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Bettman et al.

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(54) **METHYLPHENIDATE MODIFIED RELEASE FORMULATIONS**

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(57) **ABSTRACT**

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A pharmaceutical MR (modified release) multiparticulate dosage form such as a capsule (once-a-day MR Capsule) of Methylphenidate indicated for the treatment of children with attention deficit hyperactivity disorder (ADHD), capable of delivering a portion of the dose for rapid onset of action and the remainder of the dose in a controlled manner for about 12 hours, is composed of a multitude of multicoated particles made of two populations of drug layered beads, IR (immediate release) and ER (extended release) Beads. The IR beads preferably are made by layering an aqueous solution comprising a drug and a binder on to non-pareil sugar spheres and then applying a seal coat to the drug coated cores. The ER Beads are made by applying an extended release coating of a water insoluble dissolution rate controlling polymer such as ethylcellulose to IR Beads. The MR Capsules are manufactured by filling IR and ER Beads in a proper ratio; the dose and the ratio required for an efficacious, cost effective and patient compliant treatment of children with ADHD were determined from extensive clinical investigations and in vitro- in vivo correlations performed as per FDA Guidelines, Guidance for Industry: Extended Release Oral Dosage Forms.

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(52) **U.S. Cl.** **424/459**; 424/458; 424/462; 424/468; 424/457; 424/451

(58) **Field of Search** 424/451, 457, 424/458, 459, 462, 468

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9 Claims, 4 Drawing Sheets

**GROUP MEAN PLASMA CONCENTRATIONS OF METHYLPHENIDATE STUDY
PROTOCOL # MAI-100-01**

