

The Electron Paramagnetic Resonance Spectrum of γ -Irradiated Dimethyl Malonic Acid

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The electron paramagnetic resonance of γ -Irradiated single crystals of dimethyl malonic acid $[(\text{CH}_3)_2\text{C}(\text{COOH})_2]$ has been studied for different orientations of the crystal in a magnetic field. The radicals produced by gamma irradiation have been investigated between 123 and 300 K. The spectra were found to be temperature independent, and radiation damage centres were attributed to $[(\text{CH}_3)_2\text{C}(\text{COOH})_2]^+$ radicals. The g factor and hyperfine coupling constants were found to be almost isotropic with average values $g = 2.0036$, $a_{(\text{COOH})_2} = 0.5$ mT, $a_{(\text{CH}_3)_2} = 2.1$ mT, respectively, and spin density $\rho = 91\%$ of the $[(\text{CH}_3)_2\text{C}(\text{COOH})_2]^+$ radical.

Key words: Spectroscopic Splitting Factor; g ;
Isotropic Hyperfine Coupling Constant a ;
Spin Density ρ .