

**Infrared Radiation Spectra of Oxyhydril  
Groups in MCl (M = Na, K, Cs) and UO<sub>2</sub>Cl<sub>2</sub> -  
Cs Cl mixed Melts**

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Oxides and hydroxides are the most disseminated impurities in alkali metal halide melts, complicating chemical and electrochemical processes in such systems.

Infrared radiation spectra were measured to show that water molecules and hydroxide ions in MCl (M=Na, K, Cs) and UO<sub>2</sub>Cl<sub>2</sub>-CsCl melts produce hydrogen bonds of various energy. For  $m=[\text{CsOH}]/[\text{UO}_2\text{Cl}_2]<2.84$ , molten alkali metal chlorides produce two types of uranyl complexes. These complexes have identical composition, but their hydrogen bonds with the medium are different. For  $m>2.84$ , complexes  $\text{UO}_2\text{U}_2(\text{OH})_2^{\text{I}}(\text{OH}_2)_2^{\text{II}}$ , where I and II refer to water molecules of the first and second coordination spheres exist in chloride melts.