

Synthesis of Calamitic Fluorinated Mesogens with Complex Crystallization Behavior

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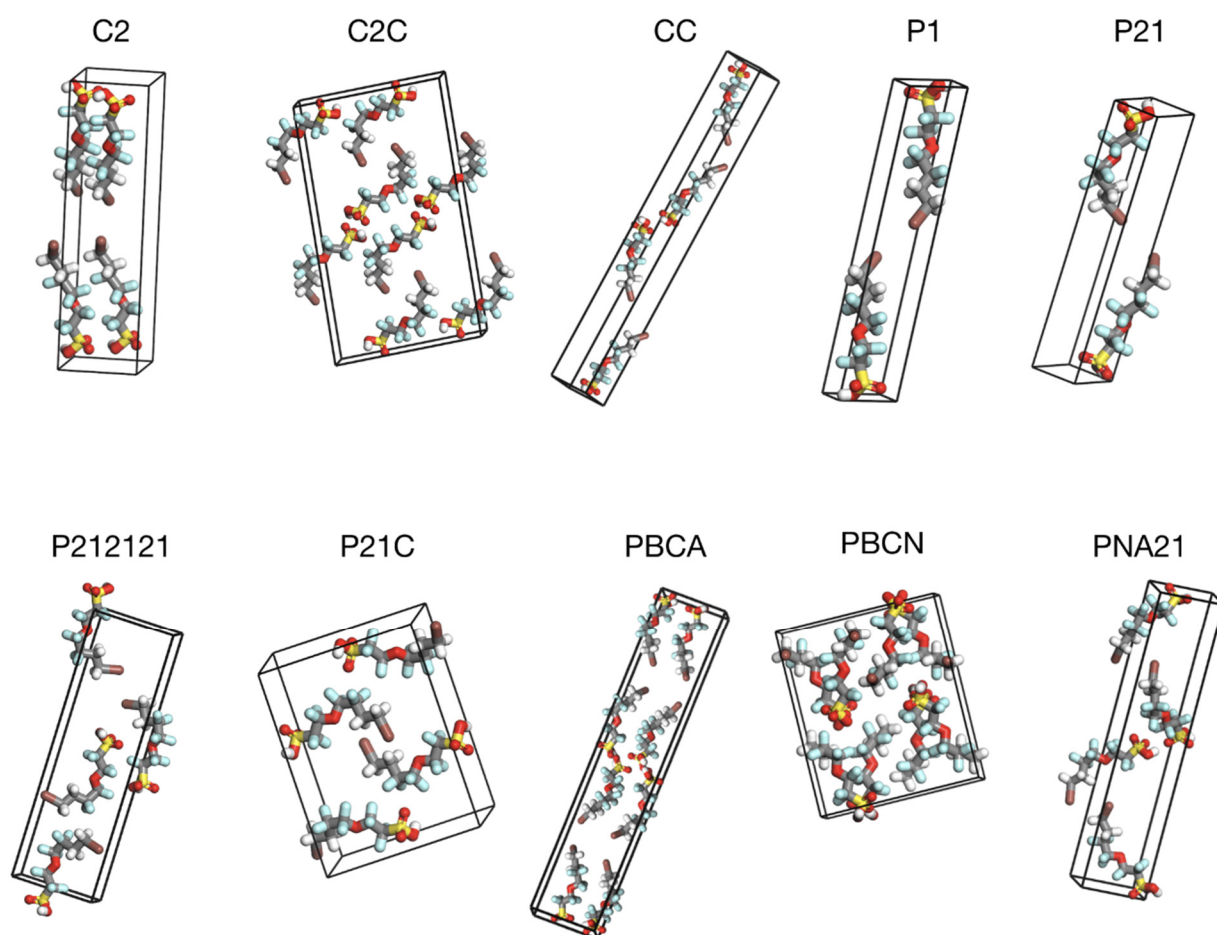


Figure S1: Possible symmetries of unit cell of $\text{ICH}_2\text{CH}_2\text{CF}_2\text{CF}_2\text{OCF}_2\text{CF}_2\text{SO}_3\text{H}$ used in simulation.

