Claims

1. Injection molding apparatus for manufacturing an ophthalmic lens mold (5), in particular a contact lens mold, from an injection-moldable plastic material, the ophthalmic lens mold having a front surface (500) comprising a lens forming portion (502) and a rear surface, the injection molding apparatus comprising

- a first molding tool comprising at least one first mold forming portion for forming the front surface of the ophthalmic lens mold,

- a second molding tool comprising at least one second mold forming portion (4, 40, 41) for forming the rear surface (501) of the ophthalmic lens mold (5),

wherein the first and second molding tools are movable towards and away from each other between a closed position, in which the ophthalmic lens mold (5) can be manufactured by injection molding, and an open position, in which the manufactured ophthalmic lens mold (5) can be removed from the second molding tool,

and wherein in the closed position the at least one first mold forming portion of the first molding tool and the at least one second mold forming portion of the second molding tool define a cavity between them corresponding in shape to the shape of the ophthalmic lens mold (5) to be manufactured,

wherein the surface (400) of the second mold forming portion (4, 40, 41), at least in a central zone (401) that corresponds to a portion (501) on the rear surface of the ophthalmic lens mold opposite to the lens forming portion (502) on the front surface (500), has a surface roughness S_a in the range of 0.3 µm to 2 µm, and a surface roughness S_z in the range of 10 µm to 50 µm.

2. Injection molding apparatus according to claim 1, wherein the surface roughness S_a is about 1 µm.

3. Injection molding apparatus according to any one of the preceding claims, wherein the surface roughness S_z is about 25 µm.

4. Injection molding apparatus according to any one of the preceding claims, wherein at least the lens mold forming portions of the first and second molding tools are made from aluminum.

5. Injection molding apparatus according to any one of the preceding claims, wherein the surface roughness of the second mold forming portion has been created using one or more techniques selected from the group consisting of laser roughening, sand blasting, grinding, and lapping.

6. Injection molding apparatus according to any one of the preceding claims, wherein the first mold forming portion of the first molding tool and the second mold forming portion of the second molding tool correspond to each other in shape so that in the closed position the cavity formed between them has a uniform thickness.

7. Injection molding apparatus according to any one of the preceding claims, wherein the second molding tool comprises an ejector which is arranged outside of the central zone of the second mold forming portion.

8. Method of manufacturing a plastic ophthalmic lens mold, in particular a contact lens mold (5), through injection-molding, the ophthalmic lens mold (5) having a front surface (500) comprising a lens forming portion (502) and a rear surface, the method comprising the steps of:

- providing a first molding tool comprising at least one first lens mold forming portion for forming the front surface of the ophthalmic lens mold;

- providing a second molding tool comprising at least one second lens mold forming portion (4, 40, 41) for forming the rear surface of the ophthalmic lens mold, wherein the first and second molding tools are movable towards and away from each other between a closed position and an open position;

- moving the first and second molding tools to the closed position, wherein in the closed position the at least one first lens mold forming portion of the first molding tool and the at least one second lens mold forming portion of the second

~~molding tool define a cavity between them, the cavity corresponding in shape to the shape of the ophthalmic lens mold to be manufactured;~~

~~- injecting an injection-moldable plastic material into the cavity to manufacture the ophthalmic lens mold (5) through injection-molding;~~

~~- moving the first and second molding tools to the open position;~~

~~- removing the ophthalmic lens mold (5) from the second molding tool;~~

~~wherein the step of providing a second molding tool comprises providing a second molding tool having a surface (400) of the second mold forming portion (4, 40, 41) which, at least in a central zone (401) corresponding to a portion (501) on the rear surface of the ophthalmic lens mold (5) opposite to the lens forming portion (502) on the front surface, has a surface roughness S_a in the range of 0.3 µm to 2 µm, and a surface roughness S_z in the range of 10 µm to 50 µm.~~

~~9. Method according to claim 8, wherein the surface roughness S_a is about 1 µm.~~

~~10. Method according to any one of claims 8 or 9, wherein the surface roughness S_z is about 25 µm.~~

~~11. Metho~~**~~d~~** ~~according to any one of claims 8 to 10, wherein at least the lens mold forming portions of the first and second molding tools are made from aluminum.~~

~~12. Method according to any one of claims 9 to 11, wherein the moldable plastic material is a polyolefin, in particular polypropylene.~~

~~13~~1. Method according to~~-~~ claim 1~~any one of claims 9 to 12~~, wherein removing the ophthalmic lens mold from the second molding tool is performed by pressing an ejector against a portion of the rear surface of the ophthalmic lens mold outside of the portion opposite to the lens forming portion on the front surface.