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PHOTOCATALYTIC PROPERTIES OF MERCURY (I) CHLORIDE AND PHOTOGENERATION OF OXYGEN FROM WATER

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Hg_2Cl_2 is found to be a low mobility semiconducting material with a band gap of ~ 3.2 eV and to have the rather unusual property of reversible photoadsorption of dissolved O_2 from water. A suspension of Hg_2Cl_2 in aqueous HgCl_2 photogenerates O_2 , reducing HgCl_2 to Hg_2Cl_2 . In absence of an electron acceptor, Hg_2Cl_2 photogenerates O_2 from water degrading into Hg. Both reactions store energy.