Kromasil®
SFC

Kromasil SFC

Designed for green technology

Introducing Kromasil SFC XT

Nouryon

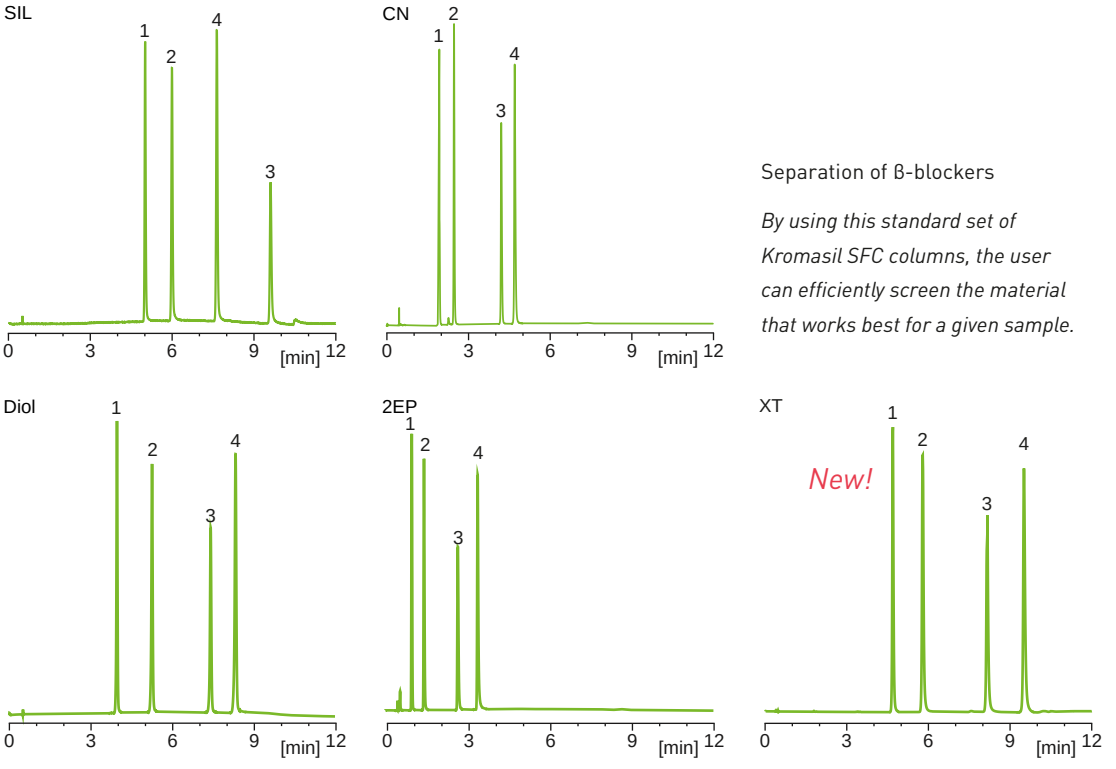
SFC columns for analysis and isolation

Based on 100 Å pore size, 2.5 and 5 µm particles, Kromasil SFC columns give users the opportunity of fast separations. The columns are tailor-made for research, discovery and routine analysis.

Many options

Kromasil SFC columns are the answer for fast separations. These columns are now being delivered in cyano, diol, silica, 2-ethylpyridine and fused organo-silane chemistries for the laboratory scientist to separate a wide range of substances, from non-polar to strongly polar compounds.

The stationary phase quintet



Separation of ß-blockers

By using this standard set of Kromasil SFC columns, the user can efficiently screen the material that works best for a given sample.