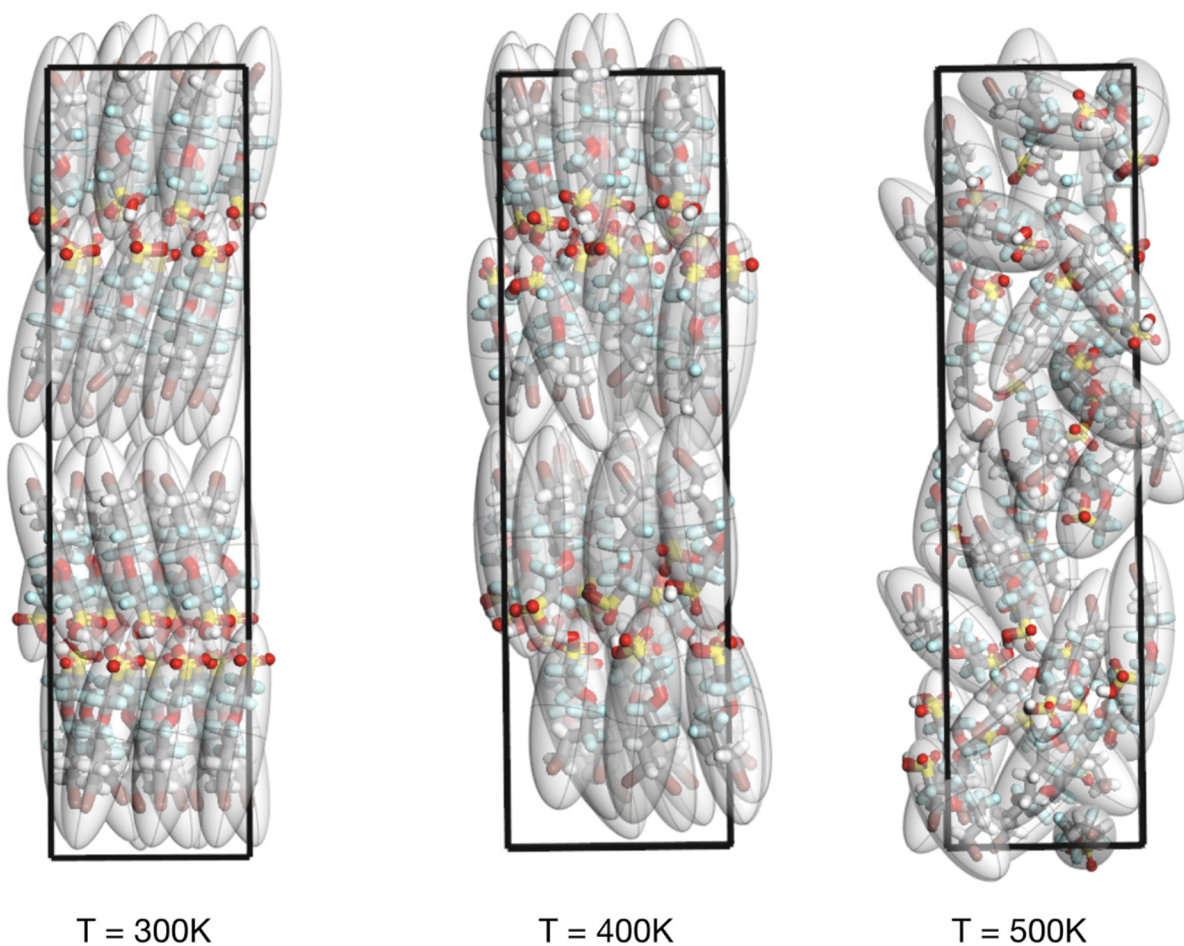
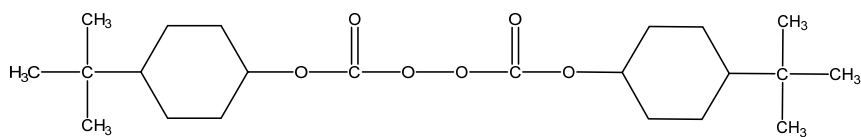


Figure S2: Model of P1 unit cell of $\text{ICH}_2\text{CH}_2\text{CF}_2\text{CF}_2\text{OCF}_2\text{CF}_2\text{SO}_3\text{H}$ at different temperatures.

