In the experiments performed, varying amounts of ethane and ethyl fluoride were also observed. The addition of HF activator to ethylene would explain the formation of ethyl fluoride. Ethane can be produced from the self-condensation of ethylene or from ethyl fluoride. When \(^{13}\)CH\(_4\) and ethyl fluoride were passed over the TaF\(_5\)/AlF\(_3\) catalyst (1:1 weight ratio), ethane constituted up to ethylene would explain the formation of ethyl fluoride. Ethane and ethyl fluoride were also observed. The addition of HF activator can be produced from the self-condensation of ethylene or from ethylene to give propane over solid superacid catalysts. A very low concentration of ethylene compared to methane is necessary in order to minimize the self-condensation-cracking of ethylene, which is increasingly becoming the predominant reaction at ethylene concentrations above 1.0 mol %.

The reported ethylation of methane is fundamental as the prototype of alkylation of the parent alkane.

Registry No. 1. 32555-23-0; CH\(_2\)=CH\(_2\), 74-85-1; CH\(_3\), 74-82-8; CH\(_2\)CH\(_2\)F, 14936-94-8; TaF\(_5\), 7783-71-3; AlF\(_3\), 7784-18-1; SbF\(_3\) compound with graphite, 59839-60-0.

Additions and Corrections


Page 3162: It has been pointed out to us by Prof. Günther (Siegen) that the \(^{15}\)N chemical shift given in Table I for N9 of 9-methylpurine is inconsistent with Figure 3. The value in Table I should be 224.1 ppm rather than 244.1 ppm.


Page 6708, left column, lines 23 and 24: The \(^1\)H NMR data for d,l-12-epi-apylstatin should read \(3.84, 3.94, 4.94, 5.90\) (8 H). We wish to acknowledge the contribution of D. D. M. Wayner.

Table I. Benzyl Radical Hyperfine Coupling Constants\(^b\) (revised)