PRODUCT INFORMATION

CAYMAN CHEMICAL

Tebuconazole
Item No. 24052

CAS Registry No.:	107534-96-3
Formal Name:	α-[2-(4-chlorophenyl)ethyl]-α-(1,1-dimethylethyl)-1H-1,2,4-triazole-1-ethanol
Synonym:	BAY HWG-1608
MF:	$C_{16}H_{22}ClN_3O$
FW:	307.8
Purity:	≥95%
Supplied as:	A solid
Storage:	-20°C
Stability:	≥4 years
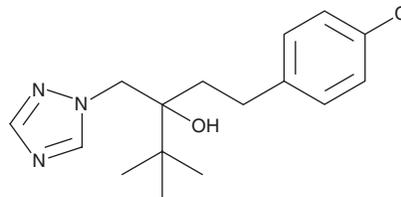
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Tebuconazole is supplied as a solid. A stock solution may be made by dissolving the tebuconazole in the solvent of choice, which should be purged with an inert gas. Tebuconazole is slightly soluble in chloroform and methanol.

Description

Tebuconazole is a triazole fungicide that is active against both seed and foliar fungi.[1] It inhibits 14α-demethylase isolated from *U. maydis* and *S. bicolor* with IC_{50} values of 0.05 and 0.16 nM, respectively.[2] It inhibits the androgenic effect of the androgen receptor agonist DHT (IC_{20} = 2.89 μM) and is cytotoxic (EC_{20} = 38.9 μM) in an MDA-kb2 assay.[3] Tebuconazole (50 and 100 mg/kg per day) administered during gestation reduces testosterone levels and increases testicular levels of progesterone and 17α-hydroxyprogesterone in male rat fetuses.[4] It has a feminizing effect on male pups and a virilizing effect on female pups. When administered to rats gestationally through postnatal day 42, tebuconazole (20 and 60 mg/kg per day) leads to cell death of pyramidal cells in the CA3-4 region of the hippocampus and layer V of the cortex concomitant with impairment in learning the platform location in the Morris water maze.[5] Formulations containing tebuconazole have been used as preservatives for wood and other materials, as well as fungicides in agricultural, commercial, industrial, and residential areas.

References

1. Reinecke, P., Kaspers, H., Scheinpflug, H., *et al.* BAY HWG 1608, a new fungicide for foliar spray and seed-treatment use against a wide spectrum of fungal pathogens. *In British Crop Protection Conference--Pests and Diseases, Proceedings* **1**, 41-46 (1986).
2. Zarn, J.A., Brüschweiler, B.J., and Schlatter, J.R. Azole fungicides affect mammalian steroidogenesis by inhibiting sterol 14 α-demethylase and aromatase. *Environ. Health Perspect.* **111(3)**, 255-261 (2003).
3. Orton, F., Rosivatz, E., Scholze, M., *et al.* Widely used pesticides with previously unknown endocrine activity revealed as *in vitro* antiandrogens. *Environ. Health Perspect.* **119(6)**, 794-800 (2011).
4. Taxvig, C., Hass, U., Axelstad, M., *et al.* Endocrine-disrupting activities *in vivo* of the fungicides tebuconazole and epoxiconazole. *Toxicol. Sci.* **100(2)**, 464-473 (2007).
5. Moser, V.C., Barone, S., Jr., Smialowicz, R.J., *et al.* The effects of perinatal tebuconazole exposure on adult neurological, immunological, and reproductive function in rats. *Toxicol. Sci.* **62(2)**, 339-352 (2001).