INTRODUCTION

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In Egypt, dry battery cells are produced from local and imported materials. There are three sizes of MnO_2-Zn battery, size AA, size C and size D. The average production capacity is nearly 200 million pieces every year. Spent battery would constitute a hazard source to environment. Because this quantity of cells is waste; hence, recovery of valuable materials from these recurring secondary resources would be beneficial to the national economy and environment. For the time being, the disposed domestic dry battery cells constitute a hazardous source. No work has been reported to process or making use of these national resources. Collection of the spent battery cells may establish a problem to the market needs which is not well elaborated up till now. However, removal of only carbon rods may be executed in some workshops for use as electrical conductor. Whenever the technology for recycling spent dry battery cell is provided to some enterprises, collection and sorting will be self-solved. The matter seems to be a market need.

On economic basis, the cost of recycled spent dry battery cell should be lower than the local market prices of the same fresh materials. For this reason, this study takes into consideration the cost of recycling to be competitive with the market prices of the same materials. This target is matched using a high efficient technology, minimum utilization of power and utilities and the process water is recycled.

It becomes therefore necessary to provide the scientific and industrial investors in Egypt with the necessary data and technology to help them investing their capital to erect a plant recycling of the spent dry battery cells.

IDENTIFICATION OF THE PROBLEM