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We use an effective analogue of the ultraproduct construction. We start with the product of a uniformly computable sequence of computable structures indexed by the set of natural numbers. The equality of elements, which are partial computable functions, and satisfaction of formulas are defined modulo an infinite set, which is cohesive, that is, indecomposable with respect to computably enumerable sets. We investigate which definable properties transfer from structures to their cohesive products. We are especially interested in the case when the cohesive set is the complement of a computably enumerable set. Such computably enumerable sets are called maximal sets in computability theory. We then study the isomorphism types of cohesive powers of the field of rational numbers and other structures. These cohesive powers of fields have been used in the characterization of certain filters in a vector space lattice of importance in computable model theory. Cohesive powers were introduced in modern computable model theory by Rumen Dimitrov. Previously, a number of authors considered related constructions in the context of nonstandard models of fragments of arithmetic. (Received September 23, 2018)