Claims

1. A process for reducing the total organic carbon (TOC) in an aqueous mixture M1 obtained as wastewater from a process for the preparation of an olefin oxide, the process for reducing the TOC comprising:
   (a) contacting the mixture M1 which contains at least one oxygenate having from 1 to 16 carbon atoms with an adsorbing agent and adsorbing at least a portion of an oxygenate at the adsorbing agent;
   (b) separating an aqueous mixture M2 from the adsorbing agent, the mixture M2 being depleted of the oxygenate adsorbed in (a);
   (c) separating an oxygenate from the mixture M2 obtained in (b) by subjecting the mixture M2 to reverse osmosis in at least one reverse osmosis unit containing a reverse osmosis membrane obtaining an aqueous mixture M3 being depleted of this oxygenate.

2. The process of claim 1, wherein the aqueous mixture M1 contains water in an amount of at least 95 weight-%, preferably at least 98 weight-%, more preferably at least 99 weight-%, more preferably at least 99.4 weight-% relative to the total weight of the aqueous mixture M1, and the at least one oxygenate in an amount of at most 1 weight-%, preferably at most 0.5 weight-%, more preferably at most 0.3 weight-%, more preferably at most 0.2 weight-%, relative to the total weight of the aqueous mixture M1.

3. The process of ~~any of~~ claim~~s~~ 1 ~~to~~or 2, wherein the at least one oxygenate contained in the mixture M1 is selected from the group consisting of alcohols, ethers, aldehydes, ketones, and combinations of two or more thereof, preferably from the group consisting of methanol, ethanol, propanol, methoxypropanol (MOP), monopropylene glycol (MPG), dipropylene glycol (DPG), tripropylene glycol (TPG), dipropylene glycol methyl ether (DPGME), tripropylene glycol monomethyl ether (TPGME), acetaldehyde, hydroxyacetone, anthraquinone, anthraquinone derivatives, and combinations of two or more thereof.

4. The process of any of claims 1 to 3, wherein the adsorbing agent according to (a) is selected from the group consisting of activated carbon, an organic polymer, a silica gel, a molecular sieve, and combinations of two or more thereof, wherein the organic polymer is preferably a polystyrene-based polymer.

5. The process of any of claims 1 to 4, wherein the adsorbing agent according to (a) has a total pore volume in the range of from 0.1 to 3 cm^3/g, preferably from 0.2 to 2.5 cm^3/g, more preferably from 0.5 to 1.5 cm^3/g, determined according to DIN 66133.

6. The process of any of claims 1 to 5, wherein the adsorbing agent according to (a) has a mean pore size in the range of from 5 to 900 Angstrom, preferably from 10 to 600 Ang-