GEOCHEM-PC is a descendant of the multipurpose chemical speciation program GEOCHEM (Sposito & Mattigod, 1980) which has been widely used by soil and environmental chemists. GEOCHEM itself was a progeny of the REDEQL series of programs (McDuff & Morel, 1973; Morel & Morgan, 1972), a family of general-purpose geochemical models intended primarily for use with natural surface waters (i.e., total $P = 0.1$ MPa, $T$ at or near 298 K). The GEOCHEM differed from its predecessor, REDEQL2, primarily in its greatly expanded database, which permitted consideration of more metals, ligands, complexes, and solids of interest to soil chemists, and by the inclusion of models for cation exchange and metal adsorption.

Like many similar computerized equilibrium models, GEOCHEM-PC is comprised of four principal components: (i) a user interface to allow setup of an equilibrium problem, (ii) a database of equilibrium constants selected by the program authors, but alterable by the user, (iii) a numerical algorithm to solve the problem, and (iv) an interface to provide the results in a readable format.

Since its introduction some 14 yr ago (Mattigod & Sposito, 1979; Sposito & Mattigod, 1980), GEOCHEM has undergone several modifications to improve the program’s computational accuracy (i.e., Sposito, 1986; Parker et al., 1987).