

Article

## Electron impact fragmentation of some mixed cyclotetraphosphazenes

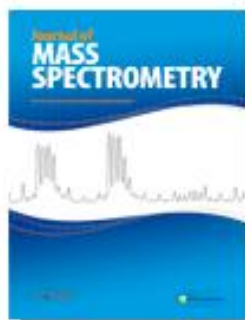
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Abstract

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### Abstract

The electron impact fragmentations of some cyclotetraphosphazenes are reported and discussed. The major fragmentation path involves loss of two amine radicals and one chlorine radical in the series  $P_4N_4Cl_{8-n}(NMe_2)_n$  when  $n=2$ , and subsequent stages involve a ring contraction process with elimination of a P = N fragment, when  $n = 5$  loss of amine radicals predominates on statistical grounds with little evidence of ring contraction. In the series  $P_4N_4F_{8-n}(NMe_2)_n$  fragmentation is dominated by loss of amino radicals when  $n = 4$  and loss of fluorine radicals predominates on statistical grounds when  $n = 2$ . In the series  $P_4N_4F_{8-n}X_n$  ( $n = 2$  or  $4$ ,  $X = Cl$  or  $Br$ ), when  $n = 2$  and  $X = Br$  the major fragmentation path is the loss of two bromine radicals, whereas when  $X = Cl$  the more favoured path is the loss of two chlorine radicals. In both, subsequent stages involve ring contraction reactions with elimination of a PN fragment. When  $n = 4$  and  $X = Br$  or  $Cl$  on bond energy grounds the more favoured fragmentation pattern is the loss of bromine or chlorine radicals, respectively.