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We are the first to report the low-temperature stabilization of  $(MeO)_2Si=O$  (Ia) and Ph<sub>2</sub>Si=O (Ib). Those intermediates are the first reported alkoxy- and aryl-substituted silanones (I). Vacuum pyrolysis of 6-oxa-3,3-dimethoxy- (IIa) and 6-oxa-3,3-diphenyl-3-silabicyclo[3.1.0]hexane (IIb) in a quartz flow reaction attached to an optical cryostat gave (Ia) and (Ib), respectively. The pyrolysis products were frozen on a copper mirror base at 12 K along with excess argon (~1000:1) and identified by IR spectroscopy.

The spectra of the products of the pyrolysis of (IIa) carried out at 700-800°C and  $5 \cdot 10^{-3} - 5 \cdot 10^{-4}$  torr, in accord with the stoichiometry of reaction (1), had bands for the divinyl group as well as new bands at 1471 (m), 1247 (w), 1199 (s), 1174 (s), and 888 cm<sup>-1</sup> (w), which disappeared synchronously upon warming of the matrix from 12 to 40 K, indicating their relationship to an unstable species.

Ar matrix, 12 K  $R_{2}Si \underbrace{\bigcirc}_{(II)} O \xrightarrow{\Delta}_{-C_{4}H_{4}} R_{2}Si = 0 \xrightarrow{40 \text{ K}} (R_{2}SiO)_{n} \qquad (1)$   $R = OMe (a), Ph (b) \qquad \qquad n \ge 3$ 

We simultaneously observed an enhancement of the bands for methoxysiloxanes (IIIa) at 1110-1050 cm<sup>-1</sup> and retention of the intensities of the bands for  $C_4H_6$  and unreacted (IIa). These data indicate the assignment of the above-mentioned bands to silanone (Ia). An increase in the pressure in the pyrolysis zone to 0.1-1 torr or in the temperature to 850-930°C led to a diminution of these bands, enhancement of the bands for (IIIa), and appearance of bands for MeOH,  $H_2CO$ ,  $Me_2O$ , and SiO (1225 cm<sup>-1</sup> [2]).

The spectra of the products of the pyrolysis of (IIb) at 800-820°C and 0.01 torr gave bands assigned to silanone (Ib) at 1434 m, 1205 m, 1120 s, 825 w, 541 m, and 479 cm<sup>-1</sup> m. These bands synchronously disappear upon warming of the matrix from 12 to 40 K along with an enhancement of the bands for cyclosiloxane (IIIb). An increase in the pyrolysis temperature to 900-920°C led to a diminution of the bands, which were replaced by bands for SiO, benzene, and apparently, the phenyl radical [3]. Freezing of the products of reaction (1) at 12 K in the absence of argon gave only divinyl and (IIIb). The band at 1247 cm<sup>-1</sup> in (Ia) was assigned to the v Si=O vibration. The enhanced frequency of this vibration in comparison with Me<sub>2</sub>Si=O (1210 cm<sup>-1</sup> [1]) is in accord with the increase in v C=O in going from Me<sub>2</sub>C=O to (MeO)<sub>2</sub>C=O [4]. The slight decrease in the frequency of the v Si=O band in (Ib) (1205 vs. 1210 cm<sup>-1</sup> for Me<sub>2</sub>Si=O) is probably a consequence of  $\pi$ -conjugation of the Si=O bond with the benzene ring [4, 5].

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