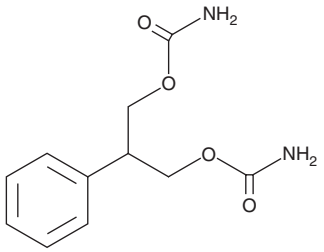
PRODUCT INFORMATION

Felbamate

Item No. 18000

CAS Registry No.:	25451-15-4
Formal Name:	2-phenyl-1,3-propanediol 1,3-dicarbamate
Synonym:	ADD 03055
MF:	$C_{11}H_{14}N_2O_4$
FW:	238.2
Purity:	≥98%
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

Felbamate is supplied as a crystalline solid. A stock solution may be made by dissolving the felbamate in the solvent of choice, which should be purged with an inert gas. Felbamate is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of felbamate in these solvents is approximately 1, 30, and 50 mg/ml, respectively.

Felbamate is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, felbamate should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Felbamate 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

Felbamate is an inhibitor of NMDA receptors and a modulator of $GABA_A$ receptors that also has broad-spectrum inhibitory activity against excitatory amino acid receptors.[1-3] It binds to NMDA channels with dissociation constants of approximately 200, 110, and 55 µM in the resting, activated, and desensitized states, respectively, and inhibits NMDA currents in a use-dependent manner.[1] Felbamate is a positive modulator of $\alpha_1\beta_2\gamma_{2S}$, $\alpha_1\beta_3\gamma_{2S}$, $\alpha_2\beta_2\gamma_{2S}$, and $\alpha_2\beta_3\gamma_{2S}$ subunit-containing $GABA_A$ receptors expressed in *X. laevis* oocytes, with negative modulation of $GABA_A$ receptors containing the subunits α1β1, $\alpha_1\beta_3\gamma_{2L}$, $\alpha_4\beta_1\gamma_{2S}$, $\alpha_4\beta_3\gamma_{2S}$, and $\alpha_6\beta_1\gamma_{2S}$.[2] It inhibits seizures induced by maximal electroshock, pentylenetetrazole (Item No. 18682), and picrotoxin (Item No. 20771) in mice (ED_{50}s = 16.3, 5.51, and 5.23 mg/kg, respectively). Formulations containing felbamate have been used in the treatment of severe refractory seizures.[4]

References

1. Kuo, C.-C., Lin, B.-J., Chang, H.-R., *et al.* Use-dependent inhibition of the *N*-methyl-D-aspartate currents by felbamate: a gating modifier with selective binding to the desensitized channels. *Mol. Pharmacol.* **65(2),** 370-380 (2004).
2. Simeone, T.A., Otto, J.F., Wilcox, K.S., *et al.* Felbamate is a subunit selective modulator of recombinant γ-aminobutyric acid type A receptors expressed in Xenopus oocytes. *Eur. J. Pharmacol.* **552(1-3),** 31-35 (2006).
3. Domenici, M.R., Sagratella, S., Ongini, E., *et al.* Felbamate displays in vitro antiepileptic effects as a broad spectrum excitatory amino acid receptor antagonist. *Eur. J. Pharmacol.* **271(2-3),** 259-263 (1994).
4. Swinyard, E.A., Sofia, R.D., and Kupferberg, H.J. Comparative anticonvulsant activity and neurotoxicity of felbamate and four prototype antiepileptic drugs in mice and rats. *Epilepsia* **27(1),** 27-34 (1986).

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