



ANASAZI NUCLEI SERIES

MULTINUCLEAR NMR BORON-11

¹¹B PROPERTIES

- 80.42% natural abundance
- Spin 3/2
- Chemical shift range
250 ppm

DID YOU KNOW?

Scientists were forced to rethink and develop a new paradigm of chemical bonding to explain and understand the structures of relatively simple boranes. This led to the Royal Swedish Academy awarding William H. Lipscomb the Nobel Prize in Chemistry in 1976 for his contributions.

The structural diversity of boron containing compounds is second only to carbon compounds—polyhedral boranes, boron macrocycles, metalloboranes, carboranes and boron dendrimers to name a few.

Along with structural diversity comes diversity of function—antibiotics, boron neutron capture therapy, boron clusters used in analogs of bioactive molecules, Suzuki coupling reagents, etc.

What can you do with ^{11}B NMR?

Use ^{11}B chemical shifts to determine coordination number. For example, the reaction of a 3-coordinate to 4-coordinate boron will result in a large upfield shift.

^{11}B PROPERTIES

SPIN:	$3/2$	FREQ EFT-90:	28.868 MHz
RECEPTIVITY TO ^{13}C :	754	REFERENCE STANDARD:	$\text{BF}_3:\text{O}(\text{C}_2\text{H}_5)_2$
GYROMAGNETIC RATIO:	8.584 MHzT^{-1}		

R.K. Harris et.al. *Pure Appl. Chem.*, Vol. 73, No. 11, 2001

RECOMMENDED LITERATURE

D. Reed in *Encyclopedia of Nuclear Magnetic Resonance*, John Wiley & Sons, Inc., Chichester, 1996; Vol. 1, 321-333.