On solvent impurity in commercial fullirites

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It is known that a solvent present in the solid commercial samples of C60 affects many of their physical and chemical properties (structural parameters, conductivity) and as a consequence on the course of solid-state reactions. Recently information emerged about the effect of solvent impurities on the process of fine synthesis in liquid phase. This forced us to return to the problem of the solvent content of fullerenes. Not all manufacturers of fullerenes indicate solvent content in the samples sold due to various reasons, namely, they are not able to identify small impurities, hide their know-how. However, the solvent content in poorly dried samples can be as high as a few percent for the C60 up to 15% in the C70.On the other hand, the issue can be raised in a practical way: whether to hold a vacuum drying of samples or is it extra cost.

A series of samples of C60 and C70 with different solvent contents were investigated by the TG-IR analysis of gaseous products, HPLC, XRD, and ^{1}H (^{13}C) NMR, IR, UV, MALDI spectroscopic methods. Nevertheless, the problem of determining the interaction of the impurities of the solvent with fullerite remained open. To investigate the behavior of these solvents in chemical reactions and in particular their interaction with fullerene improved techniques for analyzing organic contaminants in fullerites C60, C70 are required.