

**Determinand:**

Qualitative & Quantitative Taste and Odour

**Matrix:**

Sample Type: Taste Treated (potable) waters or samples known to be safe for ingestion.  
Odour Treated (potable) and raw waters.

**Principle of Method:**

This method is primarily directed at assessing compliance with the new UK regulations, The Water Supply Regulations 2010, Statutory Instrument 2010:991 and The Water Supply (Miscellaneous Amendments) (England and Wales) Regulations 2010, Statutory Instrument 2010:996. The methods are not particularly useful in early detection of operational problems, because of the removal of people with very high sensitivity from the taste and odour panel

The threshold taste (TTN) or odour (TON) of a sample is that dilution of the sample (with taste/odour free water) whose taste/odour is no longer detectable when compared with taste/odour free water itself.

The TTN/TON of each panellist used in the test procedure is used to calculate a geometric TTN/TON. This means TTN/TON is converted to a dilution number by subtracting 1.

The test has two stages.

1. Taste and odour Screening with chlorine removed. Method A2
2. Quantitative dilution testing with chlorine removed to determine taste/odour dilution number. Method A3.

Method A2 describes procedures whereby an undiluted sample is smelled and tasted by a group of people in order to provide a description of the taste and odour, if present, in the sample. In addition, an indication of the intensity of the taste/odour can be recorded. If the assessment of the original undiluted sample satisfies the criteria and is deemed taste- and odour-free, then no further action is required. The sample is assigned a taste/odour threshold number of one, i.e. a taste/odour dilution number of zero, and the sample is deemed to be acceptable to consumers. Some customer's samples may only require the reporting of the intensity and descriptor of any taste or odour found at this screening stage.

If a taste or odour is detected in the original undiluted sample, procedures are described in method A3 to quantitatively determine the taste/odour dilution number.

Method A3 describes Quantitative dilution testing, if a taste and/or odour is detected in the original undiluted sample using the procedures described in method A2. A This quantitative determination of the taste/odour threshold number is undertaken on a portion of the sample, diluted with blank water until no taste or odour is discernible. The intensity of the taste/odour in this diluted sample is determined by a group of people, and a single numerical value, expressed as a taste/odour threshold number is determined from the geometric mean of the taste/odour threshold number results obtained by the group. Once the taste/odour threshold number is known, a taste/odour dilution number is calculated.

**Method A2 Initial Screening**

The sample is screened at  $25 \pm 1^\circ\text{C}$  by three panellists to ascertain if any taste/odour can be detected. If no taste/odour is detected the sample is recorded as having a Quantitative TTN/TON of 1 (Dilution Number 0) and, the analysis is complete.

If one panellist detects a taste or odour a majority verdict is used i.e. if only one of the three panellist records a taste or odour the sample is recorded as having a taste/odour Quantitative TTN/Ton of 1 (Dilution Number 0) and the analysis is complete.

If two or more panellists detect a taste or odour then a strength and descriptor code can be assigned from the panellist results by the Diluter from the list in XSF023 as a Qualitative taste and odour result. The sample may then proceed to method A3 Dilution Triangulation testing if required.

**Method A3 Quantitative Dilution Testing**

The sample is subjected to an ascending/descending triangle test to evaluate the TTN/TON. This part of the procedure produces a measure of the taste/odour intensity in a sample at  $25 \pm 1^\circ\text{C}$ .

**Sampling and Sample Preparation:**



Samples should be collected in clean bottles reserved for the purpose.

Store samples in a refrigerator at 2-8°C for no longer than 72 Hours.

The time of removal of the samples from the refrigerated storage shall be recorded on WSD377. The samples shall be left in the taste and odour laboratory to start the warming process, and this time shall be deemed to be the commencement of analysis.

## **Interferences**

The testing is subject to the analysts' ability to detect both Taste and Odour; therefore it is essential that WSD207 is considered before each session.

The room in which analysis is carried out must be free from odour.

The Quality Control samples offered to the panellists must not be of a strength so that subsequent samples are not masked by an overwhelming QC.

The cold room / fridge used for sample storage should be as odour free as possible. To check storage environmental condition are not influential on the samples a taste and odour bottle shall be filled with blank water, registered as a sample and stored overnight alongside the samples. This sample will then proceed with the samples to undergo taste and odour testing, a positive result for taste or odour will trigger an investigation into the cause. This cold room check shall be carried out weekly.

## **Performance of Method:**

### **Range of Application:**

N/A for this method.

### **Limit of Detection, Recoveries of Compounds and Uncertainty of measurement:**

N/A for this method.

## **References:**

Publisher: The Environment Agency Standing Committee of Analyst (SCA) document: -The Determination of Taste and Odour in drinking Water 2014. Methods for the examination of waters and Associated Materials.