EXPERIMENT-8 TO DETERMINE ODOUR AND TASTE IN A WATER SAMPLE

CAUSES AND SIGNIFICANCE

Taste and odour can originate from natural inorganic and organic chemical contaminants and biological sources or processes (e.g. aquatic microorganisms), from contamination by synthetic chemicals, from corrosion or as a result of problems with water treatment (e.g. chlorination). Taste and odour may also develop during storage and distribution as a result of microbial activity.

Taste and odour in drinking-water may be indicative of some form of pollution or of a malfunction during water treatment or distribution. It may therefore be an indication of the presence of potentially harmful substances. The cause should be investigated and the appropriate health authorities should be consulted, particularly if there is a sudden or substantial change.

There are a number of diverse organisms that often have no public health significance but which are undesirable because they produce taste and odour. As well as affecting the acceptability of the water, they indicate that water treatment and/or the state of maintenance and repair of the distribution system are insufficient.

Actinomycetes and fungi can be abundant in surface water sources, including reservoirs, and they can also grow on unsuitable materials in the water supply distribution systems, such as rubber. They can produce geosmin, 2-methyl isoborneol and other substances, resulting in objectionable tastes and odours in the drinking-water.

Blooms of cyano bacteria and other algae in reservoirs and in river waters may cause odour and taste.

High concentrations of chloride give a salty taste to water. Concentrations in excess of 250 mg/l are increasingly likely to be detected by taste, but some consumers may become accustomed to low levels of chloride-induced taste.

Most individuals are able to taste or smell chlorine in drinking-water at concentrations well below **5 mg/l, and some at levels as low as 0.3 mg/l.** Hence in the chlorination process, the residual chlorine at the consumer end is not to exceed **0.2 mg/l**

CLASSIFICATION OF ODOURS

(a) No odour (b)Ammoniacal bad eggs (sulphide) (c) chlorine (bleach)
(d) earthy (e) fruity (f) fuel
(g) milky (h) oily (i) soapy (j) Fishy and some other (this should be specified)

TASTE

(a) No Taste (b) Sweet (c) Salty (d) Sour (e) Bitter

Apparatus Required:-

1. 500 ML clear flasks
2. Watch glasses or stopper
3. Heating device with temperature readout

Procedure :- For Cold Odour:-

Fill the 500 ML flask with around 200 ML of sample. Close the stopper. Shake the flask well at room temperature. Open the flask and smell at the mouth of the flask. Report the odour in terms of the classifications mentioned above

Procedure for Hot Odour:-

The intensity of the cold odour may be very low and cannot be detected. For this purpose, heat the flask to around 58-60 degrees C. Remove the stopper and smell at the mouth of the flask.
The odours can be detected by a group of observers as single observation may not be correct. See how many agree to a common odour.

Odour Intensity :-

The intensity of the odour can be determined on its strength. Numbers are assigned as follows:-

0--No odour
1--Very Faint
2-- Faint
3--Distinct
4--Decided
5--Very Strong

Add your results in a tabular form as indicated below.

Sample Number	Date	Source Name	Odour Classification	Cold Odour intensity	Hot Odour intensity	Remarks

As far as taste is concerned, it should be noted only when the full potability of water is ascertained, i.e. it should be free from all impurities (Physical, Chemical and Biological)

Sample Number	Date	Source Name	Classification of Taste	Remarks

NOTE:- Potable water should be colorless, tasteless and odourless.
Refer :- IS:-10050:- Specifications for Drinking Water