Table S1: Experimental and theoretical peak positions for ICH₂CH₂CF₂CF₂OCF₂CF₂SO₃H at room temperature.

h	k	l	d_{exp}	d_{calc}
1	0	0	27.54	27.50
2	0	0	13.78	13.80
3	0	0	9.17	9.18
0	1	0	5.21	5.16
1	1	0	5.04	5.08
0	0	1	4.96	4.97
1	0	1	4.87	4.89
2	0	-1	4.75	4.67
6	0	0	4.57	4.59
3	0	1	4.39	4.37
4	-1	0	4.14	4.13
4	0	1	3.99	4.03
2	1	1	3.72	3.74
5	0	1	3.65	3.69
8	0	0	3.47	3.44
2	1	-1	3.21	3.24
4	1	1	3.39	3.38
1	-1	1	3.31	3.34
2	-1	1	3.21	3.24
3	-1	1	3.12	3.14
7	0	1	3.05	3.08
6	1	1	2.93	2.97
6	1	-1	2.67	2.70
1	2	0	2.56	2.57
2	2	0	2.51	2.54
1	1	2	2.36	2.38
4	0	2	2.32	2.34
5	0	2	2.27	2.26
6	0	2	2.18	2.18
8	2	0	2.06	2.07
8	0	2	2.02	2.01
3	2	2	1.90	1.90
4	2	2	1.86	1.86
5	2	2	1.82	1.83
6	2	2	1.78	1.79
0	3	0	1.72	1.72
0	2	-2	1.68	1.67
3	2	-2	1.64	1.64

