Making Acyl Fluorides by Synergistic Palladium/Phosphine-Catalyzed Fluorocarbonylation

Significance: A novel method for the synthesis of acyl fluorides from potassium (het)aryl/alkyl trifluoroborates is reported. The trifluoromethyl arylsulfonate (TFMS) serves as source of the in situ generated hazardous COF2 gas.

Comment: Detailed mechanistic studies including DFT calculations support the proposed mechanism. The dual role of the phosphine is noteworthy, acting as both organocatalyst and ligand of the palladium redox cycle.