



# Sample Reaction System

for 5mm probes

*Quality and value you can rely on!®*

**A two-chamber 5mm glass system for mixing and monitoring a reaction by NMR.**

Easy to use-no special equipment is needed. The Inner Chamber, with Teflon Tip, makes a positive seal before mixing.

**Basic Operation:**

With the central tube (Inner Chamber) pressed against the bottom of the outer tube (the set screw will help maintain the seal), load one component into the chamber. Approximate volume at 50mm height 125ul.

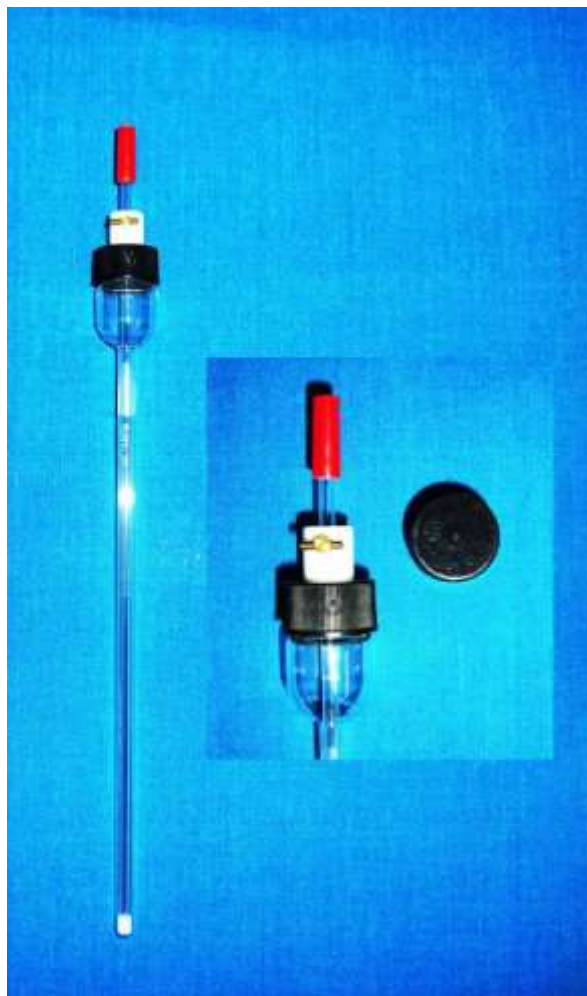
The Outer Chamber can be loaded, with a syringe, through a side port at the top of the device. Approximate volume at 50mm height 340ul

Take initial spectra of the isolated materials.

Eject the system, loosen the set screw and gently raise the inner tube to a position above the receiver coil. This will begin the mixing of the components.

Lower the device and begin collecting data on the progress of the reaction.

Support data illustrating the Fischer Esterification Reaction is available upon request.



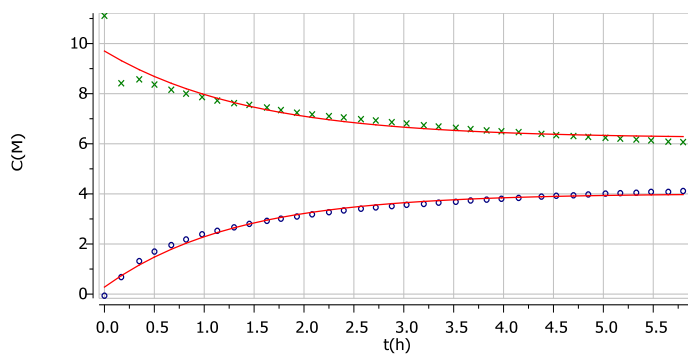
Catalog No.	Description	Price each
NE-377-5	Complete System as shown	\$287.82
NE-377-A	Inner Chamber, 3mm tube only	8.74
NE-377-TP	Teflon Sealing Tip	51.01
NE-377-SC	Solid Cap, 15mm	2.91
NE-377-AB	Adapter Body w/Set Screw, Sealing cap	174.88
NE-377-ORT	Outer Reaction Tube, 5mm tube w/screw thread	50.28

# Fischer Esterification Reaction

This reaction was followed by NMR using the New Era Sample Reaction System , NE-377-5, in a 5mm probe. The following methodology is related in a casual manner by the researcher.

