Method of producing an item with enhanced wetting properties by fast replication and replication tool used in the method - DTU Orbit (22/03/2019)

The invention relates to a replication tool (1) for producing an item (4) with enhanced wetting properties by fast replication, such as injection moulding or extrusion coating. The replication tool (1) comprises a tool surface (2a, 2b) defining a general shape of the item (4). The tool surface (2a, 2b) comprises a microscale structured master surface (3a, 3b, 3c) having a lateral master pattern and a vertical master profile. The microscale structured master surface (3a, 3b, 3c) has been provided by localized pulsed laser treatment to generate microscale phase explosions. A method of producing an item with enhanced wetting properties uses the replication tool (1) to form an item (4) with a general shape as defined by the tool surface. The formed item (4) comprises a microscale textured replica surface (5a, 5b, 5c) with a lateral arrangement of polydisperse microscale protrusions.