doi:10.1351/goldbook.S05878

spin trapping

Also contains definitions of: spin adduct, spin counting

In certain reactions in solution a transient radical will interact with a diamagnetic reagent to form a more persistent radical. The product radical accumulates to a concentration where detection and, frequently, identification are possible by EPR/ESR spectroscopy. The key reaction is usually one of attachment; the diamagnetic reagent is said to be a 'spin trap' and the persistent product radical is then the 'spin adduct'. The procedure is referred to as spin trapping, and is used for monitoring reactions involving the intermediacy of reactive radicals at concentrations too low for direct observation. Typical spin traps are *C*-nitroso compounds and nitrones, to which reactive radicals will rapidly add to form nitryl radicals. A quantitative development, in which essentially all reactive radicals generated in a particular system are intercepted, has been referred to as 'spin counting'. Spin trapping has also been adapted to the interception of radicals generated in both gaseous and solid phases. In these cases the spin adduct is in practice transferred to a liquid solution for observation in order to facilitate interpretation of the EPR/ESR spectra of the radicals obtained.

Source:
PAC, 1994, *66*, 1077 *(Glossary of terms used in physical organic chemistry (IUPAC Recommendations 1994))* on page 1166

