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AQUASOL TECHNOLOGY

Microbial Test Tubes – User Manual

For the detection of fecal bacteria in drinking water

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1. Product Overview

The Microbial Test Tubes by Aquasol Technology are engineered as professional-grade, ready-to-use are a presence/absence screening tool. The diagnostic system is designed to provide rapid, reliable detection of bacteria of fecal origin within water samples, ensuring the safety and integrity of drinking water.

1.1. Intended Use

This test is specifically engineered to:

- Identify the presence of fecal contamination (human or animal) in drinking water.
- Serve as an early warning system for potential drinking water compromise.
- Verify the efficacy of water treatment processes.

2. Public Health Significance

Monitoring for fecal bacteria in drinking water is a critical component of preventing the spread of infectious pathogens and public health maintenance.

- **Disease Prevention:** Fecal contamination is a known vector for serious waterborne illnesses, including cholera, dysentery, and typhoid.
- **Regulatory Standards:** Under the World Health Organization (WHO) guidelines, safe drinking water must not contain fecal bacteria.

3. Technical Scope & Methodology

The test utilizes a qualitative “presence/absence” methodology. This approach is designed to determine if a water source is contaminated with fecal origin bacteria, whether from human or animal sources.

- **Detection Mechanism:** The test tube contains a specialized growth medium that reacts to the metabolic activity of fecal bacteria.
- **Target Organisms:** Primarily focuses on indicators of fecal contamination, which are precursors to serious waterborne pathogens.

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4. Operational Procedures (Step-by-Step)

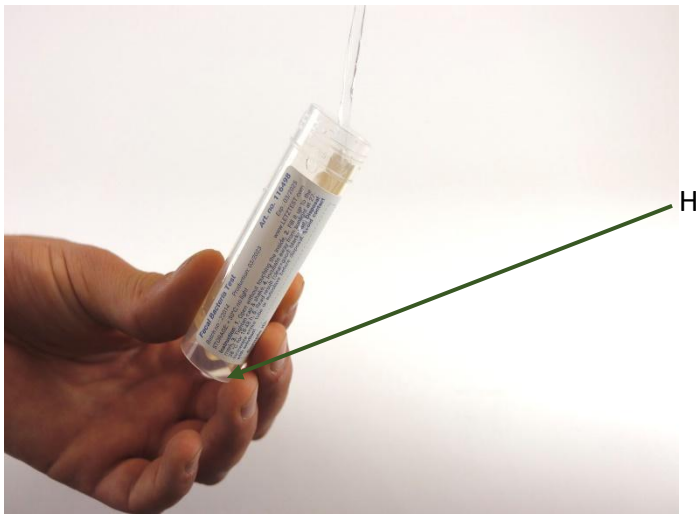
To ensure accurate diagnostic results, follow the instructions and techniques outlined below:

Step 1: Preparation

- Inspect the test tube to ensure it is new, and not used.
- Label the test tube with the sample source and date.
- Wash hands thoroughly and, if possible, use sterile gloves to prevent external contamination of the sample.

Step 2: Sample Collection

- Carefully open the test tube.
- Fill the tube with the water sample to the designated **20 mL** fill line.
- Avoid touching the inside of the cap or the rim of the tube.



