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THE SYNTHESIS OF PERFLUOROCARBOXYLATOZIRCONIUM(IV) FLUORIDES – A LOW TEMPERATURE DECARBOXYLATION PROCESS

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The reaction of heptafluorobutyric acid and pentafluoropropionic acid with zirconium tetrachloride has been studied. The compounds $ZrF_2(C_3F_7COO)_2$ and $ZrF_2(C_2F_5COO)_2$ are produced rather than the expected tetracarboxylato derivatives. A mechanism involving decarboxylation of an initially formed perfluorocarboxylate is proposed. The thermal decomposition of $ZrF_2(C_3F_7COO)_2$, which gives rise inter alia to the compound $ZrF_3(C_3F_7COO)$ is also discussed.