CLAIMS

[**Claim 1**] Water treatment method comprising:

- a step of injecting ozone into the water to be treated,
- a step of bringing the ozonated water to be treated into a reactor comprising a fluidised bed of activated carbon particles,
- a step of placing the ozonated water to be treated in contact with the activated carbon particles according to a flow of water ascending in the reactor,
- a step of discharging the water treated in this way,

wherein

- the step of injecting ozone into the water to be treated is carried out by a Venturi effect,
- the injection step is immediately followed by a step of ozone saturation of the water to be treated
- said steps of injecting ozone and of saturating the water with ozone are implemented in means for bringing the water to be treated into said reactor or in a pipe mounted as a bypass on means for bringing the water to be treated into said reactor.

[**Claim 2**] Method according to claim 1, wherein said saturation step is performed with the aid of a saturation cone or of a degassing column.

[**Claim 3**] Method according to claim 1 or 2, wherein said step of injecting and said step of saturating the water with ozone have an overall duration less than 1 minute, preferably between 10 and 30 seconds.

[**Claim 4**] Method according to any one of the preceding claims, wherein said activated carbon particles are agglomerates having a particle size between 300 and 1500 µm, preferably between 400 and 800 µm, and a true density greater than 0,45.

[**Claim 5**] Method according to any one of the preceding claims, wherein said reactor is equipped with at least one means for deflecting the water disposed in the upper portion, intended to reduce the speed of the ascending flow of water to arrange a tranquil area above the bed of activated carbon particles.

[**Claim 6**] Method according to claim 5, wherein said at least one deflection means consists of a set of blades inclined in relation to the vertical and mutually parallel, inclined in relation to the vertical by an angle θ between 50° and 60°, preferably by an angle θ close to 60°.

[**Claim 7**] Method according to claim 5 or6, wherein the reactor further comprises means for recovering the water disposed downstream of the tranquil area, the recovery means preferably consisting of a prism-shaped chute with side faces forming an angle α of 45° to 70° in relation to the horizontal and that are each equipped with a first fluid spout and with a deflector acting as a baffle as a deflection means.

[**Claim 8**] Method according to any one of the preceding claims, wherein the speed of the flow of ascending water is between 8 and 50 m/h, preferably between 20 and 40 m/h.

[**Claim 9**] Facility (10) for implementing the method according to any one of the preceding claims, comprising:
- an activated carbon reactor (1) comprising a fluidised bed of activated carbon particles (2)
- means (3) for bringing the water to be treated into the reactor,
- means (7) for discharging the treated water,
wherein the facility (10) further comprises a means (4) for injecting ozone into the water by a Venturi effect and a means (5) for saturating the water with ozone mounted directly on the means (3) for bringing the water into the reactor, or on a pipe (3') mounted as a bypass on the means (3) for bringing the water to be treated into the reactor.

[**Claim 10**] Facility (10) according to claim 9, wherein said activated carbon particles (2) are agglomerates having a particle size between 300 and 1500 µm, preferably between 400 and 800 µm, and a true density greater than 0,45.

[**Claim 11**] Facility (10) according to claim 9 or 10, wherein said reactor (1) is equipped with at least one deflection means disposed in the upper portion of said reactor.

[**Claim 12**] Facility (10) according to claim 11, wherein said at least one deflection means consists of a set of blades inclined in relation to the vertical and mutually parallel, inclined in relation to the vertical by an angle θ between 50° and 60°, preferably by an angle θ close to 60°.

[**Claim 13**] Facility (10) according to claim 11 or 12, wherein the reactor further comprises means for recovering the water disposed downstream of the tranquil area, the recovery means preferably consisting of a prism-shaped chute with side faces forming an angle α of 45° to 70° in relation to the horizontal and that are each equipped with a first fluid spout and with a deflector acting as a baffle as a deflection means.