

**DIPHENYLPHOSPHINOSTILBENE AND (1-PHENYL-2-BROM-
ETHENYL)DIPHENYLPHOSPHINE PHOTOIRRADIATION PRODUCTS
IDENTIFICATION**

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Absorption, luminescence emission and excitation spectra of diphenylphosphinostilbene (I) and (1-phenyl-2-bromethenyl)diphenylphosphine (II) in hexane were studied by spectroscopic technique before and after UV-irradiation (240-330 nm). It has been found that luminescence of (I) and (II) was absent in the case of non-irradiated solutions but appeared after irradiation.

Luminescence emission spectrum of irradiated (I) was similar to the corresponding spectrum of phenanthrene: at room temperature band had peak at 370 nm and shoulders at 358 and 392 nm. At 77 K vibration structure manifested itself, and the emission band demonstrated maxima at 352, 368 and 388 nm (fluorescence), and 476 and 510 nm (phosphorescence). Similar spectrum of emission was observed for phenanthrene under the same set of conditions. The luminescence excitation and absorption spectra of irradiated (I) were similar. The above spectral data evidenced that 9-diphenylphosphinophenanthrene (III) was the final product of studied photoreaction.

In the case of photoirradiation of (II) two final products appeared as a result of this photoreaction. The first product precipitated and it had no luminescence. It was proved by mass-spectrometric and NMR techniques as (1-phenyl-2-bromethenyl)diphenylphosphineoxide (IV).

The second product remained in solution and demonstrated luminescence: emission spectrum with maximum at 420 nm, and excitation spectrum with maximum at 347 nm - close to the absorption spectrum of the final solution. Luminescence emission and excitation spectra had similar shapes, that is typical for hard structures with expanded system of π -bonds. The luminescence intensity (at 420 nm) was quadratic in concentration, that is typical for bimolecular photoreactions. From the above data it was possible to suppose that 1-4-bis(diphenylphosphoroyl)-1,4-diphenyl-1,3-butadiene (V) was the second final product of studied photoreaction.