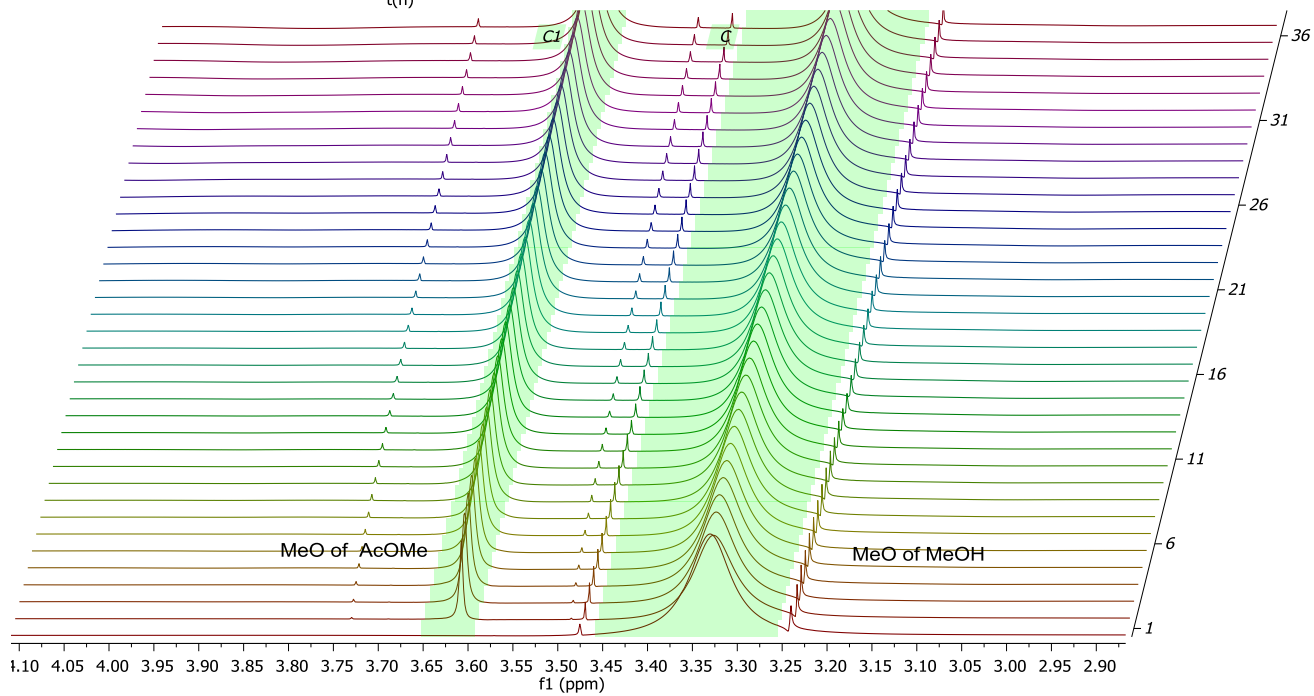
## Detailed Methodology

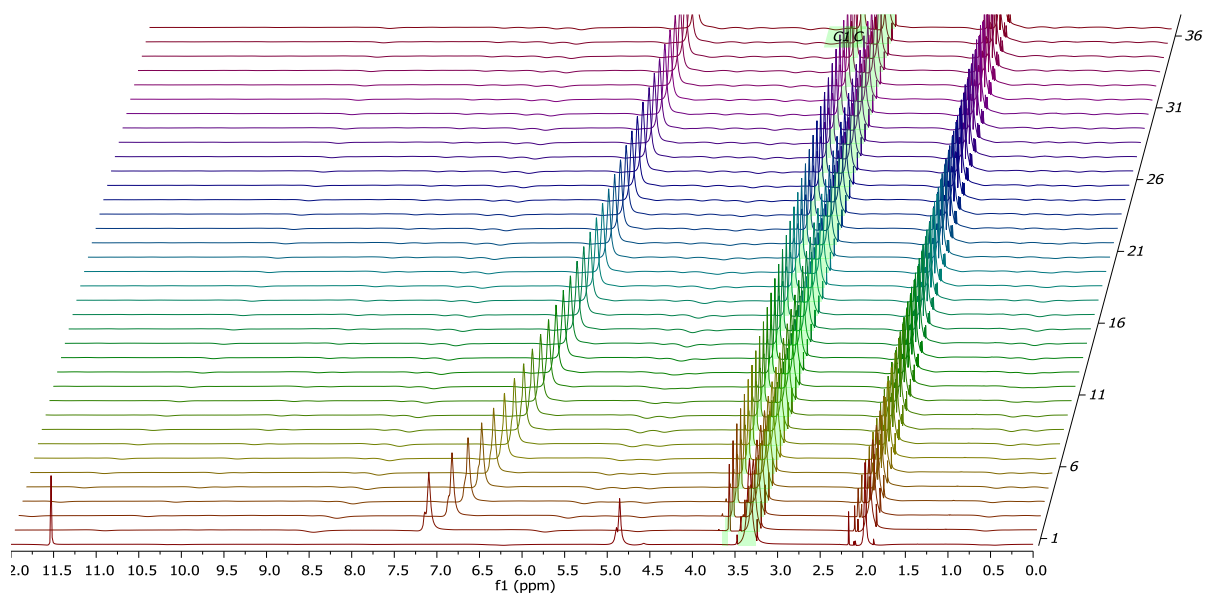
- 1.8mL MeOH + 0.2mL CD3OD. The CD3OD is to lock in methanol so easy for the shimming and aligning of the signals over time.
- 2mL AcOH + 10uL H2SO4.
- I took 300 uL of the MeOH+CD3OD and added with a syringe in the outer chamber which is wider and help shimming because there is more volume there and that's why I need some CD3OD.
- I took 300 uL of the AcOH+H2SO4 and added in the inner chamber with a syringe with long needle to make sure the liquid reach the bottom of the tube (if the liquid is viscose it is not easy to put all the liquid down but a syringe with very long needle helps because my long needles reach the bottom of the tube-I avoid to shake the tube specially before mixing for precaution).
- I tune and shim and take spectrum.
- I take the tube out and lift the inner tube enough to mix the liquids from both chambers but now I don't remove the inner tube, just lift it enough for the mixing.
- I put the sample inside the magnet and I shim again to make sure no signal degradation and take spectra over time. Sometimes I may do autoshimming to make sure no degradation of shimming occurs during time due to changes on pH and concentration during the reaction.
- I use Mnova software to do all the analysis of the reaction including calculating concentrations overtime.



**C' = B+F\*exp(-t\*G)**  
 B=6.224; F=3.478; G=0.6907;  
 Error: 0.08679

**C1' = B+F\*exp(-t\*G)**  
 B=4.015; F=-3.735; G=0.7729;  
 Error: 0.02697





**Full details of this reaction are available upon request.**