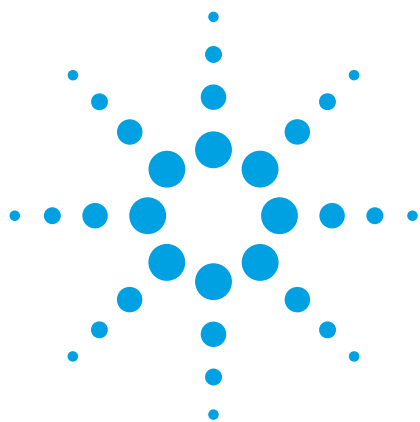




HFX(Y) MAS Probe

The probe for all solids applications in WB and NB magnets

Data Sheet

Agilent's innovative HFX(Y) Quad-Resonance Narrowbore (NB) and Widebore (WB) Probes are capable of running HX, FX, HF, HFX, and HFX(Y) experiments, without changing probes. Because of the unique T3 design, probe performance is comparable, no matter what combination is used. Pretuned, the probe allows a wide array of experiments to be performed without removing the probe from the magnet.

Replacing the tune and match capacitors with a transmission line moves bulky components outside of valuable bore space and improves efficiency. Broadband tuning is achieved by interchanging tuning tubes, each tunable over a range of frequencies. Multiple channels are achieved with multiple tubes, which are each long and narrow to fit in a narrow bore.

Agilent's HFX(Y) T3 probe replaces many special purpose probes:

- | | | |
|----------|-------|----------|
| • CRAMPS | • HX | • HXY |
| • HF | • HFX | • HFX(Y) |

Poly(vinylidene difluoride)
4 mm HFX(Y) WB 400 MHz probe, in HFCN mode
 ^{13}C observe, ^1H and ^{19}F decouple at 2.8 μs 90° pulse
18 kHz MAS
Right peak CH_2
Left peak CF_2
Center, PTFE from probe background

