area
γ'	kN/m ³	Submerged unit weight	AI	-	Anisotropy index of crack orientation (0<AI<1.41)
H	m	Mechanical parameter of crack	$J_2^{(F)}$	-	Second invariant of the deviatoric tensor of F_{ij}
S_0	m ⁻¹	Crack surface area of all cracks per unit volume	$\rho_{3-D,c}$	-	Dimensionless crack density based on excluded volume

