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Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

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(12) **United States Patent**
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(54) **TITANIUM AQUO-OXO CHLORIDE AND PREPARATION METHOD THEREOF**

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(58) **Field of Classification Search** **423/462, 423/472, 492, 608, 610**

See application file for complete search history.

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(57) **ABSTRACT**

The invention relates to a titanium aquo-oxo chloride and to a method for its preparation. The compound is in the form of crystals and has the following composition by weight: 26.91% Ti; 21.36% Cl; and 4.41% H, which corresponds to the formula $[\text{Ti}_8\text{O}_{12}(\text{H}_2\text{O})_{24}]\text{Cl}_8 \cdot \text{HCl} \cdot 7\text{H}_2\text{O}$. The method of preparation consists in hydrolyzing TiOCl_2 either in an atmosphere whose moisture content is maintained between 50 and 60%, or by an alkali metal carbonate A_2CO_3 , in order to obtain a titanium aquo-oxo chloride. The compound is useful as a semiconductor element of a photovoltaic cell or as a photocatalyst in air or water purification treatments.

7 Claims, 7 Drawing Sheets