Figure S3: structure of di(*tert*-butylcyclohexylperoxy dicarbonate



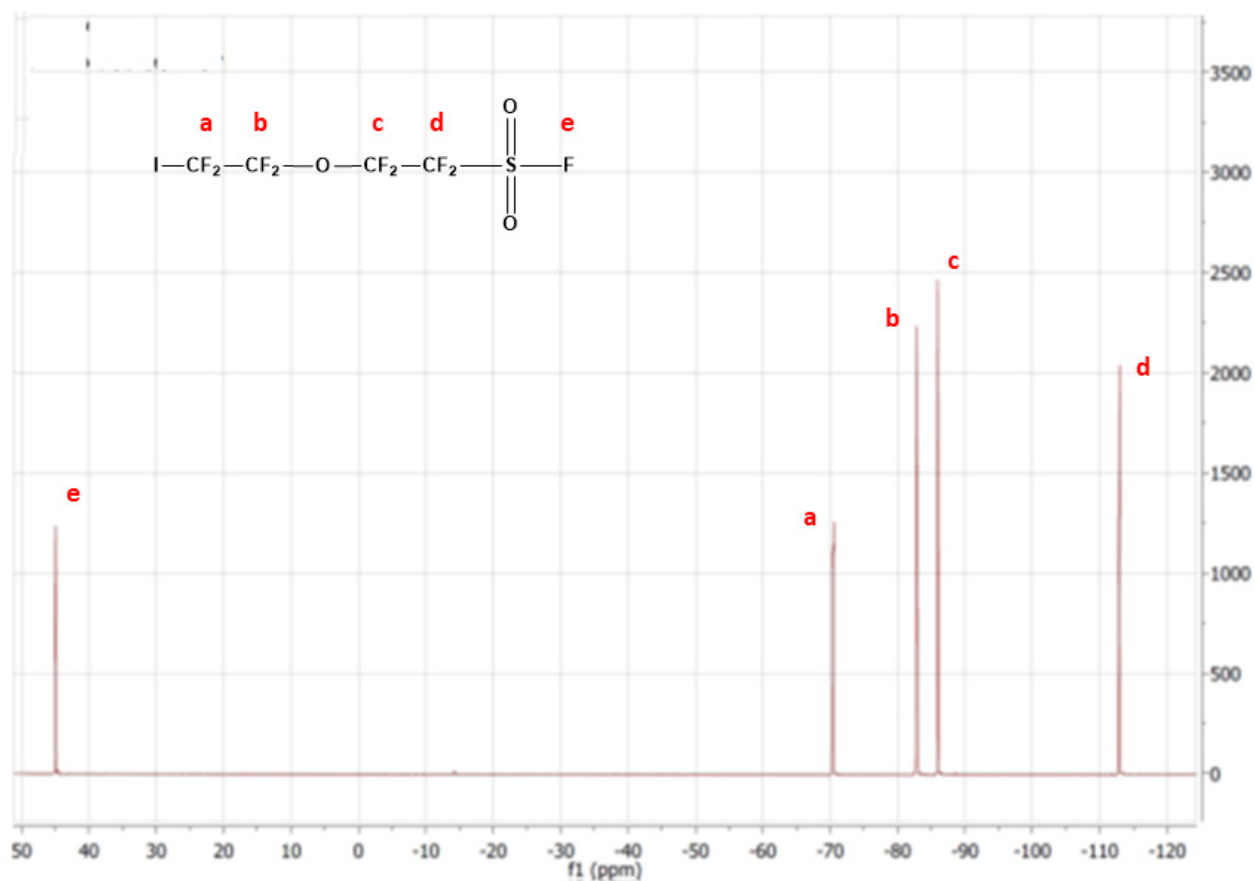


Figure S4: ^{19}F -NMR spectrum of $\text{ICF}_2\text{CF}_2\text{OCF}_2\text{CF}_2\text{SO}_2\text{F}$ recorded in d_6 -acetone.

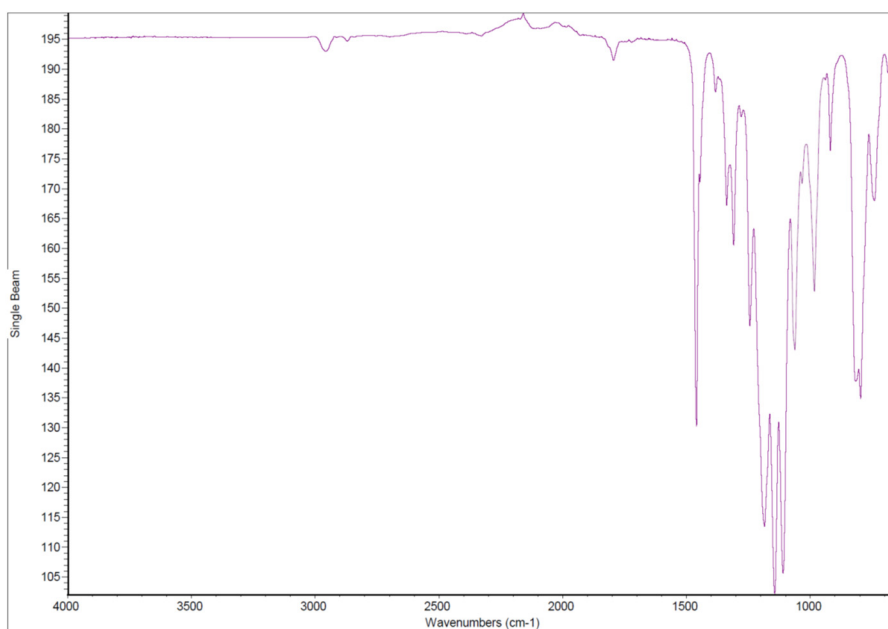


Figure S5: FT-IR spectrum of $\text{ICH}_2\text{CH}_2\text{CF}_2\text{CF}_2\text{OCF}_2\text{CF}_2\text{SO}_2\text{F}$

