

new!

Restek now offers a full line of derivatization reagents!

Silylation Derivatization Reagents

- Replaces active hydrogen, reducing polarity and making the compounds more volatile.
- Increases 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.#
MSTFA (N-methyl-N-trimethylsilyltrifluoroacetamide)		
10-pk. (10x1g)	24589-78-4	35600
25g Flex Tube	24589-78-4	35601
MSTFA w/1% TMCS (N-methyl-N-trimethylsilyltrifluoroacetamide w/1% trimethylchlorosilane)		
10-pk. (10x1g)	24589-78-4	35602
25g Flex Tube	24589-78-4	35603
BSTFA (N,O-bis[trimethylsilyl]trifluoroacetamide)		
10-pk. (10x1g)	25561-30-2	35604
25g Flex Tube	25561-30-2	35605
BSTFA w/1% TMCS (N,O-bis[trimethylsilyl]trifluoroacetamide w/1% trimethylchlorosilane)		
10-pk. (10x1g)	25561-30-2	35606
25g Flex Tube	25561-30-2	35607
MTBSTFA w/1% TBDMCS (N-methyl-N[<i>tert</i> -butyldimethylsilyl]trifluoroacetamide) w/1% <i>tert</i> -butyldimethylchlorosilane)		
10-pk. (10x1g)	77377-52-7	35608
25g Flex Tube	77377-52-7	35610
TMCS (trimethylchlorosilane)		
10-pk. (10x1g)	75-77-4	35611
25g Flex Tube	75-77-4	35612

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our Restek representative for more information.



Acylation Derivatization Reagents

- Most commonly used for Electron Capture Detection.
- React with alcohols, amines and phenols.
- Frequently used for drugs of abuse confirmation.

Acylation reagents offer the same types of advantages available from silylation reagents: creating less polar, more volatile derivatives. In comparison to silylating reagents, the acylating reagents can more readily target highly polar multi-functional compounds, such as carbohydrates and amino acids. In addition, acylating reagents offer the distinct advantage of introducing electron-capturing groups, thus enhancing detectability during analysis.

Compound	CAS#	cat.#
MBTFA (N-methyl-bis-trifluoroacetamide)		
10-pk. (10x1g)	685-27-8	35616
25g Flex Tube	685-27-8	35617
TFAA (trifluoroacetic acid anhydride)		
10-pk. (10x1g)	407-25-0	35618
25g Flex Tube	407-25-0	35619
PFAA (pentafluoropropionic acid anhydride)		
10-pk. (10x1g)	356-42-3	35620
25g Flex Tube	356-42-3	35621
HFAA (heptafluorobutyric acid anhydride)		
10-pk. (10x1g)	336-59-4	35622
25g Flex Tube	336-59-4	35623
PFPOH (pentafluoropropanol)		
10-pk. (10x1g)	422-05-9	35624
25g Flex Tube	422-05-9	35625

Alkylation Derivatization Reagents

- Adds alkyl groups to functional hydrogens (H).
- Decreases polarity on compounds containing acidic hydrogens, i.e., phenols, carboxylic acids.
- Forms 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 is the reaction of an acid with an alcohol in the presence of a catalyst. It is the most popular method of alkylation due to the availability of reagents and ease of use. 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.#
TMPAH		
10-pk. (10x1g)	1899-02-1	35614
25g Flex Tube	1899-02-1	35615