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The Gas-Chromatographic Behaviour of the Phosphoric Acid *n*-Alkyl Esters on Silicon Stationary Phases. Reactions on Columns

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The Gas-Chromatographic Behaviour of the Phosphoric Acid *n*-Alkyl Esters on Silicon Stationary Phases. Reactions on Columns

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Instability of the trialkylphosphates $(RO)_3P(O)$, with $R = C_5H_{11} - C_8H_{17}$, has been observed when pairs of these esters were analysed on gas-chromatographic columns with silicone stationary phases, e.g., OV-17. New peaks were identified between those corresponding to the initial esters analysed separately. The Kovats retention indices were calculated for these peaks, with *n*-alkanes as standards and phosphorus indices with tri-*n*-alkyl-phosphates as standards. The relationships between the retention indices and the number of the total carbon atoms in the molecules of the alkyl-phosphates was represented for the identification of the new peaks. The new peaks were identified as mixed phosphates with general structure $(R'O)_2(RO)P(O)$, where R' and R are alkyl radicals $C_5H_{11} - C_8H_{17}$. These phosphates are the results of interchange of alkoxy groups from the esters in the conditions of high temperature ($240^\circ C$) of the chromatographic columns. The retention data of the esters examined are shown in the table.

Nr.	RI	PRI	Number of carbon atoms		
			total	R	R'
1.	2123	1500	15	5	5
2.	2225	1620	16	5	6
3.	2313	1719	17	5	7
4.	2313	1719	17	6	5
5.	2388	1800	18	6	6
6.	2398	1814	18	5	8
7.	2487	1912	19	6	7
8.	2487	1912	19	7	5
9.	2576	2010	20	7	6
10.	2576	2011	20	6	8
11.	2664	2100	21	7	7
12.	2669	2105	21	8	5
13.	2759	2204	22	7	8
14.	2759	2204	22	8	6
15.	2851	2303	23	8	7
16.	2945	2400	24	8	8