Applied Magnetic Resonance 1996 vol.11 N1, pages 115-123

EPR imaging study of paramagnetic centre distribution in thiokol-epoxy hermetics

Nefed'ev E., Musin K., Mirakova T., Kadirov M., Aminov K., Salikhov K., Silaev V.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

The distribution of paramagnetic centres in carbon black filler in the interphase layer of the thiokol-epoxy hermetics on the border of brass or glass substrate was studied using EPR-imaging method. It was shown that the relative content of radicals decreases near the hermetic-"rigid" surface contact border. The thickness of the layer with a low concentration of radicals is estimated as 0.5±0.3 mm. The inhomogeneous distribution of radicals is more obvious in the case of hermetic hardening on a brass surface. These results are explained by a catalytic acceleration of the thiokol-epoxy polymerization reaction in the region of hermetic-metal surface contact. © 1996 Springer.

http://dx.doi.org/10.1007/BF03163531