

# CAPILLARY COLUMNS: ULTRA ALLOY™

## ULTRA ALLOY™ Stainless Steel Capillary Columns

ULTRA ALLOY™ stainless steel columns are manufactured by a patented, multi-step process which utilizes a five-layered pretreatment of the inner surface of a stainless steel substrate. The layers are less than 0.001 microns thick and are chemically bonded together. The chemical structure of the top-most layer can be modified depending upon the stationary phase to be deposited.

Stainless steel capillary columns manufactured by this process yield a very inert deactivated surface which matches that of fused silica. Stationary phases are easily bonded to this stable inert surface, resulting in superbly deactivated columns as shown in examples of the modified Grob Test mixtures and other typical applications, illustrated in the chromatograms on our website. Furthermore, the use of stainless steel as a substrate proves to be an ideal material due to its superior mechanical properties.

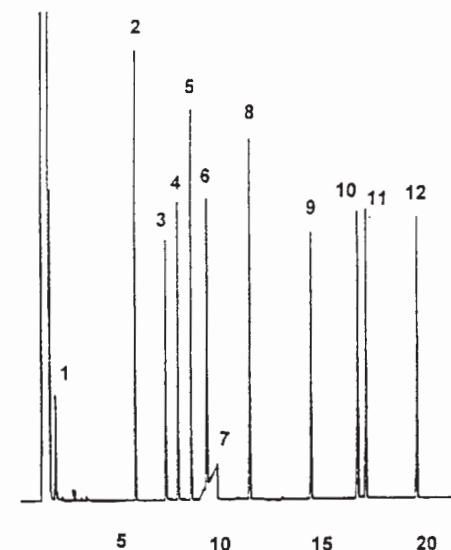
Accordingly, ULTRA ALLOY™ capillary columns offer unsurpassed inertness and mechanical durability and are suitable replacements for fused silica capillary columns. Unlike other stainless steel columns on the market which are lined with fused silica which can crack or flake-off when flexed or bent, ULTRA-ALLOY™ columns can be tightly coiled without damage to the deactivation or stationary phase layer.

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### ULTRA-ALLOY™ APPLICATIONS ON THE WEB

SMS LOW BLEED  
BTEX  
BUTTER  
EPA METHOD 502.2 - VOLATILE ORGANICS  
L.M.W. FREE FATTY ACIDS  
PESTICIDES AND HERBICIDES  
PHENOLS  
RESIDUE SOLVENTS IN PAINT  
SESAME OIL  
SIMDIS  
SOLVENT MIXTURE  
VOLATILES MIX



### Grob Test Mix

**COLUMN:** UAC-1, Dimethylpolysiloxane  
15M. x 0.25mm I.D. x 0.25µm film  
Cat. No.: UAC-1-15-0.25F

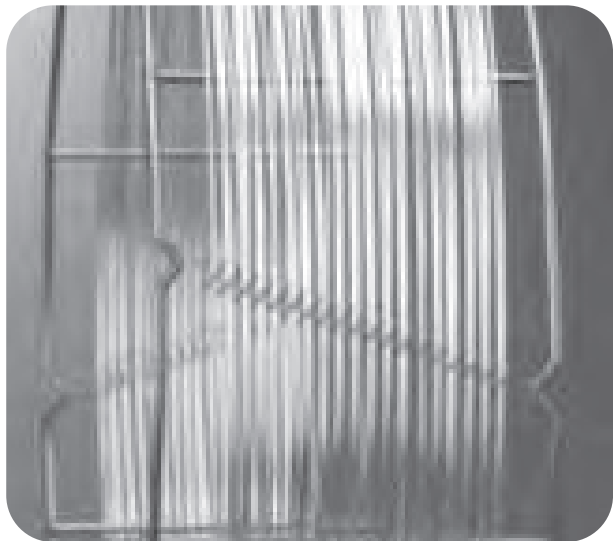
**Temperature:** 60° (3 min. hold) (5°/min.) - 200°C

