

EPR STUDIES OF RADIATION-INDUCED
CENTERS IN CRYSTALLINE BARIUM
DITHIONATE DIHYDRATE

M.P. Baran, M.O. Mazin, V.M. Maksimenko

V.E. Lashkarev Institute of Semiconductor Physics,
Nat. Acad. Sci. of Ukraine
(45, Nauka Ave., Kyiv 03028, Ukraine;
e-mail: mazin@microscopy.org.ua)

S u m m a r y

The properties of barium dithionate powder specimens subjected to gamma and ultraviolet (UV) irradiation have been studied by electron paramagnetic resonance (EPR) spectroscopy. It has been found that gamma irradiation gives rise to the formation of radicals of at least five types, the EPR spectra of which are characterized by different parameters. For two of them, the A -tensors have been determined; namely, $A_{zz} \approx A_{yy} = 11.65$ mT and $A_{xx} = 16.64$ mT for R_1 (SO_3^-) radical, and $A_{zz} \approx A_{yy} = 10.3$ mT and $A_{xx} = 14.73$ mT for R_2 one. Short-wave UV irradiation of identical specimens has been demonstrated to create paramagnetic centers of several types, including SO_3^- radicals. The EPR parameters of those centers have been determined.