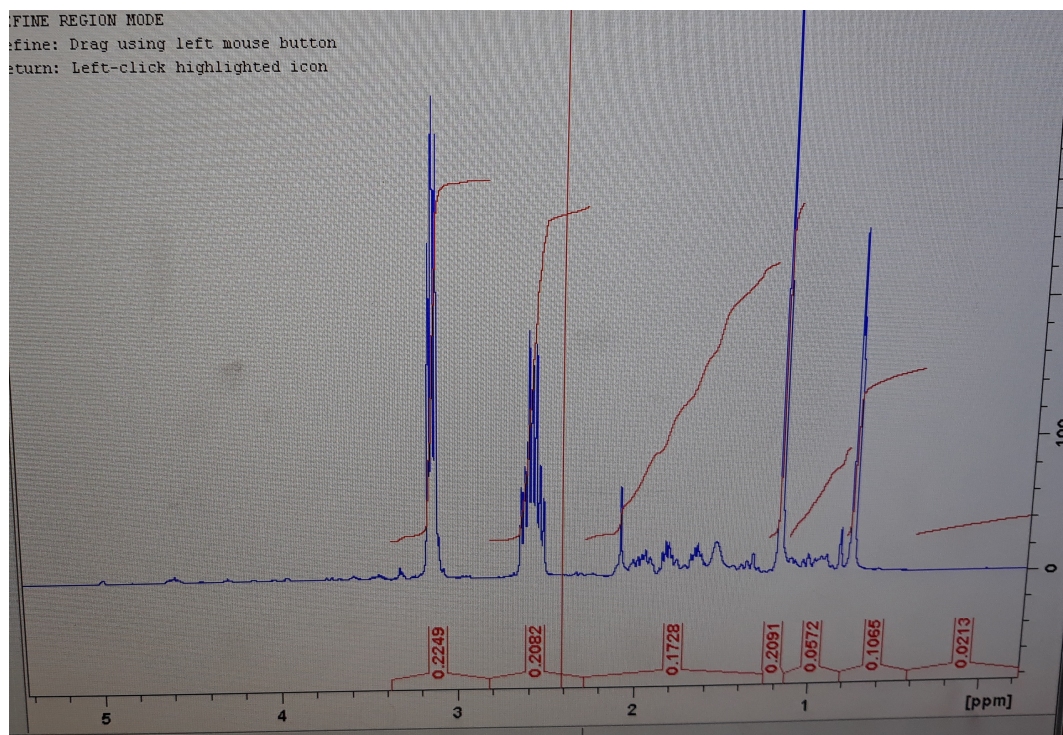


Figure S6: ^1H -NMR spectrum of $\text{ICH}_2\text{CH}_2\text{CF}_2\text{CF}_2\text{OCF}_2\text{CF}_2\text{SO}_2\text{F}$ recorded in d_6 -acetone.

