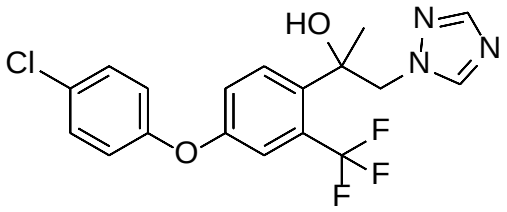
Product data sheet

MedKoo Cat#: 330042 Name: Mefentrifluconazole CAS: 1417782-03-6 Chemical Formula: $C_{18}H_{15}ClF_3N_3O_2$ Exact Mass: 397.0805 Molecular Weight: 397.7822	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
Mefentrifluconazole is a fungicide on cereals.

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	100.0	251.39

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.51 mL	12.57 mL	25.14 mL
5 mM	0.50 mL	2.51 mL	5.03 mL
10 mM	0.25 mL	1.26 mL	2.51 mL
50 mM	0.05 mL	0.25 mL	0.50 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

1. Han Z, Cui K, Wang M, Jiang C, Zhao T, Wang M, Du P, He L, Zhou L. Bioactivity of the DMI fungicide mefentrifluconazole against Sclerotium rolfsii, the causal agent of peanut southern blight. Pest Manag Sci. 2023 Jan 29. doi: 10.1002/ps.7386. Epub ahead of print. PMID: 36710267.
2. Liu Y, Ma T, Dong Y, Mao C, Wu J, Zhang C. Bioactivity of mefentrifluconazole against different Fusarium spp. Pestic Biochem Physiol. 2022 Aug;186:105169. doi: 10.1016/j.pestbp.2022.105169. Epub 2022 Jul 6. PMID: 35973774.

In vivo study

1. Li Y, Ren B, Zhao T, Chen H, Zhao Y, Liang H, Liang H. Enantioselective toxic effects of mefentrifluconazole in the early life stage of zebrafish (Danio rerio). Environ Toxicol. 2022 Jul;37(7):1662-1674. doi: 10.1002/tox.23515. Epub 2022 Mar 16. PMID: 35297557.
2. Li Y, Liang H, Ren B, Zhao T, Chen H, Zhao Y, Liang H. Enantioselective toxic effects of mefentrifluconazole in the liver of adult zebrafish (Danio rerio) based on transcription level and metabolomic profile. Toxicology. 2022 Feb 15;467:153095. doi: 10.1016/j.tox.2022.153095. Epub 2022 Jan 6. PMID: 34999168.

7. Bioactivity
Biological target:

Mefentrifluconazole is a potent, selective and orally active fungal CYP51 (K_d= 0.5 nM) inhibitor, but shows less inhibitory activity on human aromatase (IC_{50}=0.92 μM).

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In vitro activity

In this study, the DMI fungicide mefentrifluconazole exhibited excellent inhibitory activity against the mycelial growth of S. rolfsii, with a mean EC_{50} value of 0.21 ± 0.11 mg L^{-1} and a range of 0.02 to 0.55 mg L^{-1} for 261 isolates collected from Hebei, Henan and Shandong provinces. Mefentrifluconazole significantly reduced the biomass of mycelia and affected the morphology of hyphae.

Reference: Pest Manag Sci. 2023 Jan 29. https://pubmed.ncbi.nlm.nih.gov/36710267/

In vivo activity

The 96-h lethal concentration 50 (LC_{50}) values (exposed to racemate and enantiomers of MFZ (mefentrifluconazole), that is, rac-MFZ/(-)-MFZ/(+)-MFZ) were 1.010, 1.552, and 0.753 mg/L for embryo, and 0.753, 1.187, and 0.553 mg/L for larvae. The rac-MFZ/(-)-MFZ/(+)-MFZ can affect the heart development of zebrafish embryos, accompanied by heart rate inhibition, yolk sac deformities, pericardial deformities, and down-regulation of genes related to cardiotoxicity in larvae in an enantioselective manner. Moreover, the rac-MFZ/(-)-MFZ/(+)-MFZ also can affect the neural development of zebrafish embryos, accompanied by autonomic movement inhibition, swimming speed and swimming distance abnormalities, and down-regulation of genes related to neurotoxicity in larvae in an enantioselective manner.

Reference: Environ Toxicol. 2022 Jul;37(7):1662-1674. https://pubmed.ncbi.nlm.nih.gov/35297557/