CLAIMS

1. Method for the calibration of at least one measurement device for measuring the total organic carbon (TOC) content of an aqueous solution containing carbon, ~~in particular ultra-pure water,~~ by measuring the resistivity of said solution at a given temperature, after oxidation of the carbon that it contains to CO_2, said method comprising at least the following series of steps, in the presence of a reference TOC analyzer:

(a) Producing a calibration point by measuring the resistivity of ~~the~~ ultra-pure water using ~~the~~said at least one measurement device and ~~the~~said TOC analyzer, the resistivity having an established value equal to 18.2 MΩ.cm for a TOC equivalent value of zero,

(b) Producing a plurality of calibration points, the number of calibration points comprising 5 to 35, each calibration point corresponding to a measurement of the resistivity of a solution of a photo-oxidizable compound in ultra-pure water, having a given content of photo-oxidizable compound, said solution of photo-oxidizable compound having been oxidized, resistivity measurements being carried out by the measurement device and by the TOC analyzer, these calibration points ~~making it possible to~~ establishing a correlation between the resistivity values measured by the TOC measurement device and those measured by the TOC analyzer; and

(c) Correcting the TOC measurement device for calibration purposes by at least one algorithm, on the basis of the measurements carried out in the previous step, by using at least one algorithm which carries out a comparison between the resistivity values of the TOC analyser and those measured by the TOC measurement device, for each given TOC value of a series of aqueous solutions having different TOC contents, followed by the use of at least one algorithm which restores the resistivity values of the TOC measurement device as a function of the reference resistivity values given by the TOC analyser.

2. Method according to ~~the previous~~ claim 1, ~~such that it comprises~~ further comprising a step (d) following the step (c), said step (d) ~~being a step of~~ comprising checking the TOC content measured by the measurement device in the presence of an aqueous solution of an organic compound having a given TOC content~~, generally comprised in the range of 0 to 500 ppb~~.

3. The method according to claim 2, wherein said TOC content is in the range of 0 to 500 ppb.

4. ~~3. Method according to any one of the previous claims~~ 1~~, such that the compound of step (b)~~wherein said photo-oxidizable compound ~~is chosen~~selected ~~from the~~ group consisting of ~~alcohols and sucrose.~~, ~~preferably said compound is methanol or ethanol, and even more preferably said compound is methanol.~~

5. The method of claim 4, wherein said photo-oxidizable compound is methanol or ethanol.

6. The method of claim 4, wherein said photo-oxidizable compound is methanol.

7. ~~4.~~ Method according to ~~any one of the previous~~ claim~~s~~ 1, ~~such that~~wherein the simultaneous calibration of at least two different TOC measurement devices is carried out.

~~5. Method according to any one of the previous claims, such that step (c) comprises the use of at least one algorithm which carries out a comparison between the resistivity values of the TOC analyzer and those measured by the TOC measurement device, for each given TOC value, followed by the use of at least one algorithm which restores the resistivity values of the TOC measurement device as a function of the reference resistivity values given by the TOC analyzer.~~

8. ~~6.~~ Method according to ~~any one of the previous~~ claim~~s~~ 1, ~~such that~~wherein the oxidation is produced using at least one source of UV radiation, the UV radiation source operating within a range of 120 to 400 nm.

9. ~~7.~~ Method according to ~~any one of the previous~~ claim~~s~~ 1, ~~such that~~wherein a calibration is carried out for a TOC content of 0 to 1000 ppb~~, preferably of 0 to 500 ppb, more preferably of 2 to 500 ppb even more preferably of 3 to 500 ppb~~.

~~8. Method according to any one of the previous claims, such that during step (b), a number of calibration points are produced, comprised within a range of 5 to 35, preferably from 15 to 25, even more preferably from 18 to 22.~~

10. ~~9.~~ Method according to ~~any one of the previous~~ claim~~s~~ 1, ~~such that~~wherein any solution is circulated, the resistivity of which is measured within the measurement device and within the TOC analyzer, in the same fluid circulation loop.

11. ~~10.~~ Method according to ~~the previous~~ claim 10, ~~such that~~ wherein said loop is equipped with at least one means of deionization or even decontamination~~, such as an ion-exchange resin and/or activated carbon~~.

12. The method according to claim 1, wherein a calibration is carried out for a TOC content of 0 to 500 ppb.

13. The method according to claim 1, wherein a calibration is carried out for a TOC content of 2 to 500 ppb.

14. The method according to claim 1, wherein a calibration is carried out for a TOC content of 3 to 500ppb.

15. The method of claim 1, wherein 15 to 25 calibration points are produced.

16. The method of claim1, wherein 18 to 22 calibration points are produced.

17. ~~11.~~ Calibration device for calibrating at least one device for measuring the total organic content of an aqueous solution, said device comprising at least one fluid circulation loop, at least one reference TOC analyzer in said loop, a TOC measurement device in said loop and at least one processor in communication with said at least one reference TOC analyser and comprising at least one algorithm which carries out a comparison between ~~the~~ resistivity values of the at least one TOC analyzer and those measured by ~~the~~said TOC measurement device for each given TOC value of a series of aqueous solutions having different TOC contents, and at least one algorithm which restores the resistivity values of the TOC measurement device as a function of the ~~reference~~ resistivity values given by the TOC analyser, wherein said processor comprises three modules A, B and C, wherein module A receives the measure TOC

data from the reference analyzer and the measurement device to be calibrated, and carries out the conversion of the TOC content to resistivity; module B receives the resistivity data calculated by Module A, as well as the resistivity data from said reference analyser and said measurement device to be calibrated, and carries out the selection of the resistivity points as a function of the resistivity range measured; and module C establishes the correlation between the values measured by said measurement device to be calibrated and those measured by said TOC analyser, and provides calibration coefficients from a calibration resistivity table proved by module B.

18. ~~12.~~ Device according to ~~the previous~~ claim 17, comprising at least one cartridge of ion-exchange resin and/or activated carbon in said fluid circulation loop.