

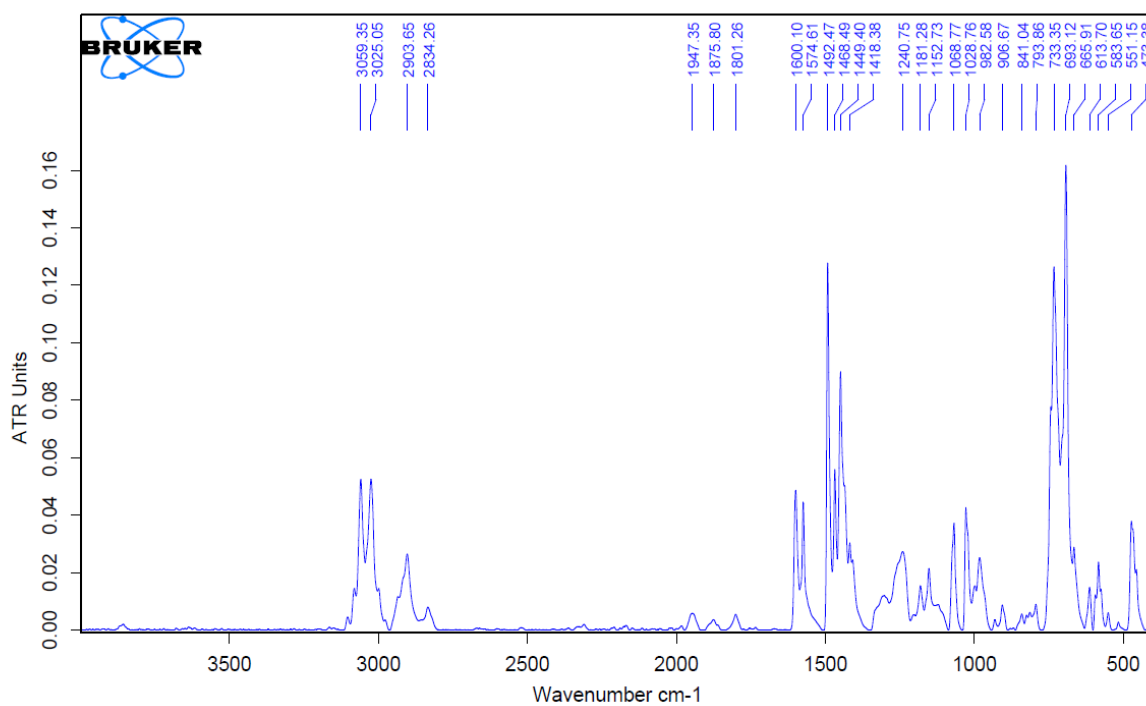
# Supplementary Material

## Reactivity of a sterical flexible pentabenzylcyclopentadienyl samarocene

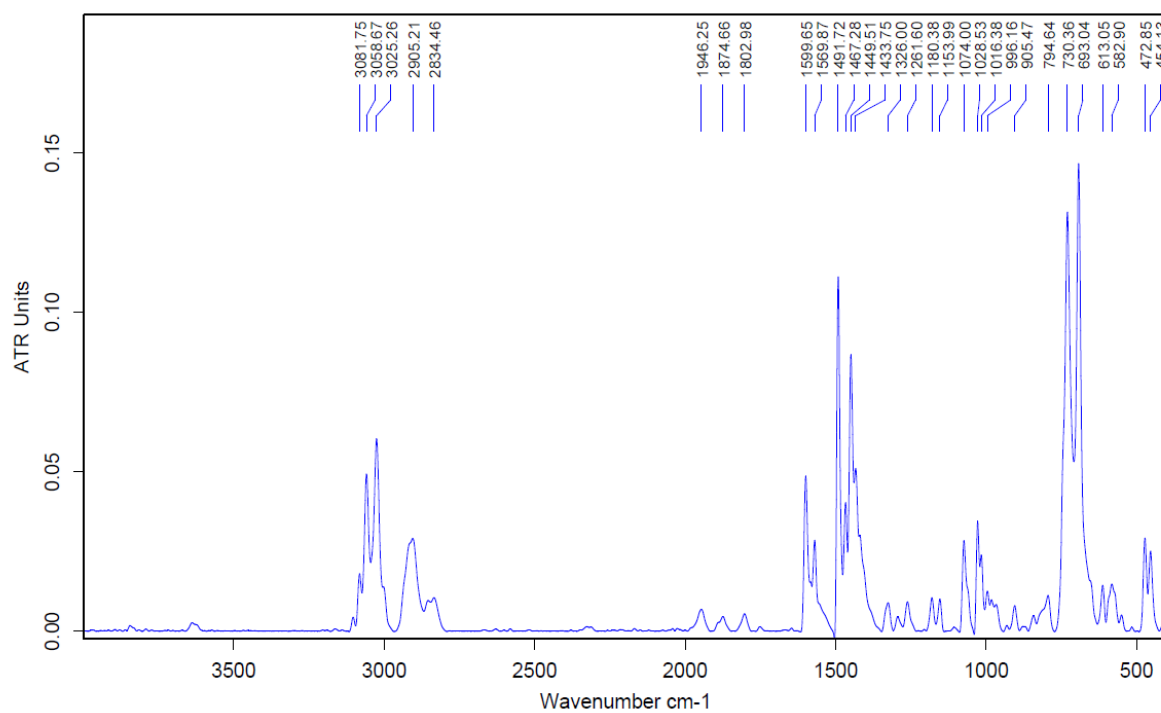
