Highlights:

* We present PhreeqcRM—a reaction module for reactive transport models
* Multicomponent transport models in C++, C, and Fortran can be coupled to PhreeqcRM
* The module has built-in parallelization by either OpenMP or MPI
* PhreeqcRM has been implemented in FEFLOW and PHAST
* Results are shown for the MoMaS nuclear waste management benchmark