2. Appendix 1: Synthetizing the $C_{60}(ferrocene)_2$ crystal.

The experimental protocol is the following (inspired from a synthese by Walton [TWK99]:

1) Make saturated solutions of ferrocene ($M = 186g/mol$) and C_{60} ($M = 720g/mol$) powders in benzene (or toluene, a benzene-like less toxic solvent)

We have found the following data for ferrocene and C_{60} in benzene:

	measured solubility	time to let the powder solubilize	aspect of the solution in benzene
ferrocene	152 g/L	1 day	deep yellow-orange
C_{60}	3.4 g/L	2-3 days	very deep blue

(In benzene, the ferrocene is much more soluble than the C_{60},because of the resemblance of the benzenic ring with the pentagonic rings of ferrocene)

2) Mix those two solutions in a becher, with a large excess of ferrocene (we used the volume proportion: $\frac{\text{volume of saturated ferrocene solution}}{\text{volume of saturated } C_{60} \text{ solution}} = \frac{1}{2}$.).The ferrocene and C_{60} are in relative molar proportions of about 90/1 !

We obtain a deep red solution.

3) We cover the becher with a chemical resistant film pierced with little holes, let it evaporate slowly in the hotte (7-8 days) until the volume of the solution decrease to one third of the initial value (volume when the remaining ferrocene, in very large excess, is supposed to precipite.) In the found of the becher is the desired crystal, in the form of *little (1mm) black plates.*

4) We pass the solution through a filter. In the filter remain the little black plates of the desired crystal.

They may come accompagnated with a little crystallized ferrocene, that we can eliminate washing it with benzene, being much more soluble in benzene than the C_{60}(ferrocene)$_2$ crystal. (Later, the ferrocene can be recuperated in its crystalline form, letting the benzene evaporate more.)

We let dry the filter a few minutes and that's it !.

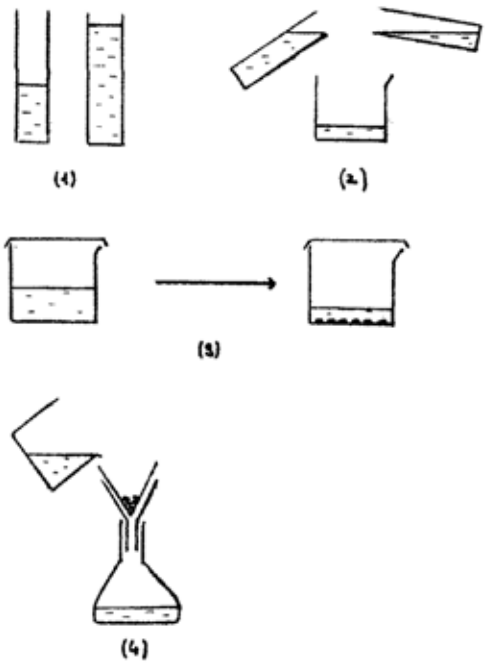

Illustration of the recipe of $C_{60}(ferrocene)_2$

Using $0.75g$ of C_{60}, we obtained $0.59g$ of $C_{60}(ferrocene)_2$, enough for our NMR experiments.Thus the efficiency of the processing, relatively to the expensive product (C_{60}), was of a bit more than 50% (52%).