9.2.7.2 The Mobile Phase

The **mobile phase** was defined previously in 9.2.1.1.

Outlet pressure (p_o)

Defined as in 9.2.3.6. However, unlike gas and liquid chromatography the outlet pressure in supercritical-fluid chromatography has to be maintained above ambient pressure by a *flow restrictor* or *back-pressure regulator*.

Pressure drop across the column (Δp)

Defined as 9.2.3.6.

Mobile-phase volume flow rate

Defined as 9.2.3.6. In supercritical-fluid chromatography this is usually quoted as the rate of delivery of the pumping system.

Mobile-phase mass flow rate

The rate of mass flow through the column. It is usually determined by measuring the gas-flow rate (or liquid-flow rate) at ambient conditions after the mobile phase has been depressurized. If liquid modifiers are present in the mobile phase, corrections will be needed.

Mobile-phase composition

The composition of the mobile-phase which is delivered to the column. This should be described in such a way that it can be reproduced in different laboratories. It can be expressed on a mass, volume, or mole fraction basis but in each case the temperature and pressure must also be defined.

If the individual components are pumped separately, the relative delivery flow rates should be defined.

Premixed eluents are often used and can be defined by their mass composition as recorded by the manufacturer. However, the delivered composition may depend on the relative volatility of the components and can change as a function of syringe pump volume and time.

Mobile-phase modifier

Modifiers are materials (usually organic compounds such as methanol or acetonitrile) added to the supercritical fluid being used as the mobile phase to alter the elution properties.