

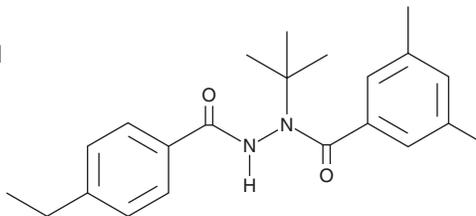
# PRODUCT INFORMATION



## 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<sub>22</sub>H<sub>28</sub>N<sub>2</sub>O<sub>2</sub>  
**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<sub>50</sub> = 0.85 nM in a cell-free preparation of *C. suppressalis* integument).<sup>1</sup> It induces a premature molt and is lethal to *S. litura* third instar larva (LD<sub>50</sub> = 0.33 μM per larva).<sup>1,2</sup> 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<sub>50</sub> = 21.5 μM).<sup>3</sup> 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.<sup>4,5</sup> Formulations containing tebufenozide have been used as insecticides, miticides, sex attractants, and/or feeding stimulants in agricultural, aquatic, and residential areas.

### References

1. Minakuchi, C., Nakagawa, Y., Kamimura, M., *et al.* Binding affinity of nonsteroidal ecdysone agonists against the ecdysone receptor complex determines the strength of their molting hormonal activity. *Eur. J. Biochem.* **270**(20), 4095-4104 (2003).
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).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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