**Injector:** 150°C (on-column)

**Detector:** 300°C, FID

**Carrier Gas:** 20 ml/min., Helium, U=66cm/sec.

1. butanediol
2. decane
3. octanol
4. 2,6 dimethylphenol
5. undecane
6. 2,6-dimethylaniline
7. ethylhexanoic acid
8. dodecane
9. methyl decanoate
10. dicyclohexylamine
11. methyl undecanoate
12. methyl dodecanoate

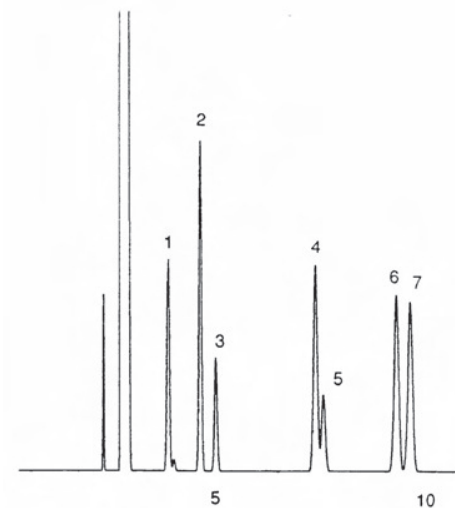


## Volatiles Mix

**COLUMN:** UAC-502, Volatiles Organics Phase  
30M. x 0.50mm I.D. x 3.0µm film  
Cat. No.: UAC-502-30V-3.0F

**Temperature:** 100°C

1. 1,1,1-trichloroethane
2. trichloroethylene
3. bromodichloromethane
4. tetrachloroethylene
5. chlorodibromomethane
6. chlorobenzene
7. ethylbenzene



## 0.25MM AND 0.53MM I.D. ULTRA ALLOY™ STAINLESS STEEL CAPILLARY COLUMNS

PHASE	FILM THICKNESS (µM)	MIN/MAXI. (PROGRAMMED) TEMP. °C		
Code	Composition	0.25mm I.D.	0.53mm I.D.	
UAC-1	Dimethylpolysiloxane	0.15, 0.25, 0.5, 1.0	0.15, 0.25, 0.5, 1.5, 5.0	-60 / 370 (380)
UAC-1HT	Dimethylpolysiloxane (high temperature)	0.15, 0.25	0.15, 0.25	-60 / 400 (420)
UAC-1MS	Dimethylpolysiloxane (low bleed)	0.1, 0.15, 0.25		-60 / 450
UAC-SIMDIS	Dimethylpolysiloxane		0.1	-60 / 450
UAC-5	(5% phenyl) Methylpolysiloxane	0.15, 0.25, 0.5, 1.0	0.15, 0.25, 0.5, 1.5	-60 / 360 (380)
UAC-5MS	(5% phenyl) Methylpolysiloxane (low bleed)	0.1, 0.15, 0.25		-60 / 430
UAC-DX30	Carborane siloxane (Dexsil 300)	0.15	0.15	40 / 450 (450)
UAC-1701	(14% diphenyl) Dimethylpolysiloxane	0.25, 0.5, 1.0	0.25, 0.5, 1.0	-20 / 300 (320)
UAC-17	(50% phenyl) Methylpolysiloxane	0.1, 0.25, 0.5, 1.0	0.25, 0.5, 1.0	40 / 370 (390)
UAC-CW	Polyethylene glycol (Carbowax)	0.25	0.5, 1.0	20 / 260 (260)
UAC-FFAP	Polyethylene glycol (Acid Modified PEG)	0.25	0.5, 1.0	20 / 260 (260)
UAC-65HT	(65% phenyl) Methylpolysiloxane	0.1	0.1	40 / 370 (380)
UAC-502	Volatile Organics phase	1.0	3.0	-20 / 270 (270)
UAC-624	Volatile Organics Phase	1.0	3.0	-20 / 270 (270)
UAC-DIDP	Diisodecyl phthalate (non-bonded)	0.4		0 - 150 (150)