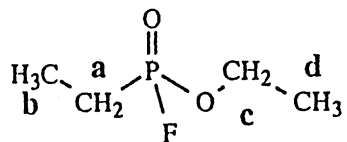


\* : impurities

### ETHYL ETHYLPHOSPHONOFUORIDATE



CAS number : 650-20-4  
 MF : C<sub>4</sub>H<sub>10</sub>FO<sub>2</sub>P  
 Solvent/Lock : CDCl<sub>3</sub>/CDCl<sub>3</sub>  
 Nucleus : <sup>1</sup>H  
 Apparatus : Bruker AMX 360  
 Frequency : 360.13 MHz  
 Temperature : 23°C  
 Concentration : ≈ 40 mg/ml

Reference : TMS internal  
 Spectral width : 2960 Hz  
 Pulse Width : 9.5 μs (90°)  
 Repetition Time : 4 s  
 Data points : FID = 16K, SPC = 16K  
 Line Broadening : No  
 Peak Width 1/2 height : peak 1.39 ppm 1.5 Hz

a : δ = 1.92 ppm ; J<sub>P-a</sub> = 19.5 Hz ; J<sub>F-a</sub> = 4.2 Hz  
 b : δ = 1.24 ppm ; J<sub>P-b</sub> = 21.4 Hz ; J<sub>a-b</sub> = 7.7 Hz  
 c : δ = 4.29 & 4.25 ppm ; J<sub>P-c</sub> = 9.7 & 8.3 Hz ;  
 J<sub>c-c'</sub> = 10.2 Hz  
 d : δ = 1.39 ppm ; J<sub>c-d</sub> = 7.1 Hz