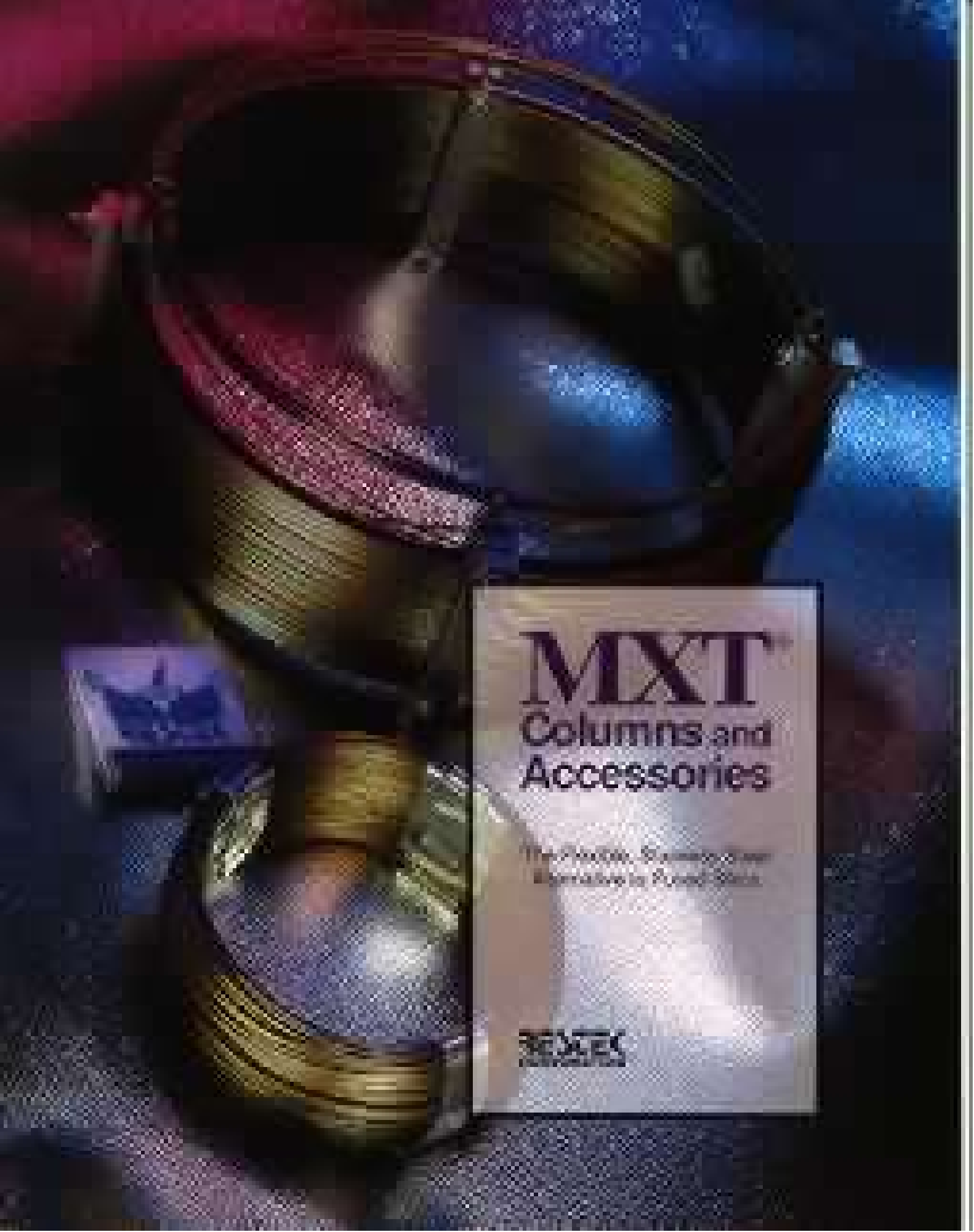

MXT
Columns and
Accessories

MXT" Column Cross-Section

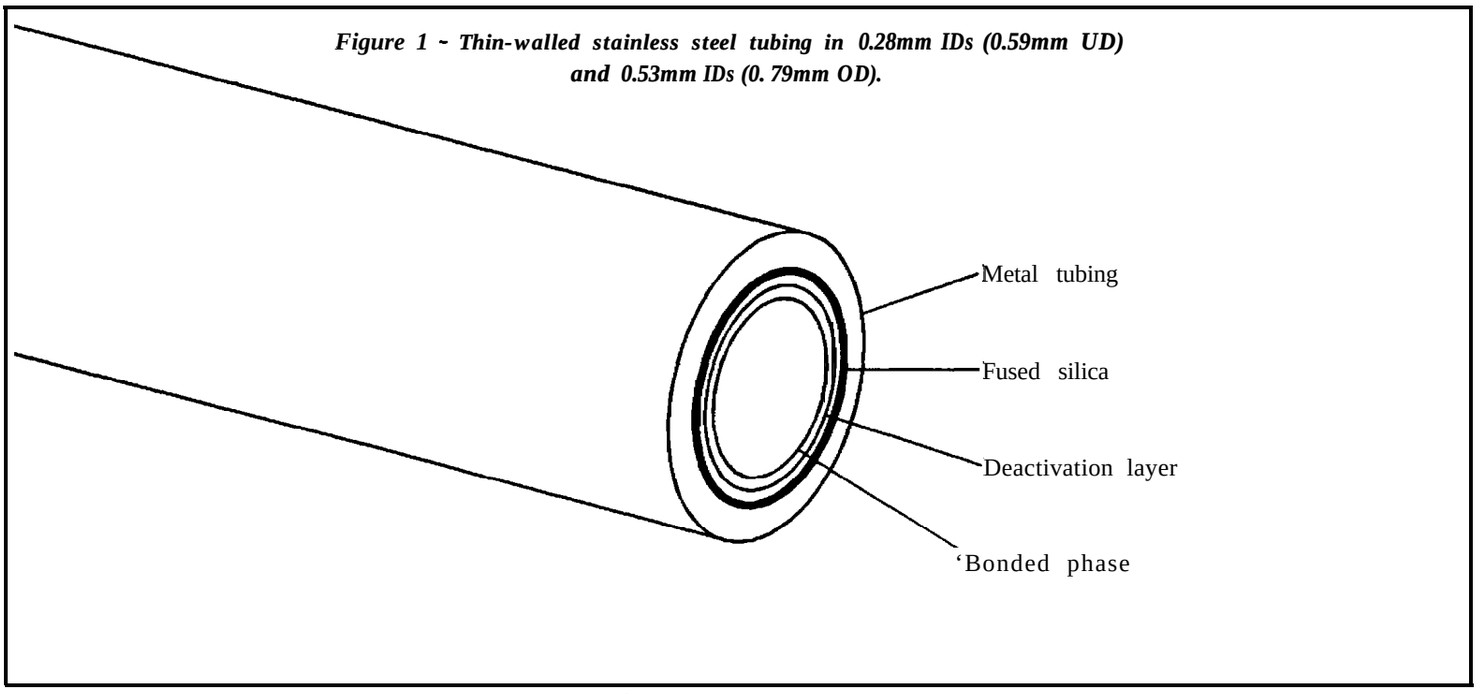


Figure 1 ~ Thin-walled stainless steel tubing in 0.28mm IDs (0.59mm UD) and 0.53mm IDs (0. 79mm OD).

Commonly Asked Questions. ..

What are MXT" columns?

MXT" columns are made by depositing a uniform, micron layer of flexible fused silica on the inner surface of stainless steel. The surface is then deactivated and made inert by the same process used to treat our Crossbond@ fused silica columns. A static coating and bonding process allows us to make columns in a wide variety of polarities.

What advantages do MXT" columns offer?

MXT" columns were developed to increase the utility of capillary chromatography. They offer combined benefits of fused silica and stainless steel capillary columns such as:

- High degree of inertness to active sample components
- Extreme flexibility without risk of spontaneous breakage
- No loss in tubing strength when continually heated above 400°C
- Rapid and uniform heat transfer
- Rugged, unaffected by abrasions or scratches
- Smaller coil diameter (31/2" for MXT" columns vs. 7.65" for fused silica)
- Equivalent pricing to fused silica columns

What are MXT" columns made from?

