

# Instructions for the Use of Poly(dimethylsiloxane) Gels.

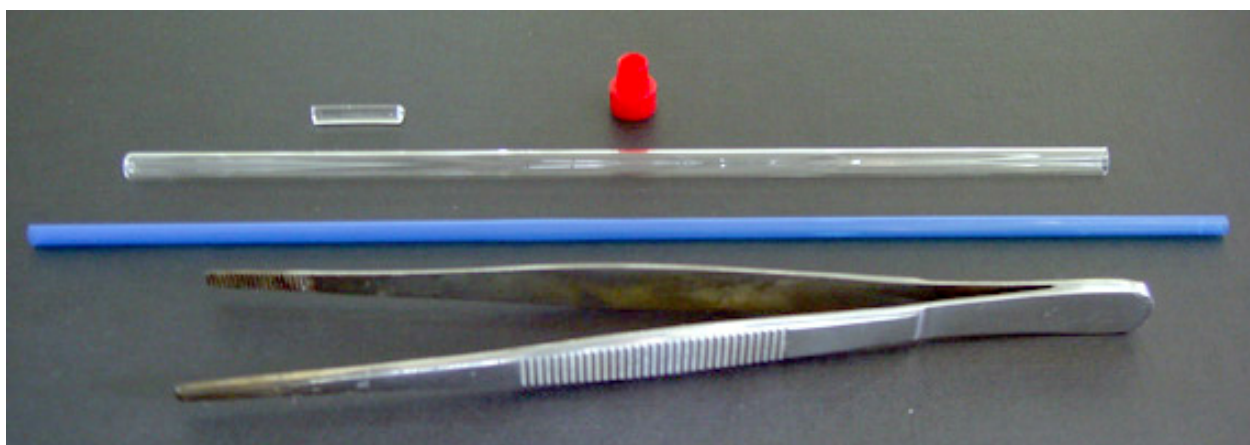
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## General Remarks.

- PDMS gels are produced by irradiation with accelerated electrons. Traces of radicals might still be present. If your molecule of interest is instable with respect to organic radicals it might be useful to add traces of radical scavenger to the solvent prior to adding the valuable sample.
- Stretched PDMS gels typically survive several months. However, over longer time the alignment properties can be lost.
- Some solutes do not diffuse into PDMS gels. There are two possible reasons for this: a) The gel is too strongly cross-linked. In this case chose a PDMS stick with lower irradiation dose. b) The solute is soluble in the organic solvent used, but not at all soluble in PDMS (water for example does not diffuse into a PDMS gel). In this case a different polymer has to be used for alignment that suites the solubility properties of the solute.
- If you have used a PDMS gel for a publication, please cite the following references:  
[B. Luy, K. Kobzar, H. Kessler, \*Angew. Chem.\* \*\*116\*\*, 1112-1115 \(2004\); \*Angew. Chem. Int. Ed.\* \*\*43\*\*, 1092-1094 \(2004\)](#)  
[J. C. Freudenberger, P. Spitteller, R. Bauer, H. Kessler, B. Luy, \*J. Am. Chem. Soc.\* \*\*126\*\*, 14690 – 14691 \(2004\).](#)

## Preparation.

PDMS strongly sticks to all kinds of glass. The insertion of polymer sticks into the NMR-tubes therefore needs special treatment. An easy way is to cool down PDMS and the glass tube using either dry ice or liquid nitrogen. Cold PDMS can be pushed gently into the cold NMR tube with a suitable stick (plastic or glass, peace of wire, straw, whatsoever). If PDMS still sticks to the glass DO NOT PUSH VIOLENTLY, the gel might get destroyed. Instead take the NMR-tube with PDMS half way inside and let it sit on dry ice or liquid nitrogen for another few minutes until it moves easily to the bottom of the tube.