Conditions

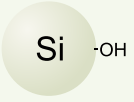
Stationary phase: Kromasil SFC, 2.5 µm phase chemistry as in figure
Column size: 3.0 x 150 mm
Part numbers: FH2SIC15, FH2CNC15, FH2DIC15, FH2EPC15 and FH2XTC15
Eluent: CO_2 / methanol + 20 mM ammonia
Gradient: 0 min: 5%, 10 min: 30% methanol
Flow rate: 2.0 ml/min
Temperature: 40°C
Outlet pressure: 120 bar
Detection: UV @ 220 nm
Substances: 1 = alprenolol
2 = propranolol
3 = acebutolol
4 = pindolol

Chromatograms for SIL, CN, Diol and 2EP in this figure are a courtesy of AstraZeneca, Mölndal, Sweden

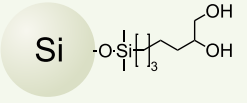
Product characteristics

Kromasil SFC is based on first-in-class, perfectly spherical, porous Kromasil silica particles with 100 Å pore size and particle sizes of 2.5 and 5 µm. Furthermore, Kromasil SFC XT is the result of a patented organic/inorganic merged silica technology.

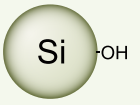
SIL: Bare silica



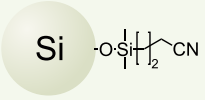
Diol: Diol
Coverage: 3.4 µmol/m²



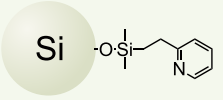
XT: Fused organo-silane



CN: Cyano
Coverage: 4.0 µmol/m²

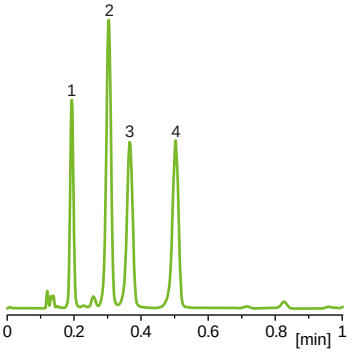


2EP: 2-ethylpyridine
Coverage: 3.8 µmol/m²



Fast separations

Medium and high-throughput laboratories working with green technology and seeking to improve turnaround time are now able to take advantage of the separation power of the new Kromasil SFC 2.5 µm family of columns. With the chromatographic power of Kromasil SFC phases available in short and narrow columns, users can easily achieve baseline resolution and ultra-fast separations.



Separation of steroids

Conditions
Column: Kromasil SFC, 2.5 µm, 2EP, 3.0 x 50 mm
Part number: FH2EPC05
Eluent: CO_2 / methanol
Gradient: 0 min: 10%, 1 min: 20% methanol
Flow rate: 2.5 ml/min

