Incremental material balance:

$$I_{MB} = \frac{\sum_{i=1}^{n_x} \sum_{j=1}^{n_y} \frac{V_{b_{i,j}} \phi_{i,j}}{5.615} \left(\frac{1}{B_{i,j}^{n+1}} - \frac{1}{B_{i,j}^{n}} \right)}{\Delta t \sum_{i=1}^{n_x} \sum_{j=1}^{n_y} q_{sc_{i,j}}^{n+1}}$$

Cumulative material balance:

$$C_{MB} = \frac{\sum_{i=1}^{n_x} \sum_{j=1}^{n_y} \frac{V_{b_{i,j}} \phi_{i,j}}{5.615} \left(\frac{1}{B_{i,j}^{n+1}} - \frac{1}{B_{i,j}^{0}} \right)}{\sum_{m=1}^{n+1} \Delta t^m \sum_{i=1}^{n_x} \sum_{j=1}^{n_y} q_{sc_{i,j}}^{n+1}}$$