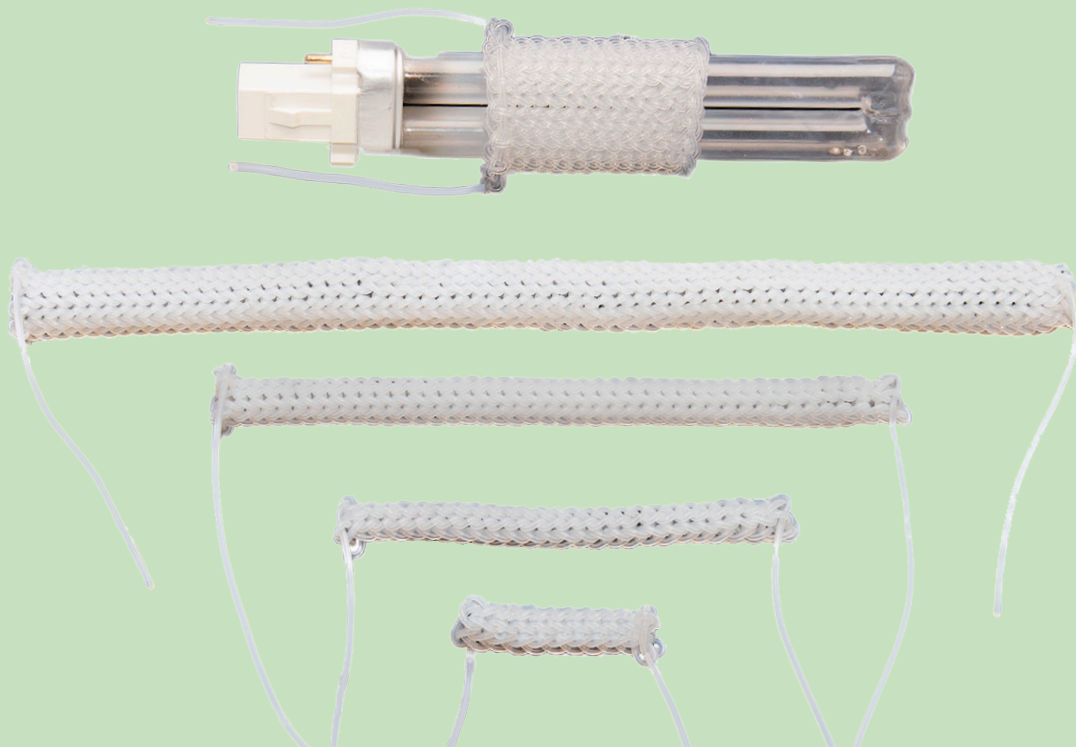


BIOTECH Knitted Open Tubular Reaction Delay & Mixing Coils



WHAT IS A KOT?

The Biotech KOT reactor, is a tube knitted into a winding path that forces the center of a fast flow of fluid, to mix radially with a slower moving boundary liquid layer, to minimize the axial dispersion.

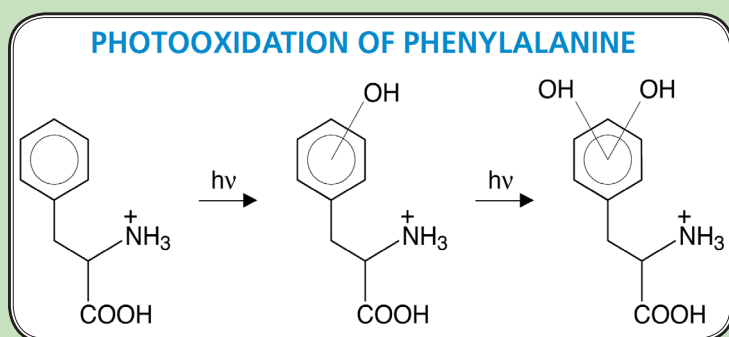
FEATURES

- Tortuous flow path of optimal flow dynamic design
- Made from totally inert PTFE tubing
- Minimized axial dispersion combined with efficient radial mixing
- Available in different lengths and inner diameters

WHY USE A KOT?

