

POLITECNICO **DI MILANO**



Laboratory of Nanostructured Fluorinated Materials



Reactions under novel conditions: Simplified kinetic study of the reaction between perfluoro-methyl-hypofluorite and perfluoro-olefins :

 $CF_3OF + CF_3OCF = CF_2 \rightarrow CF_3OCF_2CF_2OCF_3 + (CF_3O)_2CFCF_3$

80%

20%

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Volatile perfluoro-thers have low ostwald coefficient. Lifesaving drugs in decompression illness treatment. Smart drug delivery.



Ultrasound contrast agents. MRI contrast agents. Blood replacement Breathable fluids

Generic Reaction Scheme Standard

Direct Addition





Novel Reverse Reaction **OFF-GAS**

Alkene Conversion = 99% Selectivity = 98%

 $CF_2 = CFOCF_3$

CF₃**OF**



9) • F + • F ----F

Initiation Product C₃F₈O

 $CF_{3}-CF_{2}^{OCF_{3}}$

CF₃OF

CF₃OCF=CF₂



Direct Addition Termination Products

 $C_{6}F_{14}O_{2}$

 $C_8F_{18}O_4$

















Reverse addition Termination Product C₂F₆O₂

CF₃O-O^{-CF₃}