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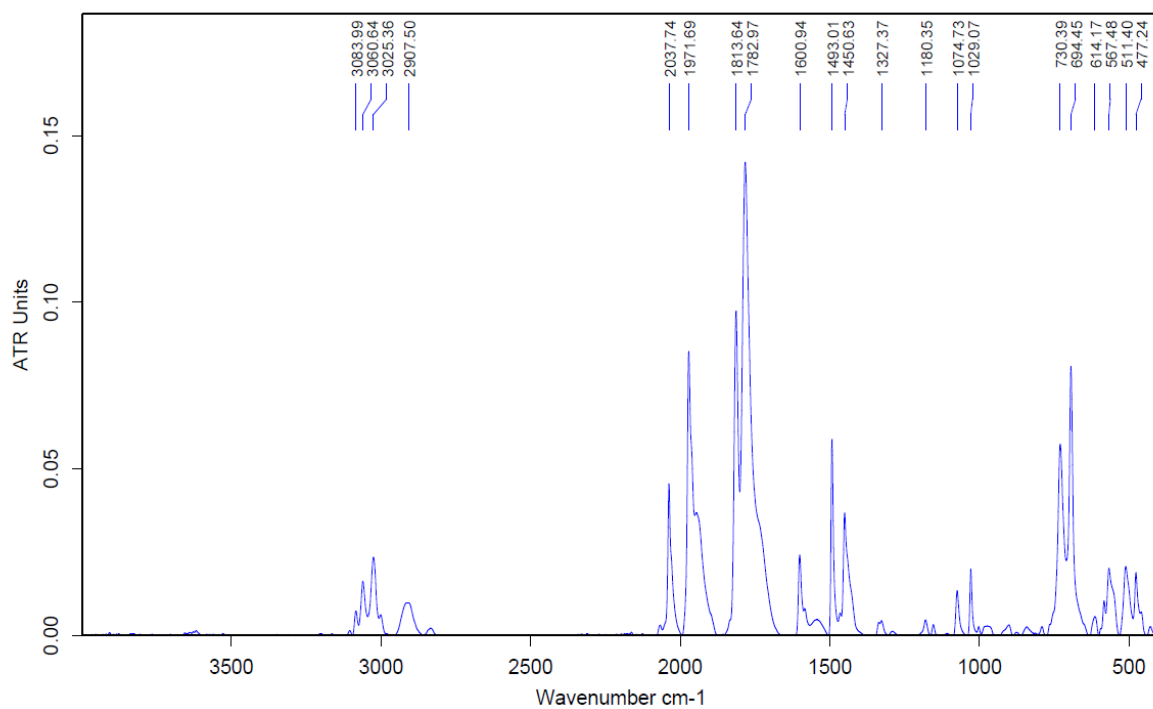
## IR Spectra:



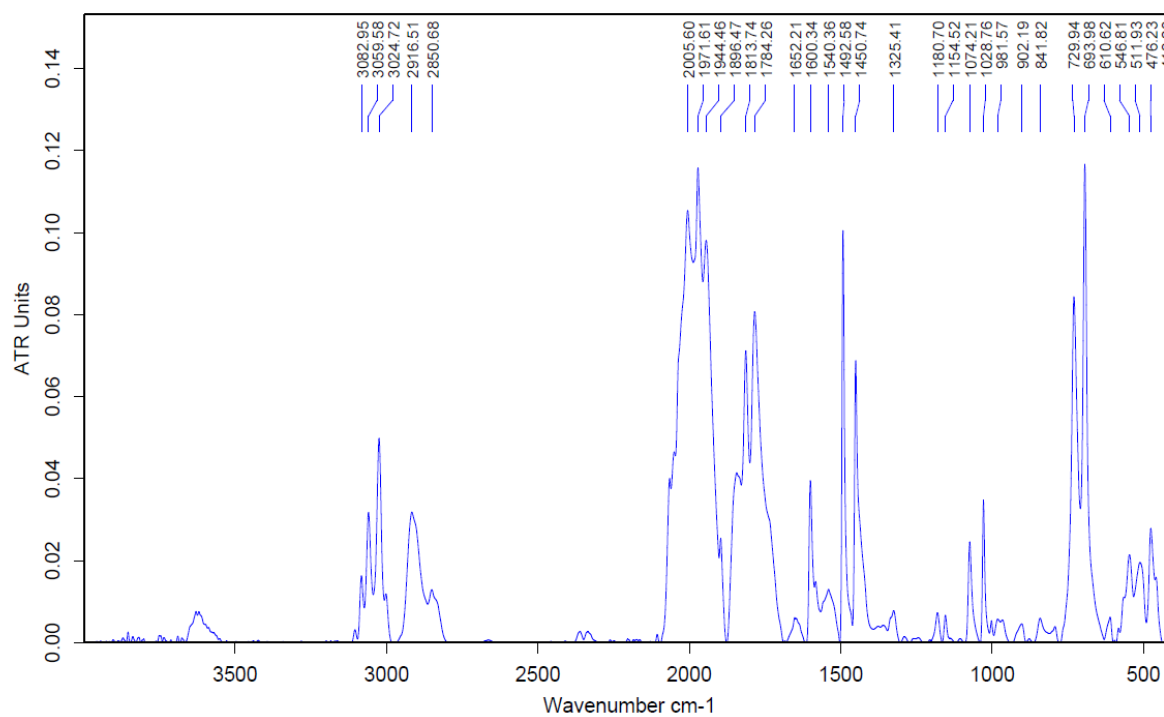
**Figure S1:** IR-Spectrum (ATR) of **1**.



