

WHAT'S NEW?

Restek 2011

GC Columns
GC Accessories
Sample Preparation

RESTEK

HROM High Resolution
ECH Electrochemical

Australian Distributors
Scientific & Industrial
Products Pty Ltd

12/13

Website: HROM | www.hromech.com.au Email: info@hromech.com.au Tel: 03 4982 8888 ... in AUSTRALIA

Rxi-624Sil ms (fused silica)

- -20 to 300/320 deg C.
- 6% cyanopropyl phenyl/ 94% dimethyl arylene polysiloxane
 - Low bleed, high thermal stability
- Inert-excellent peak shape for a wide range of compounds including acidic and basic compounds
- Selective-highly selective for residual solvents, great choice for USP <467>
 - Manufactured for column to column reproducibility-great for validated methods.

Rxi-1HT (fused silica)

- Columns processed for high-temperature applications.
 - Temperature range: -60 to 400 deg C.
- Column capable of 430 deg C, but will have reduced lifetime

Rtx-Volatile Amine Column (fused silica)

- -60 to 290 deg C
- Unique selectivity for baseline resolution of all volatile amines.
- Excellent inertness assures accuracy and sensitivity for volatile amines including free ammonia.
- Highly robust phase withstands repeated water injections, resulting in longer column lifetime.
- High temperature stability(290 deg C) ensures elution of amines up to C16 and allows contaminants to be removed by “baking out” the column.

Rtx-DHA Columns (fused silica)

- -60 to 340 deg C.
- 100% dimethyl polysiloxane
- Columns meet or exceed all ASTM D6730-01 and Can/CGSB 3.0 No.14.3-99 method guidelines.
- Excellent response and peak symmetry for polar oxygenates.

Rt-Alumina Bond/CFC Columns (fused silica PLOT)

- To 200 deg C.
- Improved inertness for halogenated compounds such as CFC's
- Highly selective alumina based column, separates most CFC's.
- High retention and capacity for CFC's

Siltek-stainless steel PLOT Columns

MXT-Alumina Bond/NaSO₄ Columns

- Can be made in small coil diameters.
- Will not spontaneously break, making them ideal for rugged environments.
- Designed for robust performance in process GC's and field instruments.
 - To 200 deg C.

MXT-Q-Bond Columns (New 0.25mm also)

- To 300/320 deg C.

MXT-S-Bond Columns (New 0.25mm also)

- To 250 deg C.

MXT-1HT SimDist Column (Siltek-stainless steel)

- Stable to 450 deg C. –Lowest bleed for longest column lifetime.
 - Reliably meet all ASTM D6352, D7169, and D7500 specifications.
- 100% dimethyl polysiloxane phase allows easy comparison of historical data.
 - -60 to 430/450 deg C.

150 micron ID Columns

- Reduces analysis time up to 2 times, while maintaining resolution.
- Can be installed in all existing instrumentation.
 - Low bleed maximizes sensitivity.
- Available in most selectivity's and also thick films eliminating sample capacity issues.
- OD similar to 0.25mm for easy installation

Rxi-1ms

- 0.15mm X 0.15um X 10M
 - -60 to 330/350 deg C.

Rxi-5Sil ms

- 0.15mm X 0.15um X 10M and 20M
 - 0.15mm X 2.0um X 20M
 - -60 to 330/350 deg C.

Rxi-17Sil ms

- 0.15mm X 0.15um X 10M and 20M
 - 40 to 340/360 deg C.

Rtx-200

- 0.15mm X 0.15um X 10M and 20M
 - -20 to 320/340 deg C.
 - Rxi-624Sil ms
- 0.15mm X 0.15um X 10M and 20M
 - -60 to 300/320 deg C.

Stabilwax

- 0.15mm X 0.15um X 10M and 20M
 - 40 to 250/260 deg C.

New Sky™ Inlet Liners



- Great secure source
- Blue is Beautiful
- New packaging



Choose blue – the best choice for dependable results.



Sky
Inlet Liners

QuEChERS Extraction Salts



Why pouched salts?

- Method required
- Customer convenience
- Reduced cost
- First in a series of products to improve and expand our QuEChERS line

Centrifuge

- Meets requirements of AOAC and European QuEChERS methodology.
- Supports 50mL, 15mL, and 2mL centrifuge tubes.
- Small footprint requires less bench space.
- Safe and reliable--UL, CSA, and CE approved, 1-year warranty.
- Priced to fit your laboratory's budget, the Q-sep™ 3000 Centrifuge is the first centrifuge specifically designed for QuEChERS methodology. This compact, quiet, yet powerful, unit spins at the 3000g force required by the European method.



Q-sep 3000 Centrifuge
26230-26235

Use a smaller bore capillary..

Reducing Column Internal Diameter...