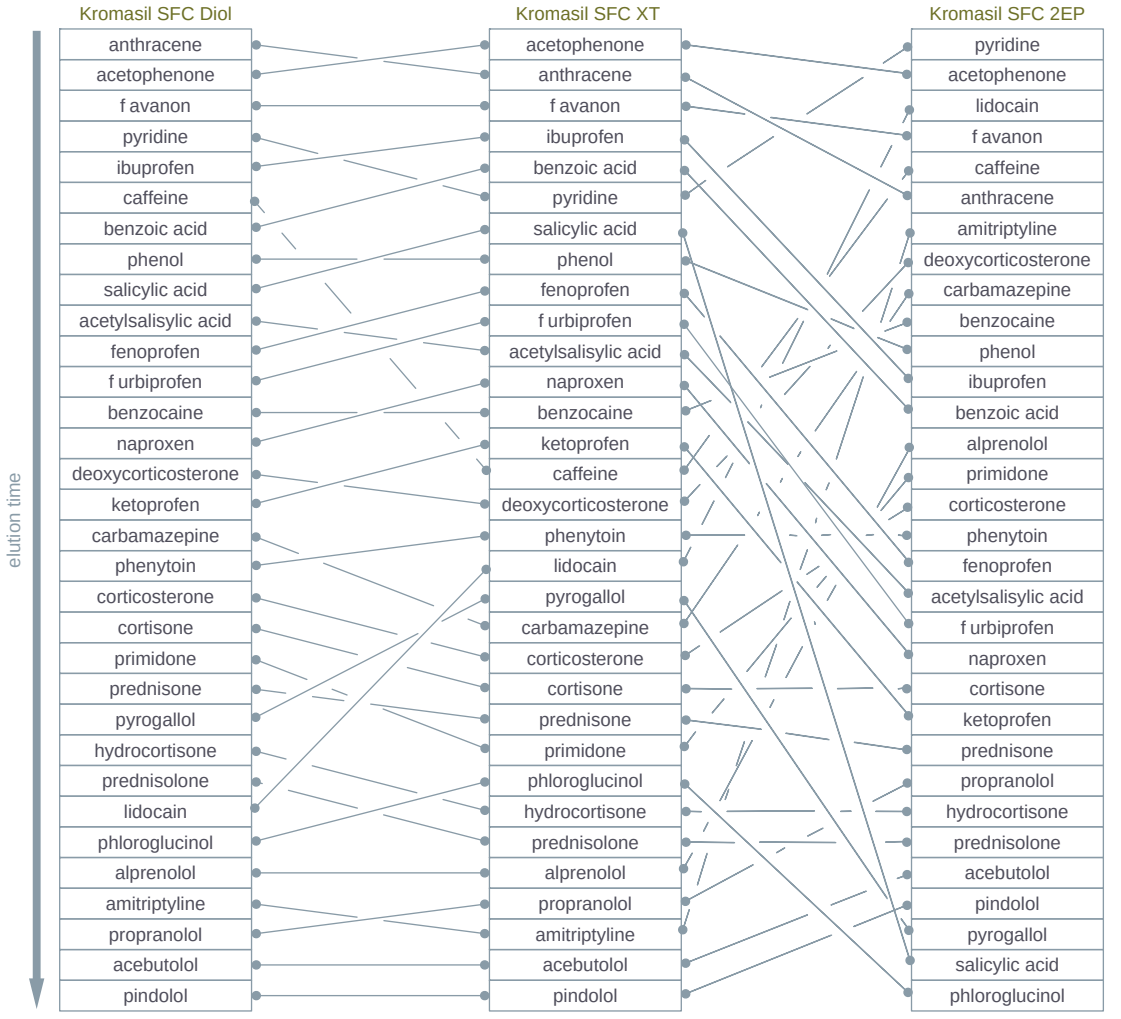
Temperature: 40°C
Outlet pressure: 130 bar
Detection: UV @ 220 nm
Substances: 1 = deoxycorticosterone
2 = corticosterone
3 = cortisone
4 = hydrocortisone

Orthogonality between phases

In general, the 2EP functionality is known for its benefits in terms of selectivity and retention in SFC, and it has the specific benefits towards the separation of basic compounds, where peak shape is significantly improved. Therefore the 2EP chemistry is seen as the workhorse for SFC.

With the introduction of Kromasil SFC XT we can now offer a SFC phase that greatly compliments 2EP showing orthogonality towards 2EP and other common SFC phases when run under standard SFC conditions. This new material provides additional tools to SFC users around the world.

Elution order for common acidic, neutral and basic substances on selected SFC phases. Relative elution time increases downwards in the figure.



Conditions

Stationary phase: Kromasil SFC, 2.5 µm, phase chemistries as in table
Column size: 3.0 x 150 mm
Part numbers: FH2DIC15, FH2XTC15 and FH2EPC15

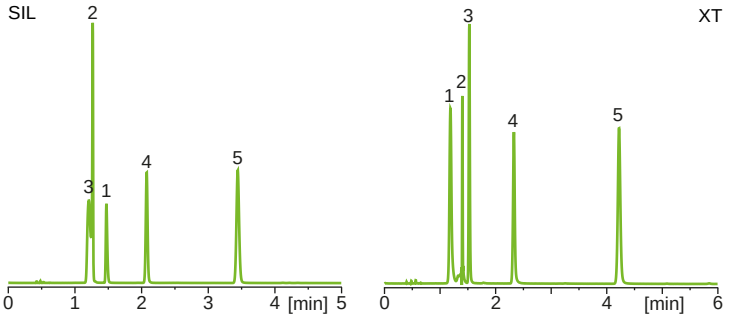
Eluent: CO_2 / methanol
Gradient: 0 min: 5%, 15 min: 30% methanol
Flow rate: 1.5 ml/min

Temperature: 40°C
Outlet pressure: 110 bar
Detection: UV @ 254 nm

Alternative selectivity

The new Kromasil SFC XT offers additional interactions with the stationary phase surface, creating alternative selectivities.

