CLAIMS

1. A method for on-site monitoring of the quality of a gas or a mixture of gases delivered to a consumer site, the monitoring being carried out during the delivery, in order to declare the delivery compliant or non-compliant with specifications, being characterized in that, during the delivery, the monitoring of the gas or the mixture delivered is carried out by a thermal conductivity technique, in the following manner:

- providing, during the delivery, a device for identifying the gas or mixture during the delivery thereof and the receipt thereof at the consumer site, which comprises:

- an analyzer of the thermal conductivity of the gas or mixture, the analyzer will have been precalibrated using each of the pure gas(es) capable of subsequently being delivered, alone or as mixtures, during the delivery ("calibration"); and

- a data acquisition and processing system,

- the device for identifying the gas or mixture is capable:

- of acquiring one or more samples of the gas or mixture delivered;

- of acquiring one or more samples of a reference gas such as nitrogen, the preferred reference gas since it is commonly present at the consumer site;

- of carrying out one or more measurements of the conductivity of the sample(s) of the reference gas and of carrying out a comparison of the measurements obtained with the thermal conductivity values obtained upstream during said “calibration” with the same reference gas; wherein if during the comparison, a variation of the conductivity is observed beyond a certain acceptable deviation range set beforehand, the device is automatically recalibrated, whereas if the variation of conductivity lies within the acceptable deviation range, the reference gas is considered to be “recognised” and the device is considered to be “ready for operation”,

- of carrying out one or more measurements of the conductivity of the sample(s) of the gas or mixture delivered, and of carrying out

a comparison of the measurements thus obtained with the thermal conductivity values obtained upstream during said “calibration” with the same reference gas; wherein if during the comparison, a result of the comparison lies with an acceptable tolerance range set beforehand, the gas or mixture is considered to be “recognised” and the delivery is declared to be “compliant”, whereas if the result of the comparison lies not within the acceptable tolerance range, the delivery of the gas or mixture is considered to be “non-compliant”;

- the device then being able to give a diagnosis of “compliant delivery” or “non-compliant delivery” type authorizing or not authorizing the delivery of the gas or mixture.

2. The method according to claim 1, characterized in that the device for identifying the gas or mixture is equipped with a configuration profile that comprises in particular the following parameters:

- the gas or mixture to be identified;
- the acceptable tolerance range between the sample gas and the reference gas for each of the delivery;
- the acceptable deviation range for the reference gas;
- number of test cycles to be carried out between the sample gas and the reference gas;
- flow rate and pressure ranges during the test cycles between the sample gas and the reference gas;
-flow rate and pressure ranges during the calibration of the reference gas;
- number of purge cycles and purge time of a sampling line that is used to draw the sample gas from the gas or mixture for each of the delivery.