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**Preliminary communication**

# HYDRIDE MIGRATION IN THE MASS SPECTRA OF SOME 2-PHENYL-1,3,2-DIOXASILACYCLOALKANES

R. HARRY CRAGG and ROB. D. LANE
*The Chemical Laboratory, University of Kent at Canterbury, Kent (Great Britain)*
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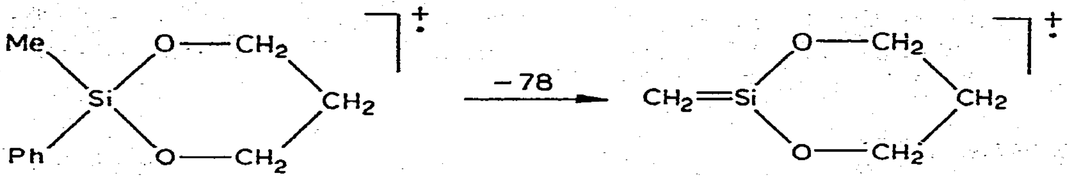
## Summary

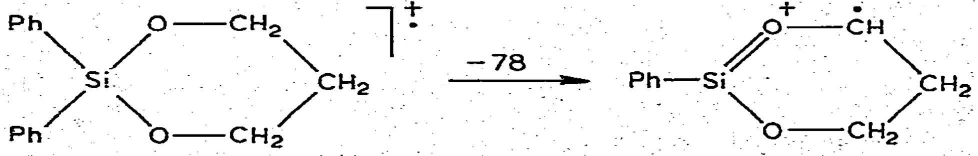
The mass spectra of a series of 2-phenyl-1,3,2-dioxasilacycloalkanes all contain a peak at *m/e P* — 78, which we suggest arises from hydride migration from the ring.

We have for some time been interested in the mass spectral fragmentation of heterocyclic organoboranes [1, 2] and have recently begun a detailed investigation of heterocyclic silanes. Although there have been a few reports of loss of $C_6H_6$ from parent ions [3, 4, 5] the importance of this as a general process for alkoxyphenylsilanes and 2-phenyl-1,3,2-dioxasilacycloalkanes does not appear to have been commented on.

Our initial investigations involved a study of a series of 2-methyl-2-phenyl-1,-3,2-dioxasilacycloalkanes, and it was observed that the mass spectrum of each compound contained a peak at *m/e P* — 78. It is attractive to suggest that the loss of 78 from the parent ion resulted in the formation of a species involving a carbon—silicon double bond.



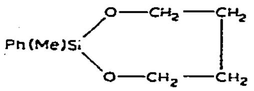
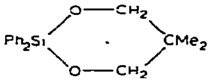
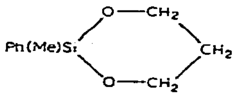
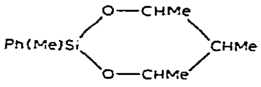
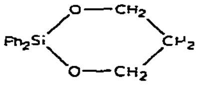
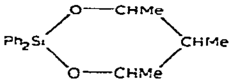
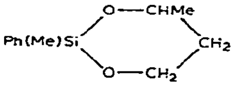
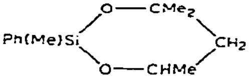
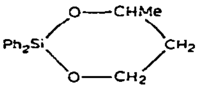
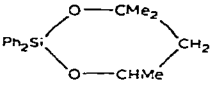
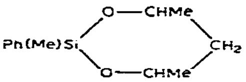
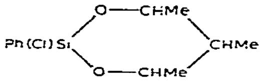
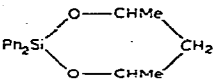
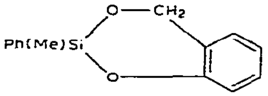
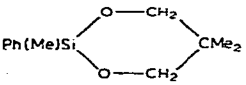
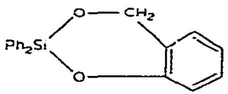
However, in further investigations involving diphenyl- or chlorophenyl-silanes it has been found that all the mass spectra show the loss of 78 from the molecular ion, which strongly suggests that there is a hydrogen atom migration from the ring.



Some indication of the generality of this process can be seen from the examples given in Table 1. It is also of interest that the mass spectra of diethoxydiphenylsilane and dimethoxydiphenylsilane also contained peaks at $m/e$ $P - 78$.

TABLE 1

RELATIVE INTENSITIES OF $P$ AND $P - 78$ PEAKS IN THE MASS SPECTRA OF A SERIES OF 2-PHENYL-1,3,2-DIOXACYCLOSILAALKANES

| Compound | $P$ % base | $P$-78 % base | Compound | $P$ % base | $P$-78 % base |
|---|---|---|---|---|---|
|  | 15 | 21 |  | 15 | 97 |
|  | 8 | 3 |  | 5 | 20 |
|  | 26 | 50 |  | 7 | 48 |
|  | 9 | 10 |  | 22 | 2 |
|  | 33 | 100 |  | 34 | 15 |
|  | 8 | 10 |  | 64 | 10 |
|  | 15 | 64 |  | 100 | 58 |
|  | 8 | 24 |  | 100 | 63 |

## Experimental

The mass spectra were recorded, using an A.E.I. MS902 mass spectrometer at 70 eV. The source was maintained at 170°C and the compounds were introduced as neat liquids or solids using an unheated direct-insertion probe.

## Acknowledgement

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