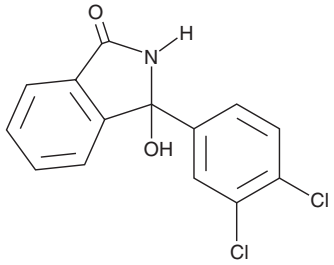
PRODUCT INFORMATION

Chlorthalidone Impurity G

Item No. 22574

CAS Registry No.:	16289-13-7
Formal Name:	3-(3,4-dichlorophenyl)-2,3-dihydro-3-hydroxy-1H-isoindol-1-one
MF:	$C_{14}H_9Cl_2NO_2$
FW:	294.1
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

Chlorthalidone impurity G is supplied as a crystalline solid. A stock solution may be made by dissolving the chlorthalidone impurity G in the solvent of choice, which should be purged with an inert gas. Chlorthalidone impurity G is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of chlorthalidone impurity G is approximately 10 mg/ml in ethanol and approximately 30 mg/ml in DMSO and DMF.

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

Description

Chlorthalidone impurity G is a potential impurity found in commercial preparations of chlorthalidone that has moderate antihypertensive effects.[1] Chlorthalidone is a thiazide-like diuretic that inhibits the Na^+/Cl^- cotransporter in the distal convoluted tubule of the kidney, which prevents reabsorption of sodium and chloride leading to a reduction in plasma volume and cardiac output.[2] It also inhibits carbonic anhydrase (CA), including the isoforms CAVB, VII, IX, XII, and XIII (K_is = 2.8-23 nM) and, to a lesser extent, CAI, CAII, IV, VA, and VI (K_is = 138-1,347 nM), which may mediate its sustained vasodilatory activity.[3] Dietary administration of chlorthalidone (8 mg per animal per day) reduces arterial hypertension and prevents or reduces ventricular hypertrophy in DOCA-salt hypertensive rats.[4] Formulations containing chlorthalidone have been used alone or in combination with other antihypertensive agents to lower arterial blood pressure and as adjuvants to address edema caused by cardiac or renal disorders.

References

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2. Roush, G.C., Buddharaju, V., Ernst, M.E., *et al.* Chlorthalidone: Mechanisms of action and effect on cardiovascular events. *Curr. Hypertens. Rep.* **15(5)**, 514-521 (2013).
3. Temperini, C., Cecchi, A., Scozzafava, A., *et al.* Carbonic anhydrase inhibitors. Interaction of indapamide and related diuretics with 12 mammalian isozymes and X-ray crystallographic studies for the indapamide-isozyme II adduct. *Bioorg. Med. Chem. Lett.* **18(8)**, 2567-2573 (2008).
4. Cabral, A.M., Carvalhinho, F.B., Vasquez, E.C., *et al.* Effects of chlorthalidone on ventricular hypertrophy in deoxycorticosterone acetate-salt hypertensive rats. *Hypertension* **23(1 Suppl)**, I180-I184 (1994).

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