H_2S test medium **K019**

Bacteriological field-testing kit for drinking water using H_2S test medium.
H_2S Test Medium is recommended for the detection of *Salmonella* species and *Citrobacter* species from water samples.

Direction :
Fill the bottle with water up to arrow level (20 ml). Allow the powder to dissolve and if required shake gently. Keep at room temperature (preferably at 32-35°C) for 24-48 hours. After incubation if color turns black, water is not fit for drinking.
Note: Add few drops of some disinfectant (i.e. dettol, phenyl etc.) before discarding the bottle. Preferable to use the autoclave wherever the facility is available.

Principle and Interpretation :
The importance of clean water for health has long been recognized. Yet it is still a problem around the world. Human faecal contamination is one of the major reason for water borne diseases. WHO has recommended regular monitoning of drinking water samples for the absence of thermotolerant coliforms in addtion to absence of *E. coli* (1). Coliform bacteria may not be adequate as sole indicator of recent faecal contamination since, it has been studied that there is no co-relation between coliform and presence of *Salmonella* species in water, in tropics (2, 3). The analysis of *Salmonella* by routine culture method is a lengthy process requiring 3-4 days. However K019 – H_2S Test Medium Kit is a rapid, portable and reliable field testing kit for drinking water, prepared as per DRDO formulation. This kit can detect *Salmonella* serotype Typhimurium and *Citrobactor freundii* on the basis of prodution of hydrogen sulphide (4), even in the absence of coliform. The medium is rich in growth factors and nitrogen source. Presence of cystein makes the medium more sensitive and the test less time consuming for detection of *Salmonella* serotype Typhimurium and *Citrobactor freundii* (5). H_2S test medium has ferric salts which are reduced by certain species of enteric organisms to H_2S. This medium is also sufficiently buffered and made selective against growth of gram-positive organisms.

Quality Control:

Appearance: Light yellow to yellowish brown coloured, homogeneous powder in glass bottles,

Colour and Clarity : Dark amber coloured clear solution obtained on addition of water sample up to mark.

Cultural Response : Cultural characteristics observed after an incubation of 24 – 48 hours at ambient temperature (25°C to 44°C).

Oraganism (ATCC)	**Growth**	**H2S production**
C. freundii (8090)	luxuriant	+
S. serotype Typhimurium (23564)	luxuriant	+
E. coli (25922)	luxuriant	-

Key : + = positive, blackening of the medium, - = negative, no blackening, medium yellowish with haziness

References :

1. WHO, 2006, Guidelines for drinking water quality, Vol. 1 Recommendations 1st Addendum to 3rd edition.
2. Townsend S.A., 1992, Journal of Appl. Bacteriol. 73:182-188.
3. Peterson D.J., & Schorsch I., 1980, WA Health Surveyor.2 (June). 7-11.
4. Manja K.S., Maurya M.S. and Rao K.M., 1982, Bulletin of the World Health Organisation, 60:797-801.
5. Sobsey M.D. & Pfaender F.K. Evaluation of the H S Method for Detection of Faecal contamination of 2 Drinking water, Geneva.

Storage and Shelf-life :

Store below 30°C. It has shelf-life of 2 years