

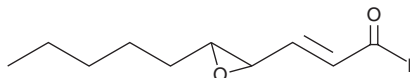
PRODUCT INFORMATION



trans-4,5-epoxy-2(E)-Decenal

Item No. 10004257

CAS Registry No.: 134454-31-2
Formal Name: 3-[(2R,3R)-3-pentylloxiranyl]-2E-propenal
Synonym: 3-(3-Pentylloxiranyl)-2E-propenal
MF: C₁₀H₁₆O₂
FW: 168.2
Purity: ≥95%
UV/Vis.: λ_{max}: 231 nm
Supplied as: A solution in methyl acetate
Storage: -20°C
Stability: ≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

trans-4,5-epoxy-2(E)-Decenal is supplied as a solution in methyl acetate. To change the solvent, simply evaporate the methyl acetate under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as ethanol, DMSO, and dimethyl formamide purged with an inert gas can be used. The solubility of *trans*-4,5-epoxy-2(E)-decenal in these solvents is approximately 30 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. If an organic solvent-free solution of *trans*-4,5-epoxy-2(E)-decenal is needed, it can be prepared by evaporating the methyl acetate and directly dissolving the neat oil in aqueous buffers. The solubility of *trans*-4,5-epoxy-2(E)-decenal in PBS, pH 7.2, is approximately 0.2 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Polyunsaturated fatty acids such as arachidonate and linoleate, while essential to health maintenance, are subject to random peroxidation by ambient oxygen, resulting in fragmented and reactive decomposition products. One prominent autoxidation product of either trilinolein or arachidonic acid is *trans*-4,5-epoxy-2(E)-decenal. This aldehyde is responsible for a pungent metallic flavor of decomposed lipids, with a detection threshold of 1.5 pg/l in air.¹ *trans*-4,5-epoxy-2(E)-Decenal also reacts with nucleophiles (lysine amino groups) on proteins, leading to loss of cell function and viability.² This reactive aldehyde is therefore a useful tool in elucidating the effects of peroxidative damage in experimental models.

References

1. Lin, J., Fay, L.B., Welti, D.H., *et al.* Quantification of key odorants formed by autoxidation of arachidonic acid using isotope dilution assay. *Lipids* **36**(7), 749-756 (2001).
2. Zamora, R. and Hidalgo, F.J. Modification of lysine amino groups by the lipid peroxidation product 4,5(E)-epoxy-2(E)-heptenal. *Lipids* **29**, 243-249 (1994).

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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