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The influence of annealing in the presence of CdCl₂ and a thin copper layer deposited onto CdTe on the [photoluminescence](#) spectra of CdTe, as a component of CdS/CdTe [heterojunction](#), has been studied for two excitation wavelengths: 0.337 μm and 0.6328 μm. The behavior of the PL was studied as a function of the measurement temperature and excitation intensity. At 0.6328 μm excitation, the interface PL consists of a known 1.43X band, and the chloride annealing enhances radiative transitions at 1.536 eV. The intensity of the 1.536 eV transitions increases when Cu is present. The PL of as-deposited CdTe films prepared in the presence of oxygen has the 1.45X band attenuated when excited with 0.337 μm excitation wavelength.