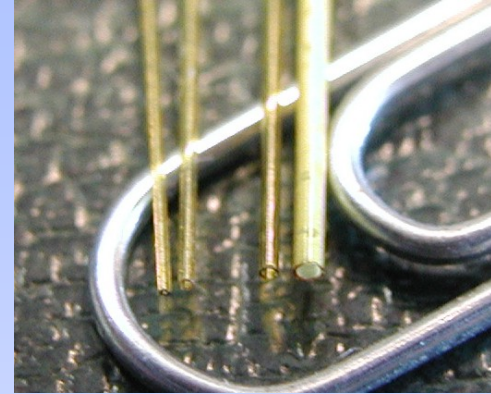
Influence of column diameter on separation

50 m x 0.53 mm \Rightarrow 100.000 plates

25 m x 0.25 mm \Rightarrow 100.000 plates

15 m x 0.15 mm \Rightarrow 100.000 plates

10 m x 0.10 mm \Rightarrow 100.000 plates



All these columns will generate the same separation

Influence of diameter on analysis time *

50 m x 0.53 mm => 300 seconds

32 m x 0.32 mm => 170 seconds

25 m x 0.25 mm => 120 seconds

15 m x 0.15 mm => 60 seconds

10 m x 0.10 mm => 40 seconds

5 m x 0.05 mm => 25 seconds

Shorter columns of smaller ID will generate a significant reduction in analysis time

Practical Challenges with smaller bore columns..

- **Not for on-column, direct and valve**
 - » Has to be coupled, which is difficult and critical
- **Not ideal for trace analysis**
 - » Column flow is low: need long splitless times/small injection volumes and small volume liners required: pressure Pulse;
- **Loadability is limited**
 - » For traces no problem; Higher level components will require thicker films
- **High inlet pressures required**
 - » Have to watch for leaks: leakage of septum and needles
- **Smaller bore columns are not as “Forgiving”**
 - » Need thicker films here or use guard columns
- **Need fast injection**
 - » To create smallest possible injection band

Is there an other solution for speeding up analysis time that is easier to implement and is less risky?

0.15-0.18 mm ID Fused silica
columns

A good intermediate diameter capillary that provides many advantages for implementing faster GC which is easily achievable with the standard GC

Scope of implementation of 0.15-0.18 mm ID columns

Reduction of analysis time by minimal a factor 2

- Same GC
- Same samples
- Same injection system and injection amount
- Same detection system
- Generating the same elution order, only 2 times faster

By:

- 1 Replacing the existing 0.32 or 0.25 mm capillary for a 0.15mm ID column..
- 2 Adjust the carrier gas Flow and the Split Flow..
- 3 Use a recommended faster Oven temperature program..

OLD METHOD

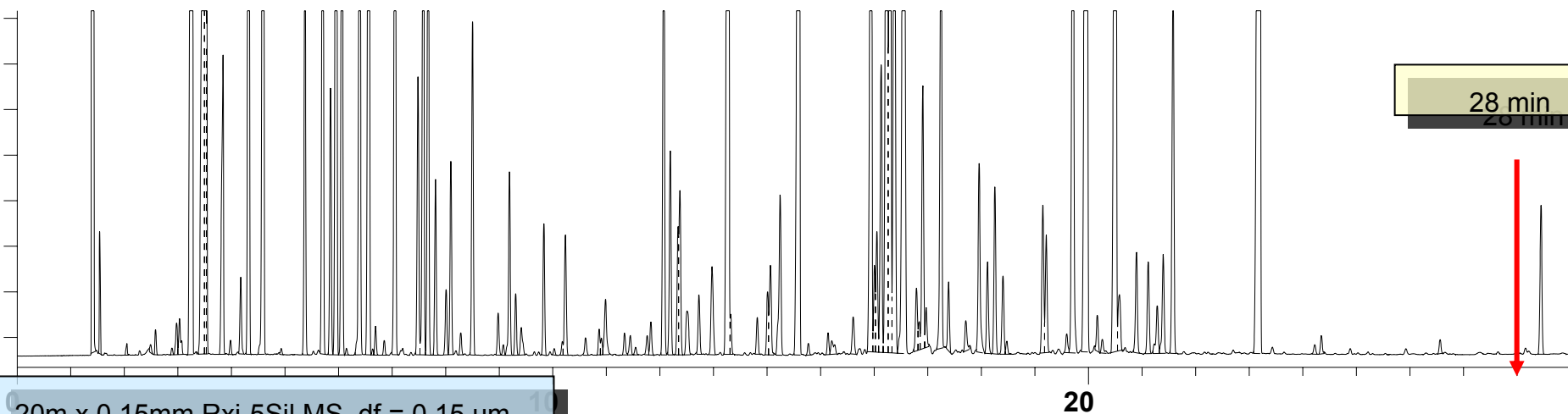
Column : Rxi-5Sil MS, 30m x 0.25mm, df = 0.25 μ m
Carrier : H₂, 1.2 mL/min, u = 36 cm/s constant flow
Split inject : 1:100; 1.0 μ l
Oven : 100°C, 2 min, 5°C/min \rightarrow 250 °C
GC : Agilent 6890

NEW METHOD

Column : Rxi-5Sil MS, 20m x 0.15mm, df = 0.15 μ m
Carrier : H₂, 0.5 mL/min, u = 50 cm/s constant flow
Split inject : 1:100; 1.0 μ l
Oven : 100°C, 0.9 min, 9.75°C/min \rightarrow 250 °C
GC : Agilent 6890

30m x 0.25mm Rxi-5Sil MS, df = 0.25 μ m
30m x 0.25mm Rxi-5Sil MS, df = 0.25 μ m

Analysis of Perfume "Eternity Moment"



20m x 0.15mm Rxi-5Sil MS, df = 0.15 μ m
20m x 0.15mm Rxi-5Sil MS, df = 0.15 μ m