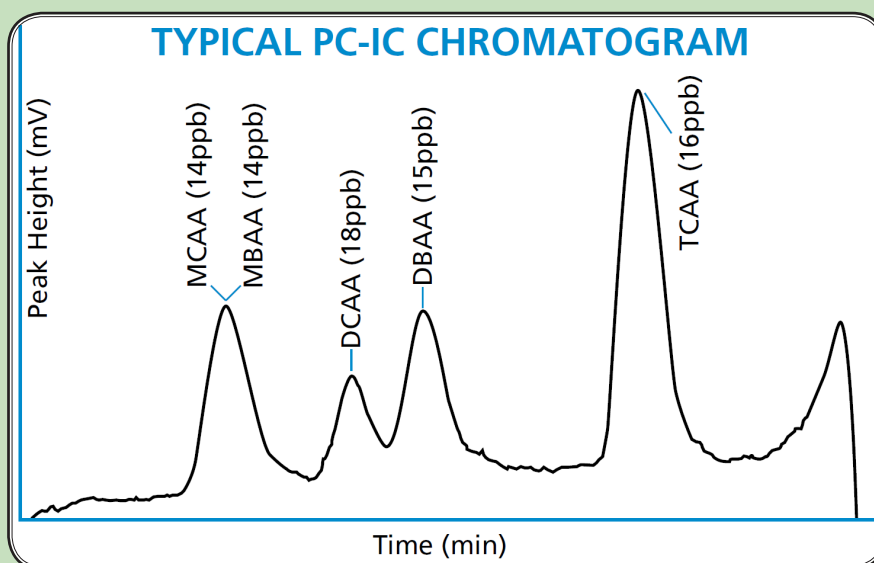
Preserved Chromatographic Peak Shape

The Biotech KOT reactors are made from tubing knitted into a tortuous path to force the fast moving center of the liquid stream to mix radially with the slower moving boundary liquid layer. This technique minimizes the axial dispersion. The shape of the chromatographic peak entering the reactor is in this way preserved efficiently. The KOT reactor is the most optimal delay element for use in analytical flow systems. It is typically inserted in the flow path to create a delay line, so that a reaction that requires a certain time can take place. Different delay or reaction times are accomplished by changing the inner diameter and length of the KOT, taking the flow rate through the KOT into consideration. To ensure a stable radial mixing within the KOT, a linear flow rate of 10 cm/s or more is recommended.



Recommended Minimum Flow Rate		
ID mm	Linear Flow cm/s	Volumetric Flow ml/min
0.25	10	0.29
0.50	10	1.2
0.75	10	2.7

“The KOT Reactor is the Most Optimal Delay Element for Use in Analytical Flow Systems”

