

MANGANESE DIOXIDE CATHODE FOR A RECHARGEABLE ALKALINE
CELL, AND CELL CONTAINING THE SAME

ABSTRACT OF THE DISCLOSURE

This invention relates to rechargeable manganese dioxide cells (usually alkaline cells with zinc anodes or cells having non-aqueous electrolyte and lithium anodes), and particularly to the cathodes therefor. In keeping with the present invention, the cathodes are essentially unconstrained -- that is, no cage is used in the cell between the cathodes and the anodes. The cathode is restricted from significantly changing its dimensions during discharge of the cell, when it is inclined to swell -- as opposed to the tendency of the cathode to contract during a charge cycle. The cathode substantially fills the entire space allotted for it within the cell, with a slight accommodation for height-wise or longitudinal expansion or growth of the cathode of bobbin-type cells, or cross-wise expansion or growth of button-type cells. There may be additives in the cathode mix, including particularly conductive fibres of graphite or other conductive materials; and other materials may also be added to the cathode mix, including metallic additives. Methods of manufacture are also provided by the present invention, including compaction and recompaction of the cathode pellet, and a range of compaction pressures is suggested. Cells in keeping with the present invention are capable of exhibiting high current drain rates, and long cycle life.

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