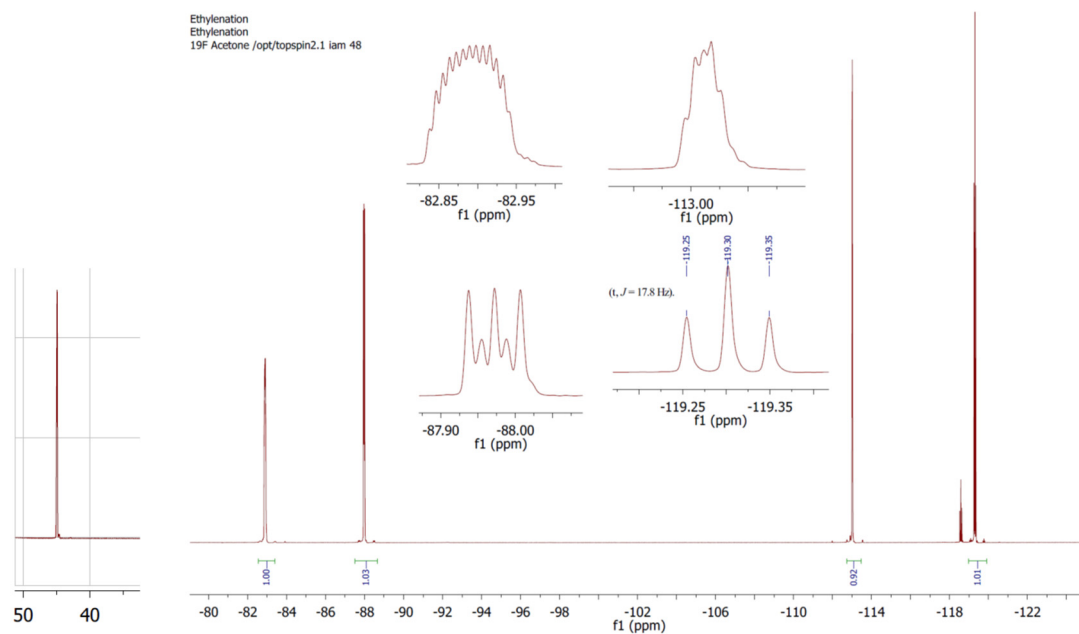


Figure S7 ^{19}F NMR spectrum of $\text{I-CH}_2\text{CH}_2\text{-C}_2\text{F}_4\text{-O-C}_2\text{F}_4\text{-SO}_2\text{F}$ in d_6 -acetone

