

TITLE OF PAPER- STUDIES OF SURFACTANTS FOR SOLAR ENERGY

CONVERSION AND STORAGE

NAME OF AUTHER-RAMESH CHAND MEENA

JNV UNIVERSITY, JODHPUR (RAJ) 342005

INDIA

E-Mail- rcmeena007@rediffmail.com

ABSTRACT

Photochemical studies of surfactants for solar energy conversion and storage in solar cell containing Dye-Reductant-Surfactant. The photo voltages and photocurrents in solar cell containing a Rhodamine 6G-EDTA and Sodium Lauryl Sulphate as surface active agent have been determined. The photo-outputs Rhodamine 6G-EDTA-NaLS are higher than Azur B-EDTA-CTAB system. The efficiency of the Rhodamine 6G-EDTA and NaLS in solar cell has been estimated to be 1.265%. The photo potential and photocurrent generated, Fill factor and storage capacity of the photogalvanic cells is determined. The effects of different parameters on electrical output of the cell are observed. The mechanism has also been proposed for the generation of the photocurrent in photogalvanic cell.

Keywords: - photo-output, conversion of solar energy, storage of solar energy and conversion efficiency.

INTRODUCTION

The solar cells are the better sources of electric power during the sunshine hours, and may also be a reliable source of solar power even in the absence of sunshine if the storage capacity is induced in the solar cell. Solar cells are those cells in which solar energy convert into electrical energy via formation of energy rich species that exhibit the photogalvanic effect. The photogalvanic effect was first of all recognized by Rideal and Williams [1] and it was systematically studied by Rabinowitch [2], and then by other workers have studied on how enhance the performance and optimum efficiency of dye sensitized solar cell for solar energy conversion. A detailed of literature survey reveals that some photogalvanic cells consisting of dye with reductant, dye with reductant and micelles for generation of electrical energy are reported [3-9]. The research in the field of solar cells is still in its infancy with respect to its viability and practical applicability and, therefore, requires thorough exploration to increase the conversion efficiency and storage capacity by selecting a suitable redox couple, photo sensitizer and surfactant. Therefore, the present study is undertaken.

CONCLUSION

Solar cells are cheaper due to the use of a dye and reductant, which are lower in cost and used in minute quantities of photo sensitizer, reductant and surfactant. On the basis of results in the present study, it is concluded that photogalvanic cells are better option for solar energy conversion and storage. Also this system with better electrical output good performance and storage capacity may be used in near future. According to results of solar cell in these two systems, Rhodamine 6G-EDTA-NaLS system is the more efficient than Azur B-EDTA-CTAB system.

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