MXT" columns are made from thin-walled stainless steel tubing in 0.28mm and 0.53mm IDs. The tubing is half hard temper, so it springs back in place much like fused silica.

Why are MXT" columns easy to use?

MXT" columns can be installed directly into most instruments without any modification or pre-column adaptor.

Both the 0.28mm and 0.53mm ID columns can be installed using conventional 0.8mm graphite ferrules.

The inside diameter of the 0.53mm ID column is large enough to allow a standard 26 gauge needle to be inserted for on-column injections.

. MXT" columns are easily cut using a small file that is included with each column or a standard ceramic wafer.

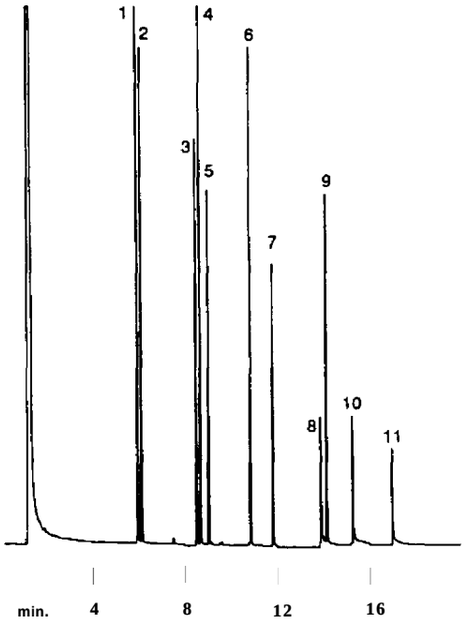
· MXT" columns are ideal for small ovens, portable GCs, process analyzers, or GC/MS systems used for on-site monitoring hazardous waste facilities

Note: The technique used to cut MXT" columns** is **similar to that of fused silica tubing, but more deliberate pressure is required. Once the tubing is scored, it snaps cleanly with properly applied force. MX T" tubing should be handled similarly to polyimide** coated fused **silica tubing. Sharp kinks or bends less than l-inch in radius must be avoided. However, MXT" columns can withstand** much more **rugged operating conditions than fused silica.

