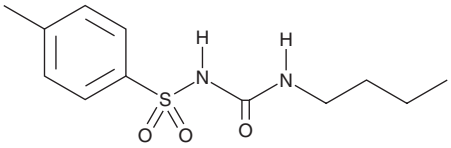
PRODUCT INFORMATION

Tolbutamide

Item No. 19888

CAS Registry No.:	64-77-7
Formal Name:	N-[(butylamino)carbonyl]-4-methyl-benzenesulfonamide
Synonyms:	D 860, NSC 23813, NSC 87833, U-2043
MF:	$C_{12}H_{18}N_2O_3S$
FW:	270.3
Purity:	≥98%
UV/Vis.:	λ_{max}: 229 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥2 years



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

Laboratory Procedures

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

Tolbutamide is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, tolbutamide should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. Tolbutamide has a solubility of approximately 0.14 mg/ml in a 1:6 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Tolbutamide is an inhibitor of sulfonylurea receptor 1 (SUR1) linked to ATP-sensitive potassium channel $K_{ir}6.2$ (IC_{50} = 4.9 µM).[1] It is selective for SUR1/$K_{ir}6.2$ over SUR2A/$K_{ir}6.2$ and SUR2B/$K_{ir}6.2$ channels (IC_{50}s = 85 and 88 µM, respectively). Tolbutamide increases glucose-induced insulin secretion and calcium influx in isolated mouse pancreatic islets.[2] *In vivo*, tolbutamide (80 mg/kg) reduces blood glucose levels in a mouse model of diabetes induced by streptozotocin (STZ; Item No. 13104).[3] Formulations containing tolbutamide have been used in the treatment of type 2 diabetes.

References

1. Proks, P., Reimann, F., Green, N., *et al.* Sulfonylurea stimulation of insulin secretion. *Diabetes* **51(3)**, S368-S376 (2002).
2. Ishiyama, N., Ravier, M.A., and Henquin, J.-C. Dual mechanism of the potentiation by glucose of insulin secretion induced by arginine and tolbutamide in mouse islets. *Am. J. Physiol. Endocrinol. Metab.* **290(3)**, E540-E549 (2006).
3. Rerup, C. and Tarding, F. Streptozotocin- and alloxan-diabetes in mice. *Eur. J. Pharmacol.* **7(1)**, 89-96 (1969).

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