

*Indian Standard***METHODS OF SAMPLING AND TEST (PHYSICAL AND
CHEMICAL) FOR WATER AND WASTE WATER****PART 5 ODOUR***(First Revision)***1. Scope** – Prescribes a method for the determination of true odour.**1.1** This method is applicable to all types of water and waste water.**2. Preparation of Apparatus**—Thoroughly clean the required number of wide-mouth glass-stoppered bottles of about one litre capacity. Rinse them with hydrochloric acid and render them completely odourless by repeated washing with odour-free distilled water, which can be prepared by passing distilled water through a column of granulated activated carbon.**3. Procedure****3.1** As soon as possible after collection of sample, fill a bottle (cleaned as in 2.1) half-full of sample, insert the stopper, shake vigorously for 2 to 3 seconds and then quickly observe the odour. The sample taken for observation of odour shall be at room temperature.**3.2** When it is desired to record the odour at an elevated temperature, make the observation after warming the sample in a clean stoppered bottle to about 60°C.**4. Report****4.1** Report the true odour of the sample at the mouth of the bottle as rotten egg, burnt sugar, soapy, fishy, septic, aromatic, chlorinous, alcoholic odour or any other specific odour. In case it is not possible to specify the exact nature of odour, report as agreeable or disagreeable.**4.2** A suggested method of odour classification is shown in Appendix A.**APPENDIX A***(Clause 4.2)***SUGGESTED ODOUR CLASSIFICATION****A-1.** The types of odours present in waste water will vary widely. The type of odour shall be described by judging the degrees of sweetness, pungency, smokiness and rottenness of the odour.**A-2.** If the characteristic being judged is high in intensity, rate that characteristic as '100'; if medium, rate it as '50'; and if low, rate it as '0'.**Note** — Intermediate ratings may be used but this practice is not recommended.**A-3.** The odour class can be established by comparison with the perception levels of odour characteristics shown in Table 1. Thus, if an odour is rated a '100' in sweetness, '50' in pungency, '0' in smokiness, and '50' in rottenness, the odour should be described as 'estery' or 'alcoholic'. Reference to the chemical types that produce these odours will guide the operator in determining whether the odour should be reported as 'estery' or 'alcoholic'.

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TABLE 1 ODOURS CLASSIFIED BY CHEMICAL TYPES

(Clause A-3)

Odour Characteristics				Odour Class	Chemical Types	Example
Sweetness	Pungency	Smokiness	Rottenness			
(1)	(2)	(3)	(4)	(5)	(6)	(7)
100	50	0 to 50	50	Estery	Esters, ethers, lower ketones	Lacquer solvents, most fruits, many flowers
100	50 to 100	0 to 100	50	Alcoholic	Phenols and cresols, alcohols hydrocarbons	Creosote, tars, smokes, alcohol, liquor, rose and spicy flowers, spices and herbs
50	50	0 to 50	50	Carbonyl	Aldehydes, higher ketones	Rancid fats, butter, stone fruits and nuts, violets, grasses and vegetables
50	100	0 to 50	50	Acidic	Acid anhydrides, organic acids, sulphur dioxide	Vinegar, perspiration, rancid oils, resins, body odour garbage
100	50 to 100	50 to 100	0 to 100	Halide	Quinones, oxides and ozone, halides nitrogen compounds	Insecticides, weed killers, musty and mouldy odours, husks, medicinal odour, earth, peat
50	50	100	100	Sulphury	Selenium compounds, arsenicals, mercaptans, sulphides	Rotting fish and meat, cabbage, onion, sewage
100	50	50	100	Unsaturated	Acetylene derivatives, butadiene, isoprene	Paint thinners, varnish, kerosine turpentine, essential oils, cucumber
100	50	0 to 50	100	Basic	Vinyl monomers, amines, alkaloids, ammonia	Faecal odours, manure, fish and shellfish, stale flowers such as lilac, lily, jasmine and honey-suckle

EXPLANATORY NOTE

Odour is recognised as a quality factor affecting acceptability of drinking water and food prepared from it, tainting of fish and other aquatic organisms, and aesthetics of recreational waters. Most organic and some inorganic chemicals contribute taste or odour. These chemicals may originate from municipal and industrial waste discharges, natural sources, such as decomposition of vegetable matter or from associated microbial activity.

Odour of water, though very important, cannot be determined in absolute units. Olfactory sense, which is the most sensitive means of detecting small concentration of odoriferous substances, lacks precision and mathematical expression nevertheless a qualitative test is prescribed. In case of doubt as to the intensity or character of odour, a majority opinion of several observers should be recorded.

This method supersedes clause 6 of IS : 2488 (Part I)-1966 'Methods of sampling and test for industrial effluents, Part I' and clause 7 of IS : 3025-1964 'Methods of sampling and test (physical and chemical) for water used in industry'.