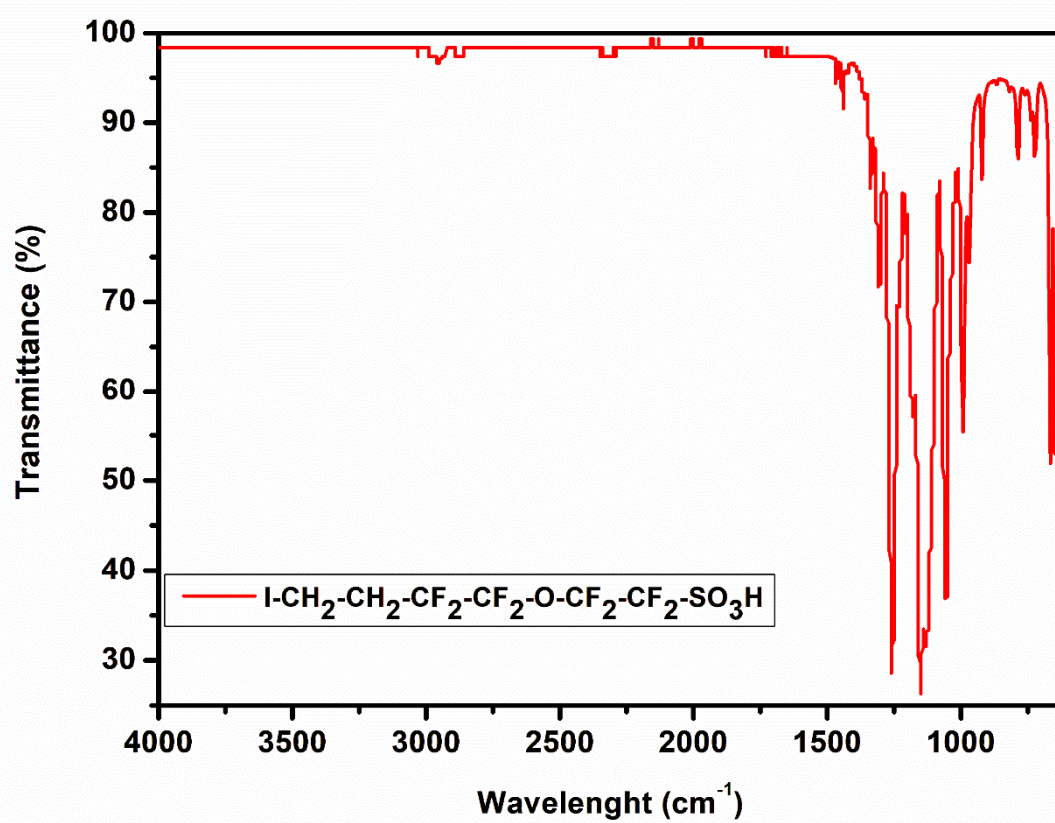


Figure S8: FT-IR spectrum of ICH₂CH₂CF₂CF₂OCF₂CF₂SO₃H.