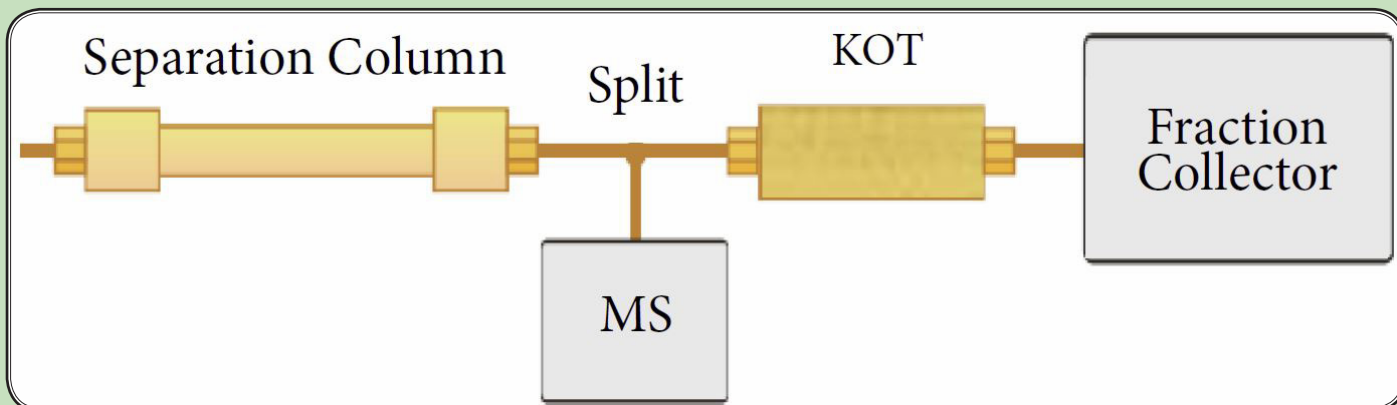


The shape of a chromatographic peak entering the reactor is thus preserved very efficiently. To ensure a stable radial mixing within the KOT, a linear flow rate of 10 cm/s or more is recommended.

HOW TO USE A KOT

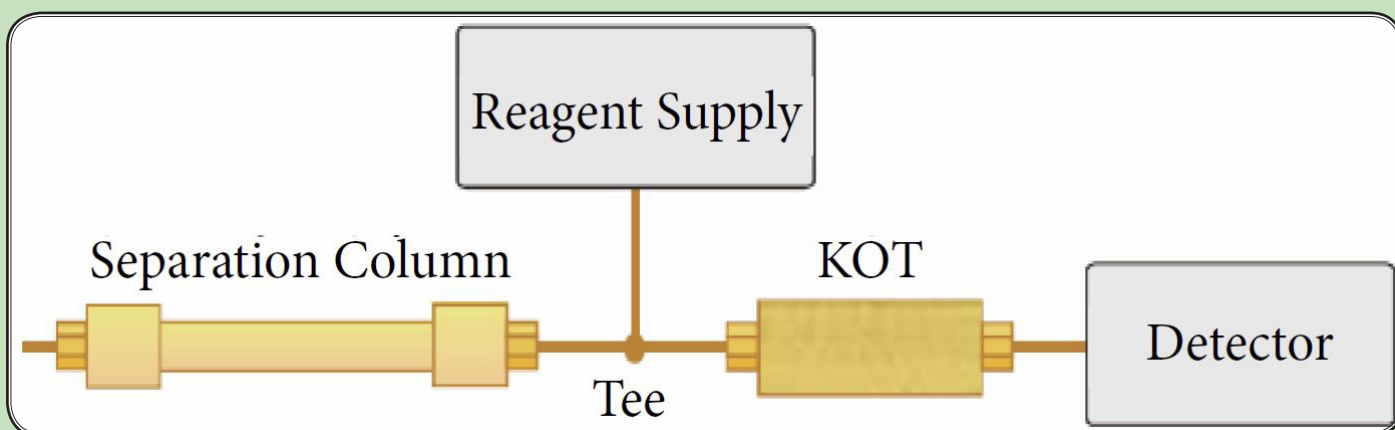
KOT reactors applied as a delay line in chromatographic separations

One example of application is the parallel coupling of a MS detector and a fraction collector in preparative separations (see figure below). The delay time induced by the KOT allows the detector to analyze the eluate and make intelligent decisions of when a new fraction is going to be initiated, without loss of chromatographic efficiency.

