INSTRUCTIONS

BSA
(*N*,*O*-bis[trimethylsilyl]acetamide)

TS-38836  TS-38838  TS-38839

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>TS-38836</td>
<td>BSA (<em>N</em>,<em>O</em>-bis[trimethylsilyl]acetamide), 10 · 1 ml ampules</td>
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<tr>
<td>TS-38838</td>
<td>BSA, 25 g, Hypo-Vial⇌ Sample Storage Vial</td>
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<tr>
<td>TS-38839</td>
<td>BSA, 100 g, Hypo-Vial⇌ Sample Storage Vial</td>
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Molecular Weight: 203.43

Storage: Upon receipt store product at 4°C. Product is shipped at ambient temperature.

Introduction

BSA is the perfect reagent for volatile TMS derivatives. BSA reacts quantitatively using relatively mild conditions with a wide variety of compounds to form volatile, stable TMS derivatives for gas chromatograph analysis. BSA is used extensively for derivatizing alcohols, amines, carboxylic acids, phenols, steroids, biogenic amines and alkaloids; however, it is not recommended for use with carbohydrates or low molecular-weight compounds.

BSA is used with a solvent such as pyridine or DMF and reactions are generally rapid. When used with DMF, BSA is the most suitable reagent for derivatizing phenols. An impressive study of the silylating properties of BSA was conducted by Klebe, *et al.* that demonstrated the following reactions:

- Amino acids to form both *N*,*O* bonded TMS derivatives
- Hydroxyl compounds to form TMS ethers
- Organic acids to form TMS esters
- Aromatic amides to form *N*-TMS derivatives

Example Procedures for Derivatizing using BSA

The following procedures are example protocols for this product. Specific applications will require optimization.

Example Protocol 1

1. Combine 5-10 mg sample, 0.5 ml BSA and 1.0 ml solvent (acetonitrile is recommended for amino acids) in a 3.0 ml Reacti-Vial™ Small Reaction Vial.
2. Cap vial and shake for 30 seconds.
3. Heat at 70°C for 15 minutes.
4. Analyze by GC.

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Example Protocol 2
Chambaz and Horning developed this method for the silylation of hydroxyl groups in sterically unhindered positions in steroids. This includes sites such as 3, 7, 16, 17 (sec), 20 and 21 positions in the steroid structure. This method may be used for silylating many hydroxyl and polyhydroxyl compounds other than steroids; however, it is not recommended for sugars. The method is based on the use of BSA in a non-catalyzed reaction. Do not use trimethylchlorosilane in this reaction. Also avoid hydrochlorides, as HCl also will act as a catalyst.

1. Combine 0.1-5.0 mg of sample and 0.2-0.4 ml BSA in a 1.0 ml Reacti-Vial™ Small Reaction Vial. If material is not soluble in BSA, add 0.1-0.2 ml pyridine.
2. Cap vial and shake for 30 seconds.
3. If desired, heat at 60°C to ease dissolution.

Note: Material can be silylated at room temperature; however, heating will decrease the reaction time.

Related Thermo Scientific Products
- TS-13222 Reacti-Vial™ Small Reaction Vial, 3.0 ml, 12/pkg
- TS-20062 Acetonitrile, 50 ml
- TS-27530 Pyridine, 50 ml
- TS-20672 Dimethylformamide (DMF), 50 ml

References

Current versions of product instructions are available at www.thermo.com/columns.
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