

## Electro Technology N3 Study Guide

A solar cell converts electro-magnetic energy into electricity and is based on semiconductor physics. The high cost of solar cells, caused by expensive solid-state semi-conductor material, has led to the development of alternative solar cells called dye sensitized solar cells. The dye sensitized solar cells are low cost solar cells which yield electric conversion efficiencies of 11.4% under air mass 1.5 solar irradiation, using a ruthenium dye known as N3 dye. Many methods have been used for the synthesis of the ruthenium trichloride, employing hazardous chemicals and high temperatures. In this project ruthenium is to be recycled from ruthenium waste material as ruthenium trichloride using aqueous hydrochloric acid, for the synthesis of the N3 dye. Furthermore, the study will focus on the development of the simple synthetic method for the N3 dye. The hypothesis tested is that N3 dye can be produced from non-hazardous chemicals at room temperature from ruthenium trichloride and 4-picoline. Ruthenium trichloride in turn, can be prepared from ruthenium waste material.

First multi-year cumulation covers six years: 1965-70. 1771 entries to worldwide literature (mostly journal articles). Intended as source of current published works on epilepsy; also serves as cumulative index to Epilepsy abstracts, v. 1-9, 1967-1976. Classified arrangement under 9 broad headings, e.g., Seizures, Etiology, and Treatment. Entries include bibliographical information, with foreign-language titles also in English, and Epilepsy abstracts citations. Keyword, subject indexes. Includes Publications received in terms of Copyright act no. 9 of 1916.

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