Active Environmental Compounds Are Excellent Test Probes to Evaluate Column Inertness

Capillary column inertness can also be illustrated by measuring the response of active environmental compounds at low concentration levels. The primary analytical column used in environmental labs is the 5% diphenyll **95%** dimethyl polysiloxane (XTI"-5). To examine the inertness of MXT" columns, Silcosteel" tubing was coated with a high temperature 5% diphenyl polysiloxane stationary phase and tested with several active environmental pollutants such as phenols and pesticides. Figure 9 shows an injection of EPA Method 604 phenols at **25ng/µl** on an MXT"-5 column. At this low concentration level, the excellent peak symmetry and response of highly active compounds such as 2,4-dinitrophenol,4-nitrophenol, and pentachlorophenol (peaks 5,6, & 8 respectively) indicate a high degree of inertness. Figure 10 shows the analysis of EPA CLP pesticides on an MXT"-5 column. Chlorinated pesticides, such as endrin and DDT, are also good indicators of column inertness since they readily decompose on active surfaces. The excellent response of these reactive compounds and the low ECD bleed illustrates the utility of the MXT" columns for analyzing active environmental pollutants.

Figure 9 - ***The MXT"-5 column demonstrates excellent inertness with EPA Method 604 phenols.***

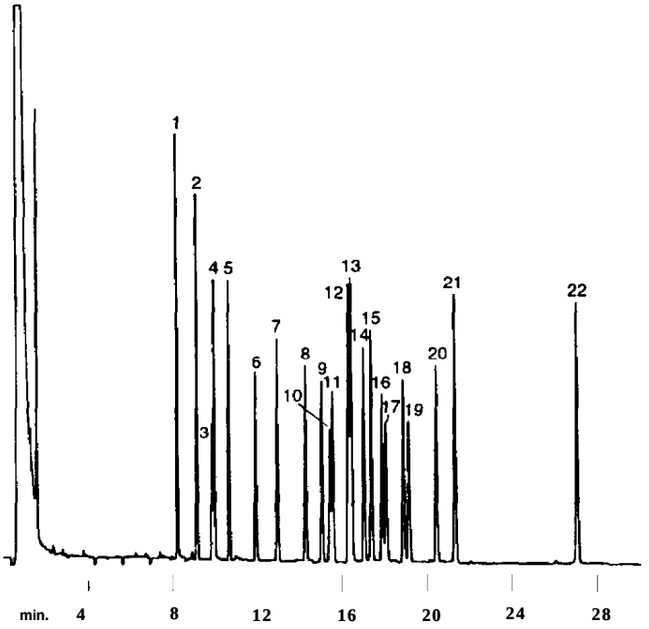


1. phenol
2. 2-chlorophenoi
3. 2-nitrophenol
4. 2,4-dimethylphenol
5. 2,4dichlorophenol
6. 4-chloro-3-methylphenol
7. 2,4,6-trichlorophenol
8. 2,4-dinitrophenol
9. 4-nitrophenol
10. 2-methyl-4,6-dinitrophenol
11. pentachlorophenol

30m, 0.28mm ID, 0.25pm MXT"-5 (cat.# 70224)
1.0ul splitless injection of EPA Method 604 phenols. Concentration 25ng/ul.

Oven temp.: 40°C to 250°C @ l0"C/min.
Inj./det. temp.: **280°C/300C**
Carrier gas: **hydrogen**
Linear velocity: **5Ocm/sec. set @ 40°C**
FID sensitivity: 2.56 x 10--10AFS
Splitless hold time: 1.5 min.

Figure 10 - ***The MXT"-5 shows low bleed and excellent inertness of CLP pesticides when used with an ECD.***



1. 2,4,5,6-tetrachloro-m-xylene (IS)	12. dieldrin
2. u-BHC	13. p,p'-DDE
3. o-BHC	14. endrin
4. y-BHC	15. endosulfan II
5. &BHC	16. p,p'-DDD
6. heptachlor	17. endrin aldehyde
7. aldrin	18. endosulfan sulfate
8. heptachlor epoxide	19. p,p'-DDT
9. y-chlordane	20. endrin ketone
10. endosulfan I	21. methoxychlor
11. a-chlordane	22. decachlorobiphenyl (IS)

Pesticide Mix A & B (cat.#'s 32003 & 32004)

30m, 0.53mm ID, 0.50um MXT"-5 (cat.# 70240)
1.0ul splitless injection of pesticides. Concentration 1.0ng/ul.

Oven temp.: **40°C to 150°C** @ 20"C/min., then to 275C @ 5"C/min.
Inj./det. temp.: 240°C/300C
Carrier gas: helium
Linear velocity: **74cm/sec. set @ 40°C**
ECD sensitivity: **33 full scale**
Splitless hold time: 0.50 min.

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