fraction extracted, \( E \)

The fraction of the total quantity of a substance extracted (usually by the solvent) under specified conditions, i.e. \( E_A = \frac{Q_A}{Q_A'} \) where \( Q_A \) is the mass of A extracted and \( Q_A' \) is the total mass of A present at the start.

Notes:
1. \( E \) may be expressed as a percentage, \( \% \) \( E \).
2. The term extractability is qualitative and should not be used as a synonym for fraction extracted.
3. If the aqueous phase is extracted with \( n \) successive portions of solvent, the phase volume ratio (solvent/feed) being \( r \) each time, the fraction extracted is given by:
   \[
   E_n = 1 - (r D + 1)^{-n}
   \]
   If \( n = r = 1 \) and \( E_1 = \frac{D}{1 + D} \) this expression is a concept of value in chromatography theory.
4. The fraction extracted is also known as the recovery factor, especially for a multistage process.

Source:
PAC, 1993, 65, 2373 (Nomenclature for liquid-liquid distribution (solvent extraction) (IUPAC Recommendations 1993)) on page 2384