

Isolation and characterisation of the first
fluorooxyfluorofullerene C₆₀F₁₇OF

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Fluorooxy compounds ROF are extremely rare and only very few have been isolated[1]. We now report the isolation and characterisation of a fluorooxyfluorofullerene, C₆₀F₁₇OF from fluorination of [60]fullerene with MnF₃/K₂NiF₆ at 485 °C. This compound has a shorter HPLC retention time and is less stable than the isomeric oxahomofluorofullerenes (ethers) C₆₀F₁₈O. It fragments under EI mass spectrometry in an entirely different way from the ethers, losing OF in a single step, and gives no C₆₀O as a fragment ion showing that the oxygen is *exo* to the cage. Just as oxygen inserts into FC-CF bonds of fluorofullerenes to give ethers, so it inserts into a C-F bond. It is probable therefore that three other isomers could also be isolated

The structure was determined by 1 D and 2 D
¹⁹F NMR spectroscopy.

[1] J. H. Prage and R. G. Thompson, *J. Am. Chem. Soc.*, 1965, **87**, 230; R. L. Cauble and G. H. Cady, *J. Am. Chem. Soc.*, 1967, **89**, 1962, 5161; F. A. Hohorst and J. M. Shreeve, *ibid.*, 1809, P. G. Thompson, *ibid.*, 1811.