*What you need to prepare a stretched PDMS gel: the PDMS stick, a NMR tube cap, a NMR tube, a straw or stick for pushing the PDMS, tweezers for holding the cold PDMS stick.*

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*To easily put the polymer stick inside the NMR tube, cool both the stick and the tube with liquid nitrogen or dry ice, then PDMS will not stick to the glass*



*Then simply push the polymer stick with a suitable long straw gently to the very bottom of the NMR tube.*

*Now, you can add your desired solvent and let the polymer stick swell.*

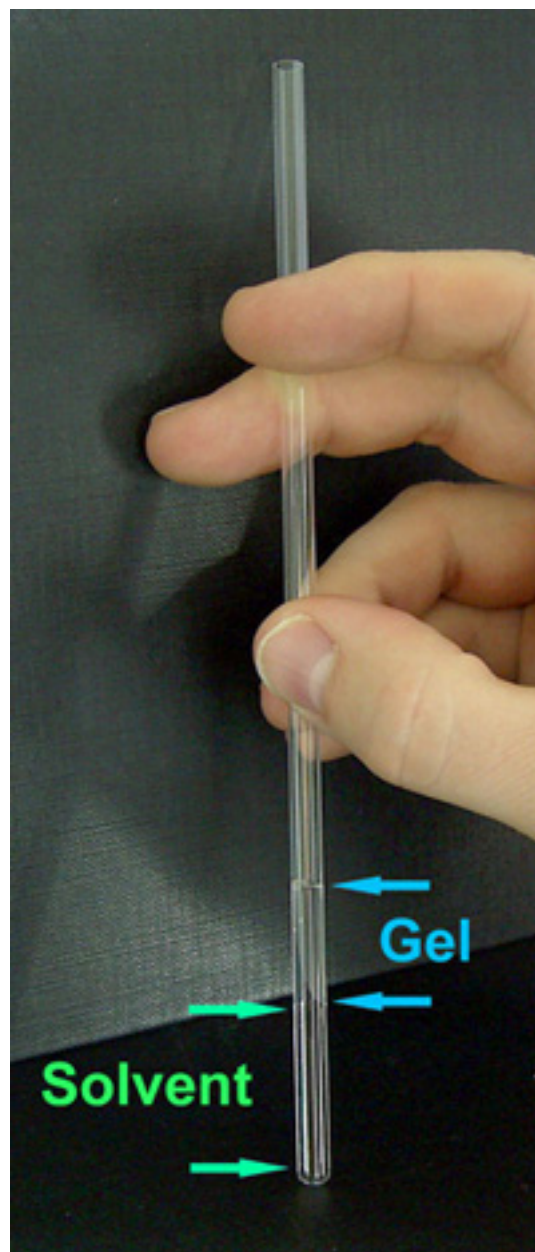
**Warning!**

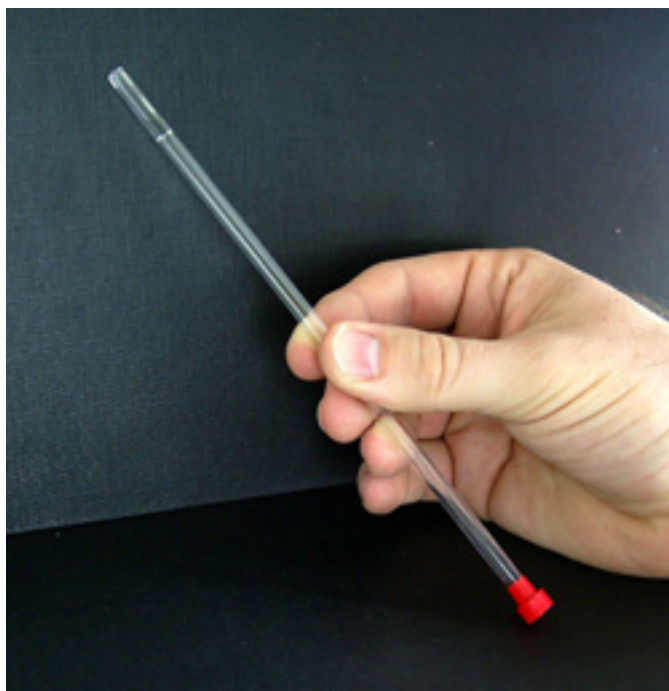
*Take care, that after adding the solvent your gel does not swim on top!*

**Correct**



**Wrong!**





*If this nevertheless happened, act fast and simply turn the NMR-tube upside-down (make sure that the tube is sealed!)...*



*...and then slowly put it into horizontal position, taking care, that the gel remains in the bottom part of the tube*



*After several minutes (to be sure wait for about one hour), when the gel is swollen enough and has reached the walls of the tube, you can put it into an upright position and let it stay so for several days for equilibration.*

*The time it needs to equilibrate depends strongly on the viscosity of the solvent and spreads from one day to few weeks.*