

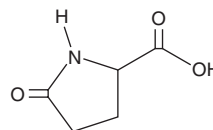
# PRODUCT INFORMATION



## DL-Pyroglutamic Acid

Item No. 36375

CAS Registry No.:	149-87-1
Formal Name:	5-oxo-proline
Synonyms:	NSC 40887, 5-oxo-DL-Proline, (±)-Pyroglutamic Acid
MF:	C <sub>5</sub> H <sub>7</sub> NO <sub>3</sub>
FW:	129.1
Purity:	≥95%
UV/Vis.:	λ <sub>max</sub> : 202 nm
Supplied as:	A solid
Storage:	-20°C
Stability:	≥4 years
Item Origin:	Synthetic



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

### Laboratory Procedures

DL-Pyroglutamic acid is supplied as a solid. A stock solution may be made by dissolving the DL-pyroglutamic acid in the solvent of choice, which should be purged with an inert gas. DL-Pyroglutamic acid is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of DL-pyroglutamic acid in these solvents is approximately 10 and 5 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of DL-pyroglutamic acid can be prepared by directly dissolving the solid in aqueous buffers. The solubility of DL-pyroglutamic acid in PBS (pH 7.2) is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### Description

DL-Pyroglutamic acid is a cyclized form of glutamic acid that has been found in *E. aureum* and is a racemic mixture of the D-glutamate metabolite D-pyroglutamic acid (Item No. 31170) and the L-glutamate and L-glutamine metabolite L-pyroglutamic acid (Item No. 36531).<sup>1</sup> A DL-pyroglutamic acid-magnesium complex decreases immobility time in the forced swim test and increases the latency to paw withdrawal in the hot plate test in rats.<sup>2</sup> DL-Pyroglutamic acid has been used as a building block in the synthesis of GABA peptides with antinociceptive activity in rats.<sup>3</sup> Plasma levels of D- and L-pyroglutamic acid are increased in patients with end-stage renal disease.<sup>4</sup>

### References

1. Meshram, A., Bhagyawant, S.S., and Srivastava, N. Characterization of pyrrolidine alkaloids of *Epipremnum aureum* for their antitermite activity against subterranean termites with SEM studies. *Proc. Natl. Acad. Sci. India Sect. B Biol. Sci.* **89**(1), 53-62 (2019).
2. Martini, N., Parente, J.E., Toledo, M.E., et al. Antidepressant and antinociceptive activities in animal models and *in vitro* assessment of the anti-thyroid activity of bis(DL-pyroglutamate)magnesium complex. *Pharmacol. Rep.* **71**(6), 1273-1280 (2019).
3. Adamyan, N.H., Topchyan, H.V., Poghosyan, V.H., et al. Synthesis and antinociceptive activity of GABA and pyroglutamic acid short peptides. *Pharm. Chem. J.* **56**, 339-344 (2022).
4. Palekar, A.G., Tate, S.S., Sullivan, J.F., et al. Accumulation of 5-oxo-L-proline and 5-oxo-D-proline in the blood plasma in end stage renal disease. *Biochem. Med.* **14**(3), 339-345 (1975).

#### 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.

#### WARRANTY AND LIMITATION OF REMEDY

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