Step 3: Activation & Incubation

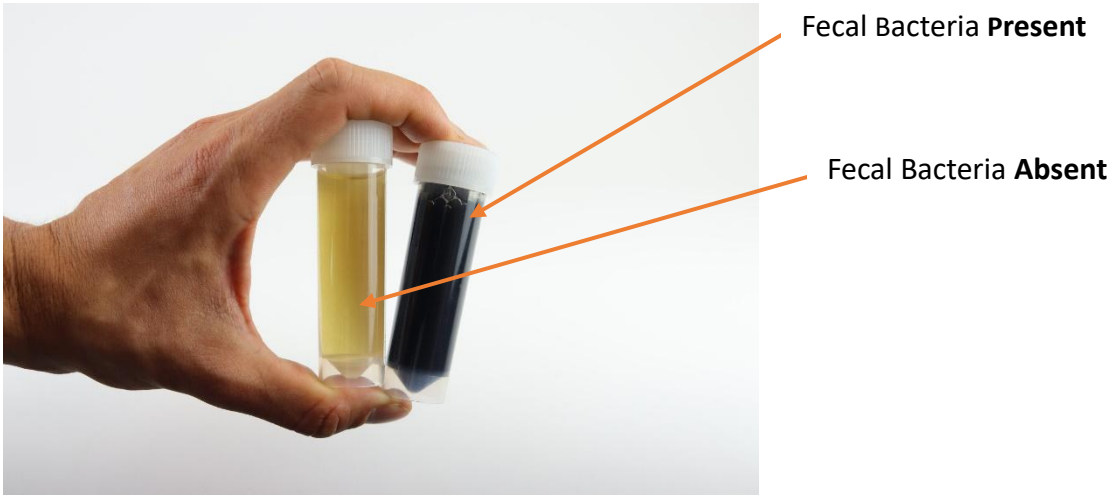
- Secure the cap tightly and invert the tube gently to mix the sample with the reagent.
- Place the test tube in a stable environment at a temperature from **23°C (room temperature) up to 40°C**.
    - Note: Temperature fluctuations in this range will not affect the accuracy or efficacy of the test.
- Incubate for a period of **15 to 48 hours**.
    - Note: When incubated at **37°C**, cultural characteristic results will be observed within 15 to 30 hours.

- Note: When incubated at **23°C**, cultural characteristic results may take up to 48 hours.

5. Interpretation of Results

After the required incubation period, perform a visual inspection of the test tube:

Result	Observation	Conclusion
Negative	**Yellow**	**Absence:** Fecal bacteria is not detected; meets safe drinking water standards.
Positive	**Black**	**Presence:** Fecal bacteria detected; the water is contaminated and unsafe for drinking.



6. Technical Specifications & Storage

- **Storage Requirements:** Store in a cool, dry location at **23°C (room temperature) up to 40°C**.
- **Incubation Requirements:** During incubation, keep the test dry, and away from direct sunlight (e.g., store in a drawer, cabinet and away from windows) at **23°C (room temperature) up to 40°C**.
- **Shelf Life:** Please refer to the expiration date printed on the packaging.
- **Disposal Protocol:** Treat all positive (presence) tests as biohazardous, and dispose of them according to local regulations.

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7. Safety Protocol

To ensure the safety of the user and the integrity of the sample:

- **Personal Protective Equipment:** If possible, utilize sterile gloves when handling samples.
- **Handling Precautions:** Do not drink or taste the water samples.
- **Post-Testing:** Treat all positive samples as biohazardous and dispose of them according to local regulations.

8. Troubleshooting

Please refer to the following guide if the test does not perform as expected:

- **Damaged Component:** If a test tube leaks or is found broken prior to use, discard it immediately and proceed with a new, sterile test tube.
- **Inconclusive Results:** If no clear color change is observed after 48 hours, the test should be repeated. This may be due to an insufficient sample size or improper handling during the collection phase.
- **Conflicting Data:** In the event that multiple tests yield conflicting results from the same source, please contact **Aquasol Technology Limited** directly for technical guidance and quality assurance support.

9. Strategic Advantages

Aquasol Technology provides a solution that bridges the gap between sophisticated laboratory testing and accessible field monitoring.

Feature	Strategic Benefit
Operational Readiness	Ready to use with laboratory preparation required.
Accessibility	Can be deployed without specialized laboratory equipment or highly trained staff.

Environmental Flexibility	Results can be obtained at room temperature, eliminating the need for an incubator.
Logistics Efficiency	Long shelf life with no refrigeration required; easy to transport and store
Cost-Effectiveness	Provides a quick and affordable alternative to traditional lab-based methods.
Sustainability	The testing materials are recyclable.

10. References

World Health Organization (WHO) Guidelines for Drinking-Water Quality, Fourth Edition, 2011.

11. Contact Information

For professional inquiries, technical assistance, or guidance regarding test results, please contact:

- **Company Name:** Aquasol Technology Limited
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- **Website:** **https://aquasol-tech.com**