

## Derivatization Reagents, *cont.*

### Alkylation Derivatization Reagents

- Add alkyl groups to functional hydrogens (H).
- Decrease polarity on compounds containing acidic hydrogens, i.e., phenols, carboxylic acids.
- Form an ester.

Alkylation reagents reduce molecular polarity by replacing active hydrogens, such as carboxylic acids and phenols. Alkylation reagents can be used alone to form esters and amides, or they can be used in conjunction with acylation or silylation reagents. A two-step approach is commonly used in the derivatization of amino acids, where multiple functional groups of these compounds may necessitate protection during derivatization.

Esterification—the most popular method of alkylation due to the availability of reagents and ease of use—is the reaction of an acid with an alcohol in the presence of a catalyst. Alkyl esters are stable and can be formed quickly and quantitatively. Retention of the derivative can be varied by altering the length of the substituted alkyl group. In addition to the formation of simple esters, alkylation reagents can be used in extraction procedures where biological matrices are present.

Compound	CAS #	cat.#
<b>TMPAH</b>		
10-pk. (10x1 g)	1899-02-1	35614
25 g vial	1899-02-1	35615

### Silylation Derivatization Reagents

- Replace active hydrogen, reducing polarity and making the compounds more volatile.
- Increase stability of derivatives.

Silylation is the most widely used derivatization procedure for sample analysis by GC. In silylation, an active hydrogen is replaced by an alkylsilyl group such as trimethylsilyl (TMS) or *tert*-butyldimethylsilyl (*tert*-BDMS). Silyl derivatives are more volatile, less polar, and more thermally stable. As a result, GC separation is improved and detection is enhanced.

Both TMS and *tert*-BDMS reagents are suitable for a wide variety of compounds and can be used for many GC applications. (Note that silylation reagents are generally moisture sensitive and must be sealed to prevent deactivation.)

Compound	CAS #	cat.#
<b>MSTFA (N-methyl-N-trimethylsilyltrifluoroacetamide)</b>		
10-pk. (10x1 g)	24589-78-4	35600
25 g vial	24589-78-4	35601
<b>MSTFA w/1% TMCS (N-methyl-N-trimethylsilyltrifluoroacetamide w/1% trimethylchlorosilane)</b>		
10-pk. (10x1 g)	24589-78-4	35602
25 g vial	24589-78-4	35603
<b>BSTFA (N,O-bis[trimethylsilyl]trifluoroacetamide)</b>		
10-pk. (10x1 g)	25561-30-2	35604
25 g vial	25561-30-2	35605
<b>BSTFA w/1% TMCS (N,O-bis[trimethylsilyl]trifluoroacetamide w/1% trimethylchlorosilane)</b>		
10-pk. (10x1 g)	25561-30-2	35606
25 g vial	25561-30-2	35607
<b>MTBSTFA w/1% TBDMCS (N-methyl-N[<i>tert</i>-butyldimethylsilyl]trifluoroacetamide w/1% <i>tert</i>-butyldimethylchlorosilane)</b>		
10-pk. (10x1 g)	77377-52-7	35608
25 g vial	77377-52-7	35610
<b>TMCS (trimethylchlorosilane)</b>		
10-pk. (10x1 g)	75-77-4	35611
25 g vial	75-77-4	35612

## Detector Tuning Mixes

### VOA Tuning Compound

4-bromofluorobenzene  
5,000 µg/mL in P&T methanol, 1 mL/ampul  
cat.# 30003 (ea.)

### SV Tuning Compound

decafluorotriphenylphosphine (DFTPP)  
2,500 µg/mL in methylene chloride, 1 mL/ampul  
cat.# 31001 (ea.)

### PFTBA (MS Tuning Compound)

perfluorotributylamine (PFTBA)  
Neat, 1 mL/ampul  
cat.# 30482 (ea.)  
Neat, 1 g  
cat.# 33027 (ea.)

No data pack available.

### GC-MS Tuning Mixture (4 components)

benzidine  
4,4'-DDT  
decafluorotriphenylphosphine (DFTPP)  
pentachlorophenol  
1,000 µg/mL each in methylene chloride, 1 mL/ampul  
cat.# 31615 (ea.)

## GC Column & Detector Test Mixes

### Amine Column Test Mix (8 components)

For Stabilwax®-DB, Rtx®-5 Amine, Rtx®-35 Amine, and Rtx®-Volatile Amine columns.

1,2-butanediol	0.60 mg/mL	diethanolamine	1.20
pyridine	0.60	2-nonanol	0.60
decane (C10)	0.60	2,6-dimethylaniline	0.60
diethylenetriamine	1.20	dodecane (C12)	0.60

In methylene chloride:methanol (1:1), 1 mL/ampul  
cat.# 35002 (ea.)

No data pack available.

### FID Performance Evaluation Standard (3 components)

*n*-tetradecane (C14)  
*n*-pentadecane (C15)  
*n*-hexadecane (C16)  
0.03 w/w% each in hexane, 1 mL/ampul  
cat.# 33908 (ea.)

### GC-FID Test Mix (3 components)

*n*-dodecane (C12)  
*n*-tetradecane (C14)  
*n*-hexadecane (C16)  
20 µg/mL each in hexane, 1 mL/ampul  
cat.# 35108 (ea.)

**NEW!**