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Isolation of Pure Disubstituted *E* Olefins through Mo-Catalyzed *Z*-Selective Ethenolysis of Stereoisomeric Mixtures
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Category

Metal-Catalyzed Asymmetric Synthesis and Stereoselective Reactions

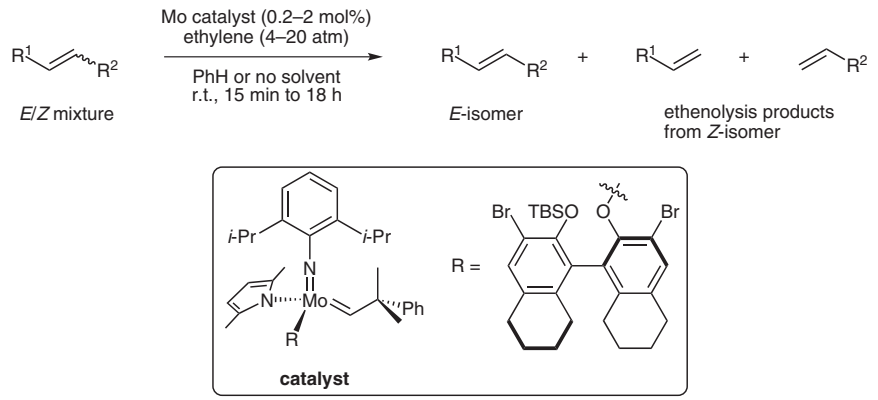
Key words

molybdenum

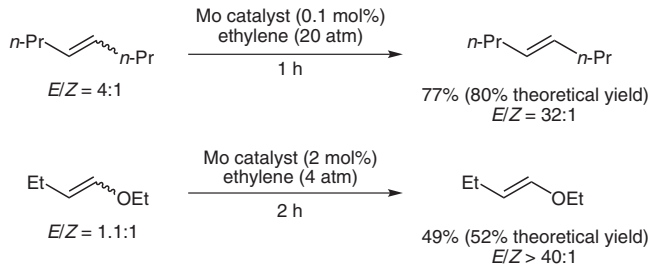
***Z*-alkenes**

stereoisomer purification

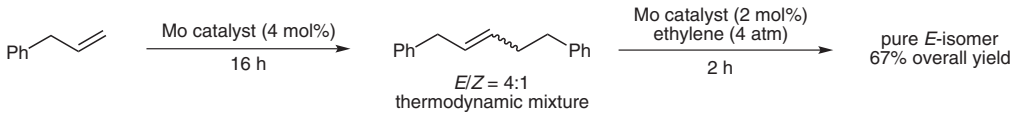
Purification of Alkene Stereoisomers through *Z*-Selective Ethenolysis



Selected examples:



Two-step synthesis of pure *E*-olefins:



Significance: Many methods exist for preparing disubstituted *E*-olefins, such as the Horner–Wadsworth–Emmons reaction and olefin cross-metathesis. While these reactions have proven to be highly reliable and practical, the undesired *Z*-isomer is often difficult to separate by chromatography or distillation. In the present communication, the authors disclose how pure *E*-olefins can be obtained from an *E*/*Z* mixture through the selective ethenolysis of the *Z*-isomer.

Comment: The by-products of the reaction are of much lower molecular weight than the starting materials, so the pure *E*-isomer can often be obtained through distillation. The rate of ethenolysis is found to be up to 30 times faster for the *Z*-isomer, explaining why such a highly pure *E*-olefin can be obtained. The scale of the reactions was not mentioned.

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