|  |  |  |
| --- | --- | --- |
| Micromechanical Parameter | Berea Sandstone | Lac du Bonnet Granite |
| Young’s Modulus of Bonds (*Eb*)  *Pa* | 5.00x109 | 5.00x1010 |
| Shear Modulus of Bonds (G*b*)  *Pa* | 5.00x109 | 5.00x1010 |
| *σc/σt* | 1.00x101 | 2.00x101 |
| Tensile Strength of Bonds (T*b*)  *Pa* | 9.00x106 | 6.00x108 |
| Cohesion of Bonds (*Cb*)  *Pa* | 9.00x107 | 1.20x1010 |
| Shear Modulus of Particles (*Gp*)  *Pa* | 2.90x1010 | 2.00x1012 |
| Poisson’s Ratio of Particles (*νp*) | 0.33 x100 | 0.26 x100 |
| Interparticle friction (*f*) | 0.40 x100 | 0.70 x100 |

Table 1: Microparameters used in DEM modeling of Berea Sandstone and Lac Du Bonnet Granite, maintaining *Cb/Tb* ratios equal to *σc/σt*, as prescribed by Scholtès and Donzé, 2013.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Macromechanical Property | Model Values for Berea Sandstone | Actual Values for Berea Sandstone | Model Values for Lac du Bonnet Granite | Actual Values for Lac du Bonnet Granite |
| Unconfined Compressive Strength (UCS)  *MPa* | 85.05 | 95.001 | 233.79 | 224.003 |
| Young’s Modulus (*E*)  *GPa* | 4.28 | 8.001 | 42.47 | 50.003 |
| Mohr-Coulomb Cohesion (*C*)  *MPa* | 29.35 | 26.102 | 54.60 | 46.003 |
| Mohr Coulomb Slope (*µ*) | 0.55 | 0.492 | 0.83 | 1.053 |

Table 2: Macromechanical behavior of models calibrated to Berea Sandstone after 1Bobich, 2005, and 2Schellart, 2000; and Lac du Bonnet Granite after 3Martin and Chandler, 1994.