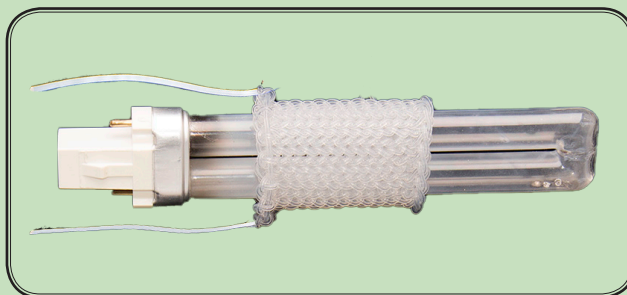
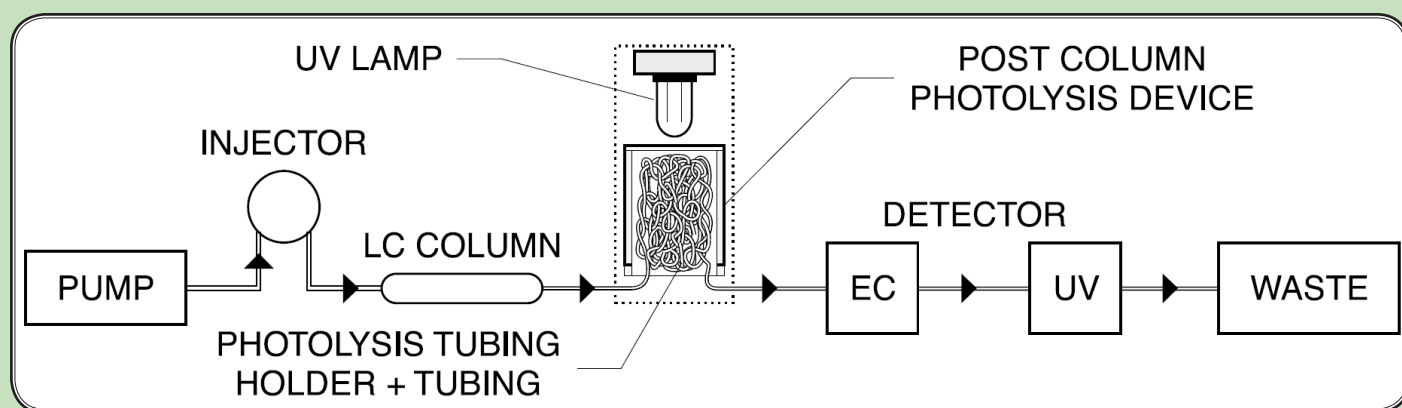


KOT reactors used in post-column reaction detection in HPLC, using both room temperature and heated chemistries.

In this set-up (see figure below) the KOT ensures thorough mixing between the column effluent and the added reagents. Typical reactions are the production of fluorescent products from reactions between eluted compounds and reagents without native fluorescence.



Normal Instrumentation of a UV Photo-reactor in an LC Instrument



P/N	KOT - Tubular coils
3000-123	Knitted Open Tubular (KOT) Reactor, PTFE, 1 m, 0.25 mm ID
3000-125	Knitted Open Tubular (KOT) Reactor, PTFE, 1 m, 0.5 mm ID
3000-128	Knitted Open Tubular (KOT) Reactor, PTFE, 1 m, 0.75 mm ID
3000-223	Knitted Open Tubular (KOT) Reactor, PTFE, 2 m, 0.25 mm ID
3000-225	Knitted Open Tubular (KOT) Reactor, PTFE, 2 m, 0.5 mm ID
3000-228	Knitted Open Tubular (KOT) Reactor, PTFE, 2 m, 0.75 mm ID
3000-423	Knitted Open Tubular (KOT) Reactor, PTFE, 4 m, 0.25 mm ID
3000-425	Knitted Open Tubular (KOT) Reactor, PTFE, 4 m, 0.5 mm ID
3000-428	Knitted Open Tubular (KOT) Reactor, PTFE, 4 m, 0.75 mm ID
3000-133	Knitted Open Tubular (KOT) Reactor, PTFE, 10 m, 0.25 mm ID
3000-135	Knitted Open Tubular (KOT) Reactor, PTFE, 10 m, 0.5 mm ID
3000-138	Knitted Open Tubular (KOT) Reactor, PTFE, 10 m, 0.75 mm ID
3000-525	Knitted Open Tubular (KOT) Reactor, PTFE, 5 m, 0.5 mm ID
Most dimensions also available in black PTFE - intended for light sensitive compounds. Other KOTs might be custom manufactured, please contact Biotech AB for further details.	



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