

## Ozonolysis of a series of branched alkenes: Kinetics and gas-phase products

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The ozonolysis reactions of a series of branched alkenes have been investigated at room temperature and atmospheric pressure using a laminar flow reactor newly developed in our laboratory (1). This device allows the monitoring of the first steps of ozonolysis reactions (typically ~30 s to 5 minutes) providing complementary data to more widely performed smog chamber experiments.

Rate coefficients have been measured under pseudo first-order conditions in excess of the alkene. The decay of ozone has been monitored with an O<sub>3</sub> analyzer while alkene concentrations have been determined using online sampling onto adsorbent cartridges followed by thermodesorption and subsequent analysis in a GC/FID-MS system. Additional experiments carried out in a smog chamber showed good agreement with the flow reactor data and literature values.

Products from the ozonolysis of 2,4,4-trimethyl-2-pentene has been specifically studied. The experimental results are supportive of the general Criegee mechanism for alkene ozonolysis, in agreement with the literature (e.g. (2)) and the formation of a non-oxidized alkene has been identified and quantified (Figure 1).

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### References

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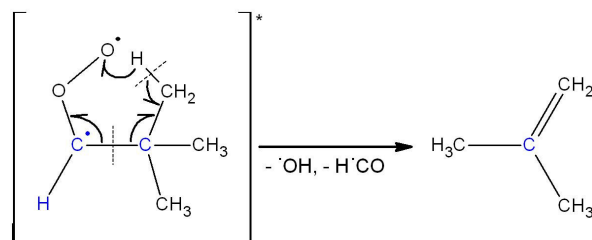


Figure 1. Suggested mechanism for the formation of 2-methyl-2-propene via one of the Criegee intermediates formed in the ozonolysis of 2,4,4-trimethyl-2-pentene