

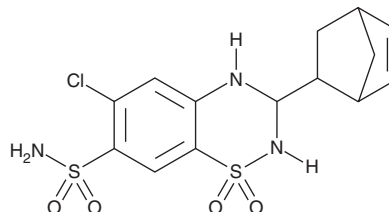
# PRODUCT INFORMATION



## Cyclothiazide

Item No. 16335

**CAS Registry No.:** 2259-96-3  
**Formal Name:** 1,1-dioxide 3-bicyclo[2.2.1]hept-5-en-2-yl-6-chloro-3,4-dihydro-2H-1,2,4-benzothiadiazine-7-sulfonamide  
**Synonym:** Doburil  
**MF:** C<sub>14</sub>H<sub>16</sub>ClN<sub>3</sub>O<sub>4</sub>S<sub>2</sub>  
**FW:** 389.9  
**Purity:** ≥95%  
**UV/Vis.:** λ<sub>max</sub>: 226, 271, 317 nm  
**Supplied as:** A crystalline solid  
**Storage:** -20°C  
**Stability:** ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

Cyclothiazide is supplied as a crystalline solid. A stock solution may be made by dissolving the cyclothiazide in the solvent of choice, which should be purged with an inert gas. Cyclothiazide is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of cyclothiazide in ethanol is approximately 2 mg/ml and approximately 10 mg/ml in DMSO and DMF.

Cyclothiazide is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, cyclothiazide should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Cyclothiazide has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

Receptors for AMPA are ionotropic glutamate receptors with critical roles in neurological development and function.<sup>1-3</sup> Cyclothiazide is a benzothiadiazide that acts as a potentiator of AMPA receptors, positively modulating its response to glutamic acid (EC<sub>50</sub> = 3.8 μM).<sup>4-6</sup> It blocks the rapid agonist-induced desensitization of AMPA receptors, resulting in enhanced excitatory activity.<sup>6</sup> Cyclothiazide is also a negative modulator of GABA<sub>A</sub> receptors, reversibly inhibiting both evoked and spontaneous inhibitory postsynaptic currents (IC<sub>50</sub> = 58 μM).<sup>7,8</sup>

### References

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3. Scannevin, R.H. and Haganir, R.L. *Nat. Rev. Neurosci.* **1**(2), 133-141 (2000).
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#### 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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#### CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD  
ANN ARBOR, MI 48108 · USA

**PHONE:** [800] 364-9897  
[734] 971-3335

**FAX:** [734] 971-3640

CUSTSERV@CAYMANCHEM.COM  
WWW.CAYMANCHEM.COM