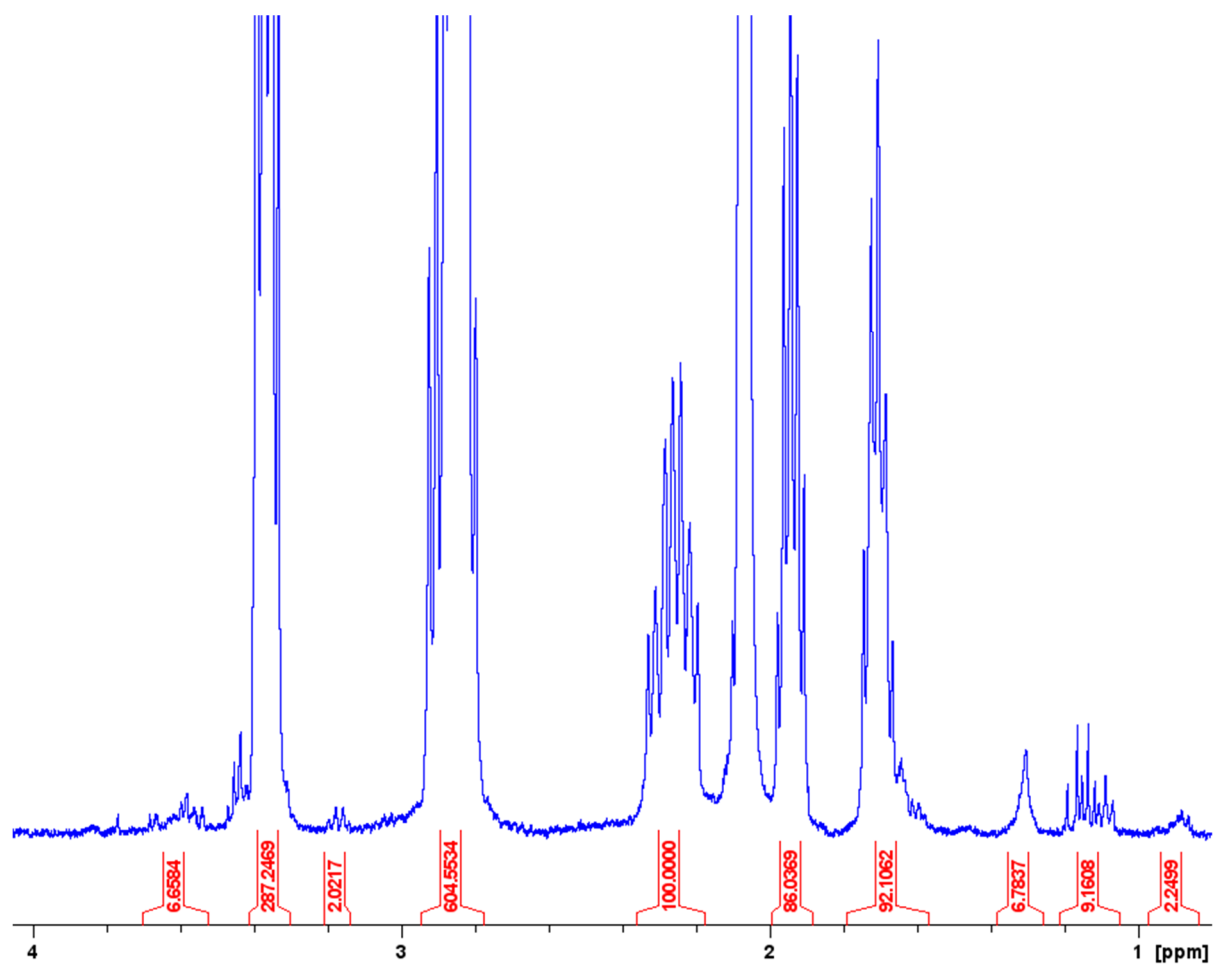


Figure S9: ¹H-NMR spectrum of ICH₂CH₂CF₂CF₂OCF₂CF₂SO₃H recorded in d₆-acetone.

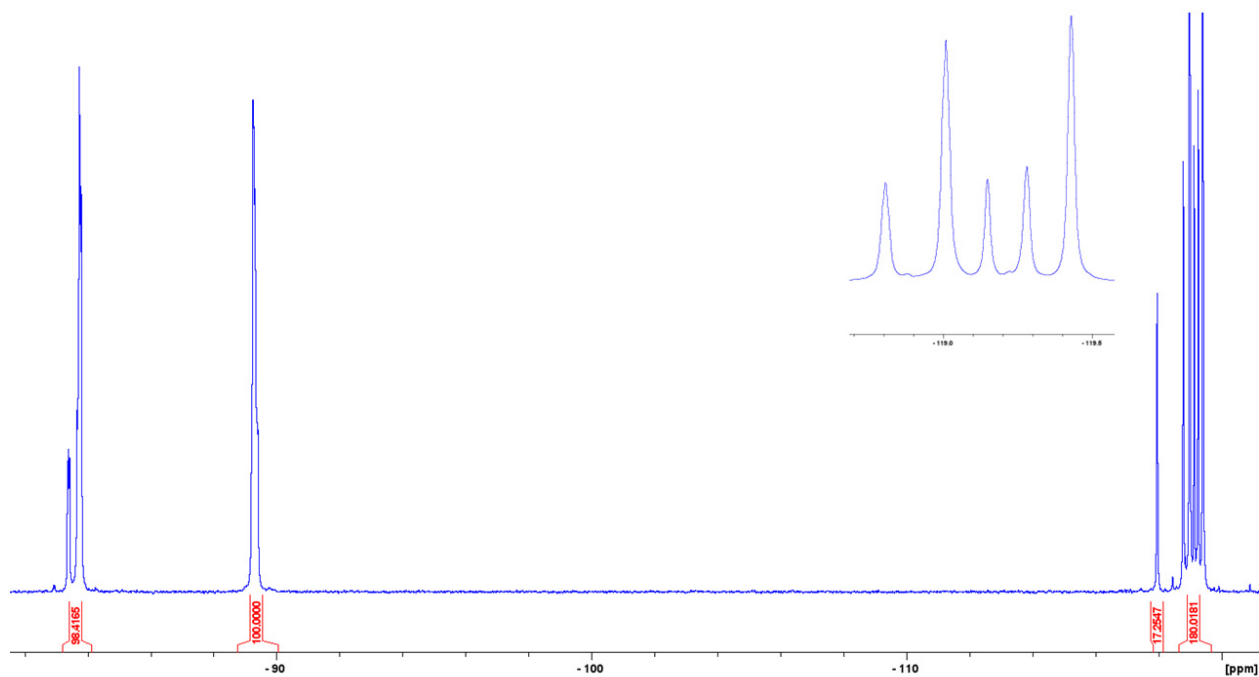


Figure S10: ¹⁹F-NMR spectrum of ICH₂CH₂CF₂CF₂OCF₂CF₂SO₃H recorded in d₆-acetone.