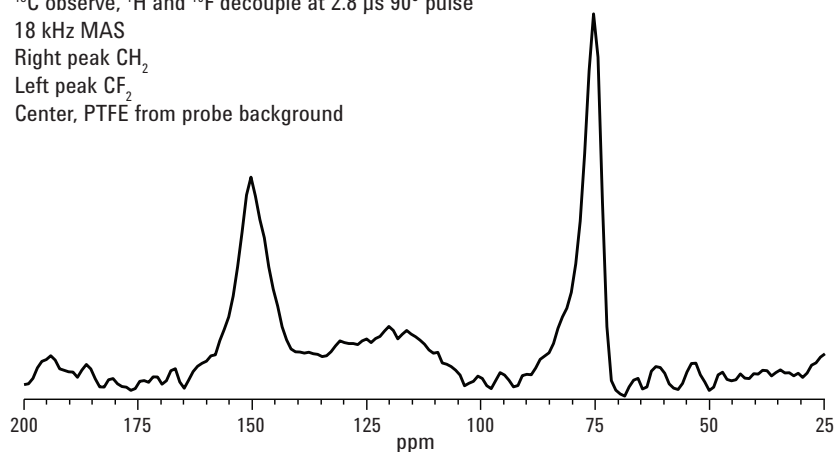


Figure 1. Use it as anHFX Probe



Agilent Technologies

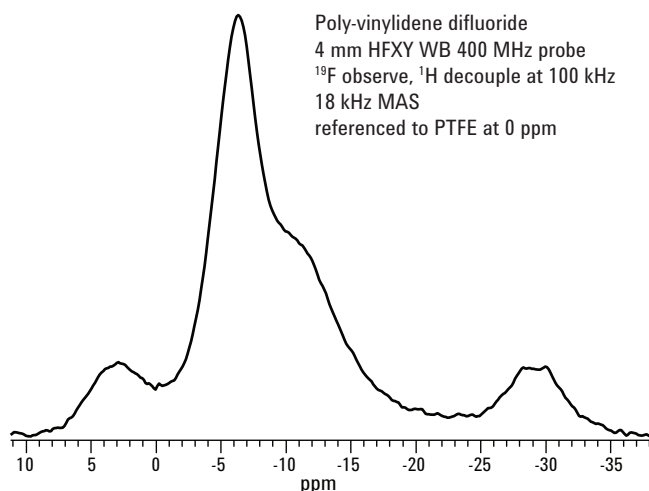


Figure 2. Use it as an HF Probe

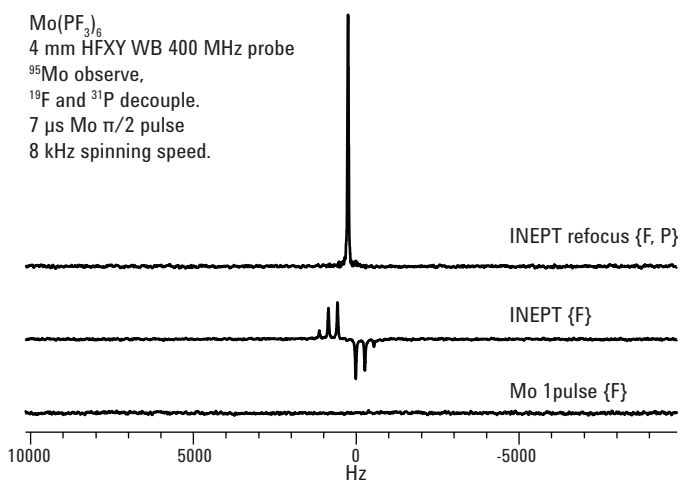


Figure 3. Use it as an FXY Probe

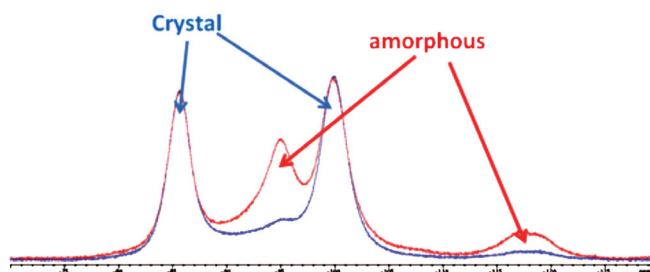


Figure 4. The same technology in a narrow bore probe (600MHz). By comparison of CPMAS and DP (direct polarization) MAS, crystal and amorphous regions in the polymer can be distinguished easily. ^{19}F -DPMAS and $^{19}\text{F}/^1\text{H}$ -CPMAS spectra of PVDF, showing the presence of crystalline and amorphous regions. Sample spinning speed was 37kHz.

Required when operating this probe:

- HFX(Y) Filter kit
- VnmrJ 3.1
(trtune – view and tune all modes simultaneously)

The easy-to-use tuning procedure of the HFX(Y) probe requires a new tuning program due to the combination of ^1H and ^{19}F channel. It is necessary to display both ^1H and ^{19}F simultaneously to adjust the “split”, or one would need to go back-and-forth several times between ^1H and ^{19}F tuning display. The new tuning software named “trtune” allows displaying of up to 5 channels simultaneously, with the center frequency of each channel located at the center of the display. VnmrJ 3.1 displays the channels in trtune similar to a spectrum analyzer or multichannel scope.

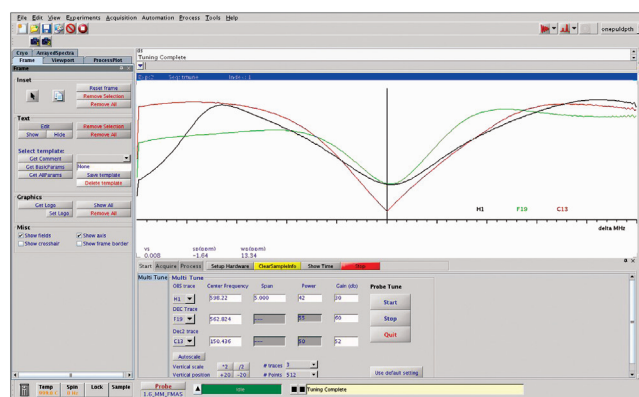


Figure 5. trtune panel in VnmrJ3.1 software. The probe is correctly tuned and matched when three dips are centered on the centerline of the screen and the dip extends as far as possible down the vertical line showing the frequency scale.

www.agilent.com

Product specifications and descriptions in this document are subject to change without notice.

© Agilent Technologies, Inc., 2012
Published in USA, May 11, 2012
Publication Number 5990-7609EN



Agilent Technologies