**8.0 TABLES**

Table 1: Harmonic mean permeability of cut sections show that pore deformation or destruction may have occurred for Column 7 and Column 8 since mean permeability measured from the intact soil column is more than the harmonic mean of the separate sections.

|  |  |  |  |
| --- | --- | --- | --- |
|  | *keq-n* | *km* | *SD km* |
| *Column 3* | 4.30 | 1.80 | 0.26 |
| *Column 7* | 0.64 | 0.80 | 0.07 |
| *Column 8* | 0.07 | 0.17 | 0.08 |
| *Column 9* | 2.66 | 0.22 | 0.05 |

Table 2: ME permeability for different tortuosity methods applied when calculating from the KC relationship shows that Li and Yu 2011 generally returns lower ME than other tested methods. Note that changes to the KC shape factor will alter these values.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | *Boudreau (1996)* | *Yu and Li (2004)* | *Li and Yu (2011)* | *Matyka et. Al. (2008)* | *Koponen et. al. (1996)* | *Iverson & Jorgensen (1993)* |
| Brink | *-2.94* | *52.16* | *-0.94* | *59.63* | *-1.04* | *76.84* |
| IK | *-1.66* | *53.82* | *-0.50* | *70.75* | *-0.60* | *106.87* |
| KMMRF | *-1.57* | *41.64* | *-0.44* | *55.70* | *-0.53* | *85.56* |
| Otsu | *-1.90* | *49.77* | *-0.71* | *61.46* | *-0.82* | *87.37* |
| Rosin | *-2.31* | *59.10* | *-0.74* | *70.72* | *-0.84* | *96.74* |
| Yen | *-2.56* | *61.98* | *-0.77* | *72.78* | *-0.87* | *97.24* |

Table 3: Specific Euler number as a metric of pore connectivity correlates directly with LB mean k except for the Brink segmentation method. KC mean K values correlate directly with mean tortuosity and porosity as is expected from equation 10.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | *Euler number* | *Porosity* | *Mean Tortuosity* | *Np* |
| *Brink* | -438 | 0.002 | 17.10 | 6 |
| *IK* | -293316 | 0.200 | 2.17 | 8 |
| *KMMRF* | -56072 | 0.068 | 4.25 | 8 |
| *Otsu* | -854032 | 0.142 | 2.58 | 6 |
| *Rosin* | -16241 | 0.016 | 8.77 | 5 |
| *Yen* | -754 | 0.003 | 14.37 | 6 |

Table 4 Number of percolating columns, mean error and pearson correlation coeficients for lattice Boltzmann simulaitons.

|  |  |  |  |
| --- | --- | --- | --- |
|  | N | ME | r |
| Brink | 21 | 0.96 | 0.37 |
| IK |  |  |  |
| KMMRF | 32 | 2.32 | 0.45 |
| Otsu | 32 | 2.27 | 0.33 |
| Rosin | 30 | 1.78 | 0.58 |
| Yen | 28 | 1.57 | 0.56 |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Table 5: Number of percolating columns, mean error and pearson correlation coeficients for the Kozeny Carman models

|  |  |  |  |
| --- | --- | --- | --- |
|  | N | ME | r |
| Brink | 21 | -0.37 | 0.16 |
| IK | 24 | 2.00 | -0.01 |
| KMMRF | 32 | 1.91 | 0.16 |
| Otsu | 32 | 1.70 | 0.05 |
| Rosin | 30 | 0.80 | 0.32 |
| Yen | 28 | 0.30 | 0.41 |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |