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(54) **POSITIVE ELECTRODE ACTIVE MATERIAL FOR LITHIUM ION BATTERY, POSITIVE ELECTRODE MATERIAL, POSITIVE ELECTRODE, SOLID-STATE BATTERY, POSITIVE ELECTRODE ACTIVE MATERIAL FOR SODIUM ION BATTERY, AND METHOD OF PRODUCING POSITIVE ELECTRODE ACTIVE MATERIAL FOR LITHIUM ION BATTERY**

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(57) **ABSTRACT**

A positive electrode active material for a lithium ion battery includes a core portion having a crystalline structure with an O3 structure and a shell portion that covers the core portion and has at least one type of crystalline structure selected from the group consisting of an O2 structure, a T #2 structure, and an O6 structure.