Separation of anilines on Kromasil SFC SIL and XT



Conditions

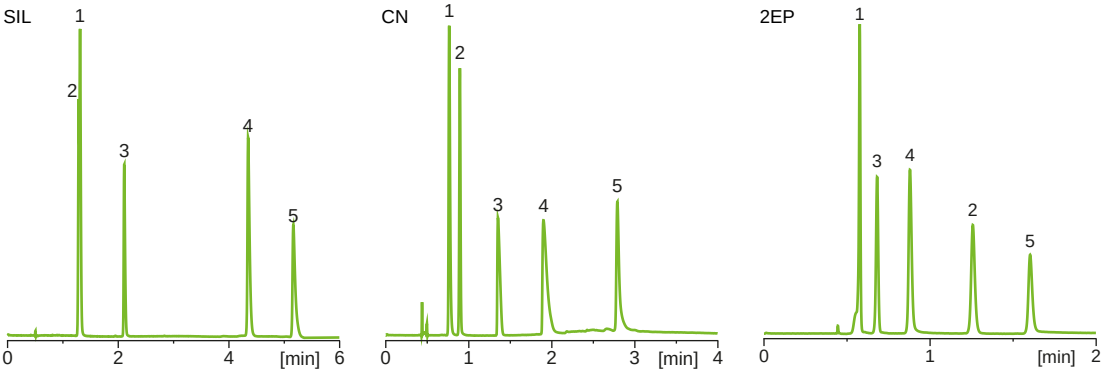
Columns: Kromasil SFC, 2.5 µm, SIL and XT, 3.0 x 150 mm
Part numbers: FH2SIC15, FH2XTC15
Eluent: CO_2 / methanol
Gradient: 0 min: 2%, 7 min: 9% methanol

Substances: 1 = aniline
2 = ethylaniline
3 = 2-nitroaniline
4 = 3-nitroaniline
5 = 4-nitroaniline

Flow rate: 2 ml/min
Temperature: 40°C
Outlet pressure: 110 bar
Detection: UV @ 220 nm

Application

Separation of local anesthetics



Conditions

Stationary phase: Kromasil SFC, 2.5 µm, phase chemistry as in figure
Column size: 3.0 x 150 mm
Part numbers: FH2SIC15, FH2CNC15 and FH2EPC15
Eluent: CO_2 / methanol + 20 mM ammonia
Gradient: 0 min: 5%, 5 min: 30% methanol
Flow rate: 2.0 ml/min
Temperature: 40°C

Outlet pressure: 110 bar
Detection: UV @ 230 nm
Substances: 1 = lidocaine
2 = benzocaine
3 = bupivacaine
4 = tetracaine
5 = procaine

Easy scale up and purification

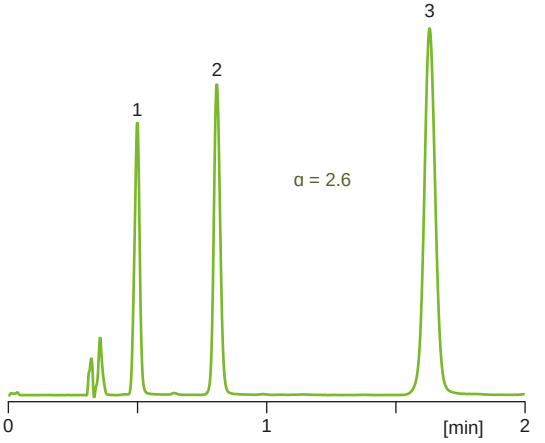
All Kromasil SFC phases are available as 2.5 and 5 µm particles sizes with columns up to 30 mm i.d. In this way we can offer products that give users the possibility to seamlessly transition between different particle and column sizes and easily scale up their separations.

