

Impurity isolation and API purification by SFC

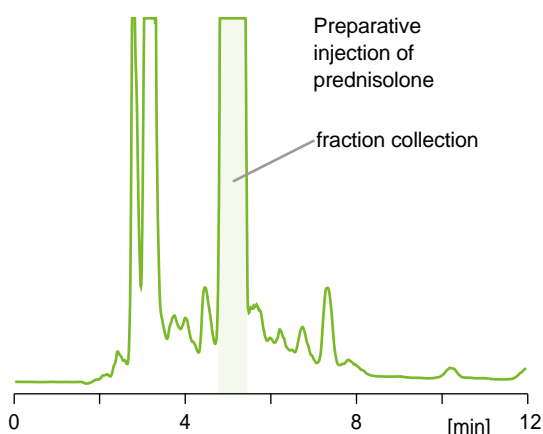
Scientists working on the purification of compounds by Supercritical Fluid Chromatography find this technique to be the right tool for managing the increasing sample workload submitted to them. This is due to two main reasons: personnel can carry out fast separations under SFC and drying the fractions collected is very quick. Kromasil SFC columns have been developed for quick sample turnaround as the separations can take just a few minutes and are now being delivered in fused organo-silane, cyano, diol, silica and 2-ethylpyridine chemistries to service the wide variety of mixtures that reach laboratories and kilo labs today. Because of the high surface availability of the Kromasil SFC line, the materials show great loadability which makes them excellent choices for preparative purification under overloaded conditions.

Similarly to HPLC, almost all preparative separations using SFC start at analytical scale using either smaller particles or narrower columns, or a combination of the two. By developing the preparative method on an analytical scale, SFC users are able to minimize solvent and sample usage while minimizing time for method development.

Whether in analytical or preparative scale Kromasil manufactures first-in-class stationary phases and users can be sure that the separation is the same independent of particle size and scale. All Kromasil SFC phases are available as 2.5 and 5 µm particle sizes with columns up to 30 mm ID. In this way we can offer products that give chromatographers the possibility to transition seamlessly between different particle and column sizes and easily scale up their separations.

The example shown here illustrates the purification of small molecules by SFC. In this case prednisolone and its impurities are being separated under overloaded conditions. Here it is also indicated the fraction collected for the compound of interest. With this run, it is possible to obtain enough material free of many of the initial impurities so further characterization can take place.

With 30 years of experience in the marketplace, the well-known Kromasil SFC columns are shipped to meet the demands of scientists carrying out preparative chromatographers worldwide.



Conditions

Column: Kromasil SFC-5-XT 10 x 250 mm

Part number: F05XTP25

Eluent: CO₂ / 20% methanol

Loading: 16 mg

Flow rate: 8.0 ml/min

Temperature: 40°C

Outlet pressure: 100 bar

Detection: UV @ 254 nm