OH-CENTERS IN CRYSTALS WITH GARNET STRUCTURE

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Infrared bands due to OH^- hydroxyl groups are observed in $Gd_3Ga_5O_{12}$ (at $\nu = 2925$ and $2850\ ,m^{-1}$), $Sm_3Ga_5O_{12}$ (at $\nu = 2932\ cm^{-1}$ and $\nu = 2865\ cm^{-1}$), and $Ca_3Ga_2Ge_3O_{12}$ (at $\nu = 2910\ cm^{-1}$). Influence of impurities and thermochemical annealing in various atmospheres on absorption bands of OH^- defects in these crystals are investigated. The concentration of OH^- groups and possible localization places of proton are estimated. It is shown that OH^- hydroxyl groups are related to intrinsic structure defects of the V_{OH}-type in $Ca_3Ga_2Ge_3O_{12}$ crystals.