

Important Notice: Chlorinated solvents, particularly chloroform and dichloromethane (methylene chloride) and to a lesser extent, acetone, can permeate and expand NMR tube caps made from polyethylene (LDPE) causing a loss of retention of the cap to the NMR tube after an exposure time of a few hours.

This is an inherent characteristic of polyolefin polymers in general, including the other forms of polyethylene (HDPE, LLDPE and UHMW PE) as well as the various grades of polypropylene. This is a reversible physical phenomenon that causes no permanent chemical changes or damage to the cap, but in some cases could result in loss of the sample, especially if an automated sample changer that utilizes the cap for sample transfer is used.

NorLoc™ NMR tube caps, made from LDPE polyethylene, exhibit this phenomenon as well. However, even though the **NorLoc™** cap has become loosened, the loss of chloroform solvent from the sample usually remains relatively low, even after a week of undisturbed storage time.

When using **NorLoc™** caps on NMR samples containing these solvents, especially chloroform, analysis in the NMR spectrometer should be completed immediately, if possible, but within one hour, to retain a good margin of safety before significant permeation and cap loosening can occur.

Otherwise, if immediate analysis is not possible, we recommend replacing the **NorLoc™** caps on samples containing the above solvents with new ones immediately prior to analysis in the NMR spectrometer, if 2 or more hours have elapsed following sample preparation.

As an alternative, we suggest using NORELL Sample Vault™ caps that are specially designed and formulated for completely error-free automated analyses with SampleJet or other automated sample changers regardless of the NMR solvent contained within the sample.

Lastly, NMR tube caps made from PTFE fluoropolymer offer superior solvent and chemical resistance through a wide range of very low to high temperatures, forming the ultimate barrier against aggressive or reactive materials. Because of their extreme durability, these caps can be cleaned and reused numerous times.