**Figure S2:** IR-Spectrum (ATR) of **2**.



**Figure S3:** IR-Spectrum (ATR) of **3**.



**Figure S4:** IR-Spectrum (ATR) of **4**.

**Table S1:** Crystal data and structure refinement of **1**, **2**, **3**, and **4**.

Compound	<b>1</b> *0.25 pentane	<b>2</b>	<b>3</b> *4 toluene	<b>4</b> *7 toluene
<b>Formula</b>	C <sub>87.25</sub> H <sub>78</sub> SeSm	C <sub>86</sub> H <sub>75</sub> SmTe	C <sub>196</sub> H <sub>172</sub> Co <sub>2</sub> O <sub>8</sub> Sm <sub>2</sub>	C <sub>219</sub> H <sub>196</sub> Mn <sub>2</sub> O <sub>10</sub> Sm <sub>2</sub>
<i>D</i> <sub>calc.</sub> / g cm <sup>-3</sup>	1.246	1.396	1.342	1.239
<i>μ</i> /mm <sup>-1</sup>	1.359	1.371	1.037	0.830
<b>Formula Weight</b>	1355.80	1386.41	3073.89	3398.33
<b>Colour</b>	clear orange	clear orange	clear red	clear orange
<b>Shape</b>	plate	needle	prism	needle
<b>Size/mm<sup>3</sup></b>	0.36×0.23×0.07	0.50×0.24×0.07	0.41×0.30×0.18	0.49×0.23×0.08
<i>T</i> /K	150	100	100	150
<b>Crystal System</b>	orthorhombic	monoclinic	triclinic	triclinic
<b>Flack Parameter</b>	-0.020(7)			
<b>Hoof Parameter</b>	0.018(3)			
<b>Space Group</b>	<i>Pca</i> 2 <sub>1</sub>	<i>P</i> 2 <sub>1</sub> / <i>c</i>	<i>P</i> -1	<i>P</i> -1
<i>a</i> /Å	20.4512(4)	20.8310(3)	12.5022(7)	12.5132(6)
<i>b</i> /Å	17.0986(3)	30.9713(6)	18.3328(11)	17.0144(9)
<i>c</i> /Å	20.6678(4)	20.4461(3)	18.722(2)	21.8686(11)
<i>α</i> /°			112.860(5)	81.560(4)
<i>β</i> /°		91.1730(10)	101.403(5)	86.486(4)
<i>γ</i> /°			95.613(5)	81.851(4)
<i>V</i> /Å <sup>3</sup>	7227.3(2)	13188.3(4)	3803.0(5)	4555.1(4)
<i>Z</i>	4	8	1	1
<i>Z</i> '	1	2	0.5	0.5
<b>Wavelength h/Å</b>	0.71073	0.71073	0.71073	0.71073
<b>Radiation type</b>	MoK <sub>α</sub>	MoK <sub>α</sub>	MoK <sub>α</sub>	MoK <sub>α</sub>
<i>θ</i> <sub>min</sub> /°	1.552	2.274	2.208	1.643
<i>θ</i> <sub>max</sub> /°	29.249	36.893	30.942	29.676
<b>Measured Refl's.</b>	46978	125386	35413	47375
<b>Indep't Refl's</b>	19486	61980	18824	25229
<b>Refl's I≥2 σ(I)</b>	12039	40313	16816	13415
<i>R</i> <sub>int</sub>	0.0562	0.0477	0.0299	0.1067
<b>Parameters</b>	840	1585	988	1085
<b>Restraints</b>	32	0	122	123
<b>Largest Peak</b>	0.619	1.167	1.780	1.541
<b>Deepest Hole</b>	-0.669	-2.163	-1.128	-2.975
<b>Goof</b>	1.044	1.053	1.046	1.024
<b>wR<sub>2</sub> (all data)</b>	0.1368	0.1265	0.1087	0.2913
<b>wR<sub>2</sub></b>	0.1147	0.1079	0.1019	0.2308
<b>R<sub>1</sub> (all data)</b>	0.1086	0.0955	0.0452	0.1745
<b>R<sub>1</sub></b>	0.0515	0.0495	0.0389	0.0928