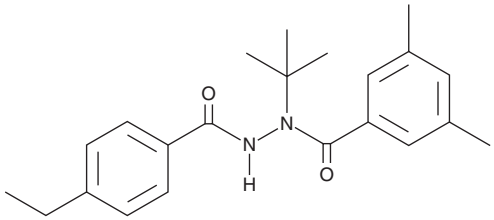
# PRODUCT INFORMATION

## Tebufenozide

*Item No. 24055*

**CAS Registry No.:** 112410-23-8
**Formal Name:** 3,5-dimethyl-1-(1,1-dimethylethyl)-2-(4-ethylbenzoyl)hydrazide, benzoic acid
**Synonym:** RH-5992
**MF:** $C_{22}H_{28}N_2O_2$
**FW:** 352.5
**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

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

### Description

Tebufenozide is an insecticide that acts as a non-steroidal agonist of the insect ecdysone receptor (EcR; $IC_{50}$ = 0.85 nM in a cell-free preparation of *C. suppressalis* integument).[1] It induces a premature molt and is lethal to *S. litura* third instar larva ($LD_{50}$ = 0.33 µM per larva).[1,2] It also inhibits P-glycoprotein (P-gp), also known as multidrug resistance protein 1 (MDR1), activity in LLC-PK1 porcine kidney epithelial cells expressing human P-gp ($IC_{50}$ = 21.5 µM).[3] Tebufenozide has low toxicity in mammals, birds, and most aquatic species, but it dose-dependently decreases colony formation and induces apoptosis and cell cycle arrest in HeLa cells when used at concentrations ranging from 50 to 200 µg/ml.[4,5] Formulations containing tebufenozide have been used as insecticides, miticides, sex attractants, and/or feeding stimulants in agricultural, aquatic, and residential areas.

### References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2. Yokoi, T., Minami, S., Nakagawa, Y., *et al.* Structure-activity relationship of imidazothiadiazole analogs for the binding to the ecdysone receptor of insect cells. *Pestic. Biochem. Physiol.* **120**, 40-50 (2015).
3. Miyata, K.-i., Nakagawa, Y., Kimura, Y., *et al.* Structure-activity relationships of dibenzoylhydrazines for the inhibition of P-glycoprotein-mediated quinidine transport. *Bioorg. Med. Chem.* **24(14)**, 3184-3191 (2016).
4. Xu, W., Wang, B., Yang, M., *et al.* Tebufenozide induces G1/S cell cycle arrest and apoptosis in human cells. *Environ. Toxicol. Pharmacol.* **49**, 89-96 (2017).
5. Abass, K.M. An investigation into the formation of tebufenozide's toxic aromatic amine metabolites in human *in vitro* hepatic microsomes. *Pestic. Biochem. Physiol.* **133**, 73-78 (2016).





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