

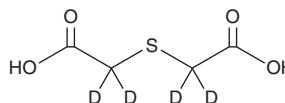
# PRODUCT INFORMATION



## Thiodiglycolic Acid-d<sub>4</sub>

Item No. 9002478

**CAS Registry No.:** 132090-51-8  
**Formal Name:** 2,2'-thiobis(acetic-2,2,2',2'-d<sub>4</sub> acid)  
**Synonyms:** Dicarboxydimethyl sulfide-d<sub>4</sub>, Mercaptodiacetic Acid-d<sub>4</sub>, TDGA-d<sub>4</sub>, Thiodiacetic Acid-d<sub>4</sub>  
**MF:** C<sub>4</sub>H<sub>2</sub>D<sub>4</sub>O<sub>4</sub>S  
**FW:** 154.2  
**Chemical Purity:** ≥98% Thiodiglycolic Acid  
**Deuterium Incorporation:** ≥99% deuterated forms (d<sub>1</sub>-d<sub>4</sub>); ≤1% d<sub>0</sub>  
**Stability:** ≥2 years at -20°C  
**Supplied as:** A crystalline solid



### Laboratory Procedures

Thiodiglycolic acid-d<sub>4</sub> (TDGA-d<sub>4</sub>) contains four deuterium atoms at the 2, 2, 2', and 2' positions. It is intended for use as an internal standard for the quantification of TDGA by GC- or LC-mass spectrometry (MS). For long term storage, we suggest that TDGA-d<sub>4</sub> be stored as supplied at -20°C. It should be stable for at least two years.

TDGA-d<sub>4</sub> is supplied as a crystalline solid. A stock solution may be made by dissolving the TDGA-d<sub>4</sub> in the solvent of choice. TDGA-d<sub>4</sub> is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of TDGA-d<sub>4</sub> in ethanol and DMF is approximately 30 mg/ml and approximately 25 mg/ml in DMSO.

TDGA-d<sub>4</sub> is used as an internal standard for the quantification of TDGA by stable isotope dilution MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

### Description

TDGA is a product of interaction of the cysteine component of glutathione with two-carbon units released during catabolism. It is found in concentrations below 20 mg/l in urine of healthy individuals and elevated following ingestion of certain drugs.<sup>1</sup> Determination of TDGA concentration in urine has been used to characterize the metabolism of substances participating in methionine synthesis in order to identify imbalances leading to hyperhomocystinuria.<sup>2</sup> Additionally, because TDGA is used as raw material in the polymer industry, its detection in human urine has served as a biomarker for exposure to carcinogenic vapors such as vinylchloride monomer produced during polymer manufacture.<sup>2</sup>

### References

1. Navratil, T., Petr, M., Senholdova, Z., *et al. Physiol. Res.* **56**(1), 113-122 (2007).
2. Cheng, Y.-J., Huang, Y.-F., and Ma, Y.-C. *J. Occup. Environ. Med.* **43**(11), 934-938 (2001).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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