

**enrichment factor,  $S$** *in liquid-liquid distribution*

The factor by which the ratio of two substances in the feed must be multiplied to give their ratio after treatment.

$$\frac{Q_A}{Q_B} = S_{A,B} \frac{Q'_A}{Q'_B}$$

where  $Q_A$  and  $Q'_A$  are the final and initial amounts of species **A** and  $Q_B$  and  $Q'_B$  are the final and initial amounts of species **B**. Hence  $S_{A,B} = \frac{E_A}{E_B}$  where  $E$  is the fraction extracted. In terms of  $D$ ,  $n$ ,  $r$  (where  $n$  is the number of stages and  $r$  the phase ratio),

$$S_{A,B} = \frac{1 - (1 + r D_A)^{-n}}{1 - (1 + r D_B)^{-n}}$$

**Source:**

PAC, 1993, 65, 2373 (*Nomenclature for liquid-liquid distribution (solvent extraction)* (IUPAC Recommendations 1993)) on page 2382

Orange Book, p. 90