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Odour Testing for Drinking Water

ODOUR TESTING

ALS is pleased to announce the introduction of Odour testing as a new NATA accredited test to be offered to clients.

Flavour profile analysis (FPA) is a technique for identifying sample tastes and odours. It is also referred to as "Organoleptic Testing". It can be applied to drinking water sources, finished drinking water, sampling points within the drinking water treatment train, bottled waters and for investigating customer complaints.

Testing is carried out to evaluate the odours important in drinking water. It is not used to judge a sample, to determine preferences between samples or acceptance of a water sample for public consumption.

Using a group of four or five trained panelists, odour (aroma) attributes are determined by sniffing the sample. The method allows for more than one odour attribute to be determined per sample and each attribute's strength to be measured. Odour is recognized as a quality factor affecting acceptability of drinking water.

WHO UTILISES THE TESTING

Odour testing is utilised by water authorities around the world. The analysis is used to define the water's odour attributes which in turn can be related to consumer perceptions. The test is used for investigating public complaints and to monitor the aesthetic quality of water.

ALS often requested to test for odour in drinking water samples as part of water authorities routine testing.

METHOD INFORMATION

ALS METHOD CODE
EA059

METHOD REFERENCE
APHA 2170B

ALS reports the descriptor and intensity of the Odour

TESTING CAPABILITY

ALS Water Newcastle has established odour testing as a new product to offer clients. The method is an adaption from APHA 2170 B and covers the determination of odour (that is, the property that affects the sense of smell) of water. The odour tests are performed to provide qualitative descriptions and approximate quantitative measurements of odour intensity.

Odour panels consist of individuals (panelist) that are selected and trained following the ASTM Publication 758. A group of well-trained panelist can express differences between samples. The panelist receive training that consist of olfactory awareness, sniffing techniques, standardized descriptors and olfactometry responses. Odour standards are required for training of panelist. Each panelist assigns descriptors that characterize the odour detected. Each descriptor is given an intensity, relative to standards, that indicates the strength of each odour. The panelist share results and come to consensus of descriptors and intensities for each sample.

Due to the variation in human sensitivity, high precision in determining odour intensity is not possible. There will not always be agreement on odour characteristics by various testers.

There are many factors that can affect a person's ability to identify particular odours. Fatigue may decrease an analyst's ability to interpret results and as such a rest interval during the analysis is important to prevent the carryover of odours between samples. Background odours present during analysis may also affects results as well as an analyst's illness, i.e., cold or allergy, can diminish or otherwise alter perception. ALS takes all these factors into account when analyzing samples to ensure panelists are able to detect odours accurately.

The method is not suitable for industrial wastes or other samples suspected of containing high concentrations of hazardous compounds. Only when it is certain that there is no health hazard (chemical or biological) can samples be tested.

SAMPLE SIZE

Samples are to be collected in a 500mL amber glass bottle. When sampling from a tap, it is best to minimize turbulence and fill to the top with no air space. Chill or refrigerate the sample during delivery to the laboratory.
Figure 1: Shows the ALS bottle required for the analysis.

REPORTING

Once the panelists come to a consensus of descriptors and intensities they are reported to the client. The quality of training and data interpretation determine the value of odour results.

Table 1: Lists of descriptors for the odour analysis.

Table 1	Descriptors
Ea	Earthy/Musty/Mouldy
Cl	Chlorinous
Gr	Grassy/Hay/Straw/Wood
Ma	Marshy/Swampy/Septic/Sulphurous
Fr	Fragrant (vegetable or flowery)
Fi	Fishy
Me	Medicinal/Phenolic/Alcoholic
Ch	Chemical/Hydrocarbon/Miscellaneous

Table 2: Description of the intensity of the odour.

Table 2: Intensity Scale	
Description	**Scale**
Odour free	-
Threshold	T
Very weak	2
Weak	4
-	6
Moderate	8
-	10
Strong	12

For further information contact ALSWaterNewcastle@ALSglobal.com

References: Standard Methods for Examination of Water and Wastewater APHA 2170B, Guidelines for Selection and Training of Sensory Panel Members (ASTM Special Technical Publication 7