Similarly to LC, almost all preparative separation starts at analytical scale using either smaller particles, more narrow 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 shorten time for method development.

Maintained selectivity

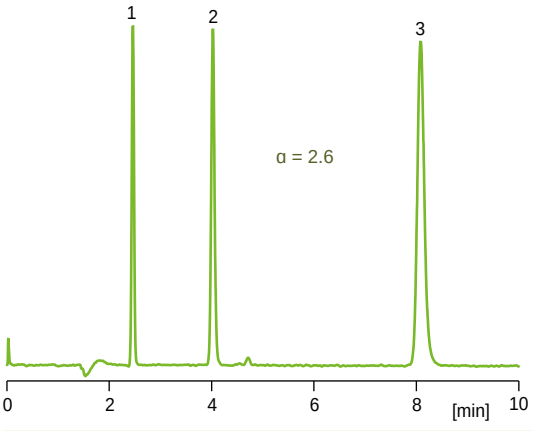
Whether in analytical or preparative scale, 2.5 or 5 µm particles, Kromasil offers the same material produced in a similar way with similar specifications. This means users can be sure that the separation itself will stay identical during scale up.

Kromasil SFC-2.5-XT 3.0 x 100 mm



Conditions
Part number: FH2XTC10
Eluent: CO_2 / 20% methanol
Flow rate: 1.5 ml/min
Substance: 1 = phenol, 2 = phenytoin, 3 = hydrocortisone
Temperature: 40°C
Outlet pressure: 110 bar
Detection: UV @ 254 nm

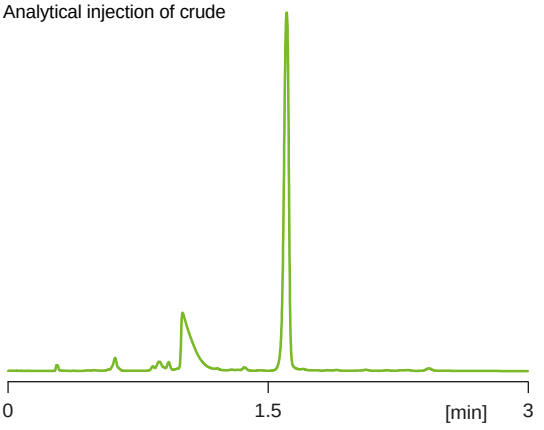
Kromasil SFC-5-XT 10 x 250 mm

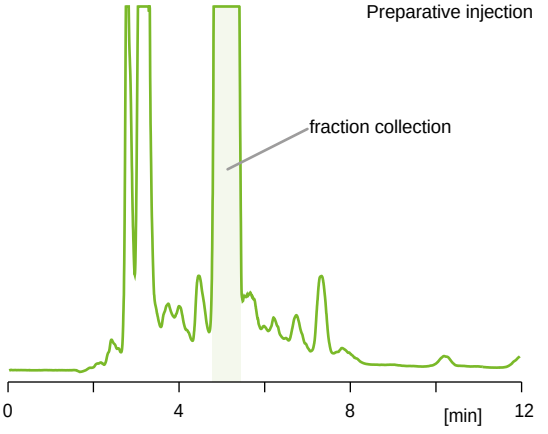


Conditions
Part number: F05XTP25
Eluent: CO_2 / 20% methanol
Flow rate: 8.3 ml/min
Substances: 1 = phenol, 2 = phenytoin, 3 = hydrocortisone
Temperature: 40°C
Outlet pressure: 100 bar
Detection: UV @ 254 nm

Purification of prednisolone

Because of the high surface availability of our SFC line, our materials show great loadability which makes them excellent choices for preparative purification under overloaded conditions.



