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The influence of oxygen and annealing in the presence of $CdCl_2$ on the photoluminescence (PL) spectra of CdTe, component of SnO_2/CdTe heterojunction (HJ), has been studied in a temperature range of 17–100 K. The changes in the photoluminescence spectra were studied as a function of excitation intensity. Analysis of the PL spectra was carried out with considerations of spectra obtained from CdS/CdTe heterojunctions. CdTe side PL (SnO_2/CdTe HJ) consisted of 1.450 eV-DA defect band and 1.243 eV band (17 K). Annealing resulted in the disappearance of 1.243 eV band in oxygen containing samples. Interface PL for the unannealed samples consisted of mainly the 1.264 eV and a trace of the defect band. The $CdCl_2$ treatment is responsible for an almost symmetrical 1.416 eV band.