

#### 9.4.2 Components of the Solvent Phase

##### **Accelerator**

See *Catalyst, Kinetic synergist, Modifier*.

*Note:* This term may be used as a synonym for catalyst.

##### **Carrier**

See *Diluent*. This term is not recommended.

##### **Catalyst (in liquid-liquid distribution)**

A substance included in the *solvent* to increase the rate of transfer without affecting the position of equilibrium.

*Notes:* The term accelerator may also be used but *kinetic synergist* is not recommended.

##### **Cosolvent**

See *Diluent*.

##### **Diluent**

The liquid or homogeneous mixture of liquids in which *extractant(s)* and possible *modifier(s)* may be dissolved to form the *solvent* phase.

*Notes:*

- (i) The term *carrier*, which implies an inert diluent is not recommended.
- (ii) Although the diluent may well be a single liquid or even the major portion of the extracting phase, the term *solvent* should not be used in this sense as it has a much wider meaning in the context of liquid-liquid extraction, although the term *cosolvent* may be used in certain circumstances.
- (iii) The *diluent* by itself does not extract the *main (extractable) solute* appreciably.

##### **Epi-phase**

The less dense phase in a distribution system.

*Note:* The term is often used when two non-aqueous phases are present or when the *solvent* is an aqueous solution. See also *Hypo-phase*.

### **Extract (Noun)**

The separated phase (often but not necessarily organic) that contains the material extracted from the other phase.

*Notes:*

- (i) Where appropriate the term "*loaded solvent*" may be used, but is not recommended.
- (ii) For usage as a verb see 9.4.1.

### **Extractant**

The active component(s) primarily responsible for transfer of a solute from one phase to the other.

*Notes:*

- (i) The term *extracting agent* is a synonym but *solvent* and *ligand* should not be used in this context.
- (ii) Certain *extractants* that consist of liquids immiscible with water (e.g. tributyl phosphate or certain ketones) might comprise the only component of the initial organic phase but *extractant(s)* can also be dissolved in *diluent*.

### **Hypo-phase**

The denser phase in an extraction system.

*Note:* The term is often used when two non-aqueous phases are present or when the *solvent* is an aqueous phase. See also *Epi-phase*.

### **Kinetic synergist**

This term is not recommended as a synonym for *catalyst* or *accelerator*.

### **Modifier**

A substance added to a *solvent* to improve its properties e.g. by increasing the solubility of an *extractant*, changing interfacial parameters, or reducing adsorption losses.

*Note:* Additives used to enhance extraction rates should be called *accelerators* or *catalysts*.

### **Solvent (in liquid-liquid distribution)**

The term applied to the whole initial liquid phase containing the *extractant*.

*Notes:*

- (i) The solvent may contain only *extractant* or it may be a composite homogeneous mixture of *extractant(s)* with *diluent(s)* and also sometimes *modifiers* and *accelerators*.
- (ii) The term *solvent* must not be used as a synonym for any of the individual components of a composite liquid phase even where, in the case of a single component (e.g. 3-methylbutan-2-one or tributyl phosphate), it becomes identical with the *extractant*.
- (iii) The term may be qualified to denote the *extract* from a given processing *step*, e.g. *loaded solvent*.