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Flow Ozonolysis Using a Semipermeable Teflon AF-2400 Membrane to Effect Gas-Liquid Contact *Org. Lett.* **2010**, *12*, 1596-1598.

## Flow Ozonolysis Using a Semipermeable Teflon AF-2400 Membrane

Teflon AF-2400

$$R^{1}$$

$$R^{2}$$

$$R^{2}$$

$$R^{2}$$

$$R^{2}$$

$$R^{2}$$

$$R^{3}$$

$$R^{2}$$

$$R^{2}$$

$$R^{3}$$

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$$R^{2}$$

$$R^{3}$$

$$R^{4}$$

$$R^{2}$$

$$R^{3}$$

$$R^{4}$$

$$R^{2}$$

$$R^{3}$$

$$R^{4}$$

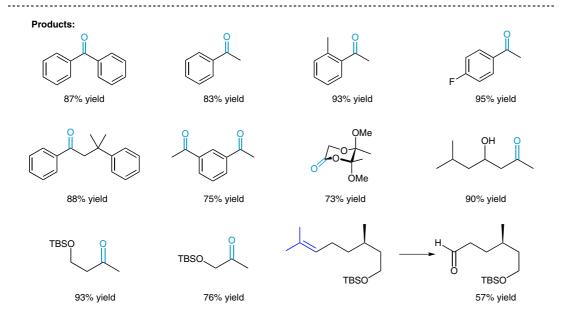
$$R^{2}$$

$$R^{3}$$

$$R^{4}$$

$$R^{2}$$

$$R^{3}$$



**Significance:** A simple and convenient flow chemistry device to bring about the ozonolysis of exomethylenes via gas-to-liquid transfer through semipermeable Teflon AF-2400 tubing was developed. Using a Teflon AF-2400 tubing (90 cm length) connected to a syringe pump (Infors AG, HT-Precidor), the flow ozonolysis of a series of exomethylenes was carried out in methanol with one hour of residence time to give the corresponding ketones (10 examples, 73–95% yield). A citronellol derivative (C10-OTBS) was converted into a C7-OTBS aldehyde under similar conditions in 57% yield.

**Comment:** Gas-liquid contact in a flow chemistry device usually involves the mechanical mixing of two phases. Here, more efficient, controllable, and reliable phase contact was realized using a semi-permeable membrane that had high surface areas and selectively allowed  ${\rm O_3}$  to cross from outside to inside. Telfon AF-2400 consists of an amorphous copolymer of tetrafluoroethylene and a perfluorodimethyldioxolane.

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Category

Polymer-Supported Synthesis

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semipermeable membranes

Teflon AF-2400

flow chemistry