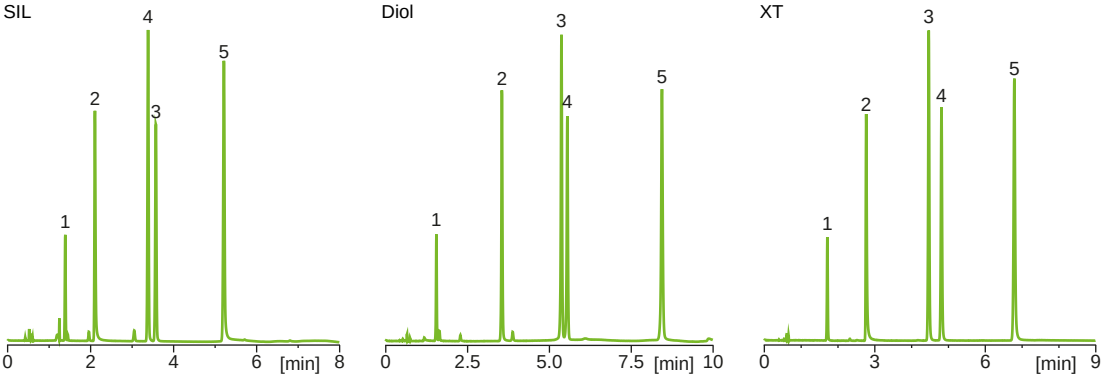


Analytical conditions
Column: Kromasil SFC-2.5-XT 3.0 x 100 mm
Part number: FH2XTC10
Eluent: CO_2 / methanol
Gradient: 0 min: 10%, 3 min: 20% methanol
Flow rate: 2.0 ml/min
Temperature: 40°C
Outlet pressure: 120 bar
Detection: UV @ 230 nm

Preparative conditions
Column: Kromasil SFC-5-XT 10 x 250 mm
Part number: F05XTP25
Eluent: CO_2 / 20% methanol
Loading: 16 mg
Flow rate: 8.0 ml/min
Temperature: 40°C
Outlet pressure: 100 bar
Detection: UV @ 254 nm

Application

Separation of hydrobenzenes



Conditions
Stationary phase: Kromasil SFC, 2.5 µm, phase chemistry as in figure
Column size: 3.0 x 150 mm
Part numbers: FH2SIC15, FH2DIC15 and FH2XTC15
Eluent: CO_2 / methanol
Gradient: 0 min: 2%, 10 min: 25% methanol
Flow rate: 2.0 ml/min
Temperature: 40°C
Outlet pressure: 110 bar
Detection: UV @ 220 nm
Substances: 1 = benzyl alcohol
2 = resorcinol
3 = catechol
4 = hydroquinone
5 = phloroglucinol

Availability

The Kromasil SFC columns are available in sizes from 3.0 to 30 mm i.d. They are packed with stationary phases with 2.5 and 5 µm particle sizes and the following surface chemistries: silica (SIL), cyano (CN), diol (Diol), 2-ethylpyridine (2EP) and fused organo-silane surface (XT).

Visit ***www.kromasil.com/sfc*** *for all column sizes and part numbers.*

The moment you adopt our Kromasil High Performance Concept, you join thousands of chromatographers who share a common goal: to achieve better separations when analyzing or isolating pharmaceuticals or other substances.

Not only will you benefit from our patented silica technology, but you gain a strong partner with a reliable track record in the field of silica products. For the past 70 years, we have pioneered new types of silica. Our long experience in the field of silica chemistry is the secret behind the development of Kromasil, and the success of our Separation Products group. Kromasil is available in bulk and in high-pressure slurry-packed columns.

The development, production and marketing of Kromasil are ISO 9001 certified.

Kromasil is a brand of Nouryon, a global specialty chemicals leader. Industries worldwide rely on our essential chemistry in the manufacture of everyday products. Building on our nearly 400-year history and operations in over 80 countries, the dedication of our 10 000 employees, and our shared commitment to safety, sustainability, and innovation, we have established a world-class business and built strong partnerships with our customers.

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