

# Free Radicals in Tobacco Smoke

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Cigarette smoke has been found to contain high concentrations of free radicals. It is thought that these short lived radicals present in the gas phase may lead to carcinogenesis and mutagenesis [1]. Previous study of these radicals has shown that in the gas phase both alkoxy and carbon-centred radicals have been identified [2].

A robust ESR based analytical methodology for the concentration of free radicals in the gas phase and particulate phase of cigarette smoke has been developed. The longer lived particulate phase radicals are observed directly, whereas the gas phase radicals are spin trapped. The optimum conditions for each set of experiments has been determined.

[1]. K. Shinagawa, T. Tokimoto, K Shirane, *Biochem. Biophys. Res. Commun.*, 1988, **253**, 99 and references therein.

[2]. D.F. Church, *Anal. Chem.*, 1994, **66**, 419A, and references therein.