

AMT RAPID BAC™

AMT-I-B-001

Total Bacteria Test for detection of contamination of natural waters, drinking waters, process waters, and wastewater.

BRINKING THE LABORATORY TO THE FIELD

AMT Scientific brings the testing laboratory where it is needed most—the field. Our tests are easy to use, fast and reliable, have an extended shelf life and present a unique, cost-effective way to perform microbiological analysis in the field or the laboratory.

Our tests allow you to identify microorganisms that traditionally could only be cultured or identified using expensive equipment in a laboratory setting for a fraction of what a laboratory charges. When using AMT tests, you can make the decisions in the field, where they count.

Read all directions entirely before running this test.

SUMMARY AND EXPLANATION

The American Public Health Association (APHA.)¹ suggested this formulation (Nutrient Broth) for a standard culture medium for use in bacteriological procedures for water analysis. This medium is the suggested culture medium in *Standard Methods of Water Analysis* and *Standard Methods for Milk Analysis*.^{2,3}

AMT RAPID BAC™ Test also contains a TTC Indicator at 100 ppm to help visualize the turbidity reaction caused by the growth of Microorganisms. The positive growth of microorganisms is indicated by a turbid Pink-Red color. When using a Time-based method, the time required to obtain the Pink-Red color is negatively proportional to the level of microorganisms present in the sample being tested. CFU/mL of tested samples can be determined with the included time to cell density chart. When using a Color-based method, the intensity of the developed Pink-Red color after 24 hours can be used to determine the CFU/mL of tested samples by comparing with the color reference.

TIME-BASED METHOD

If using the supplied sample cup, triple rinse the cup with the water sample prior to use.

- Gather the sample in the supplied sample cup filling to the 25 mL line or preferably in a single use sterile sample container.
- (Optional) If samples contain chlorine, add 5 drops of the De-chlorination solution for every 25 mL of sample. Swirl to mix and let sit 2 minutes.
- Remove ampoule from box and carefully remove and save the provided safety cap. Inspect the ampoule tip for breakage. If broken discard properly and get a new ampoule.
- With an unbroken ampoule, place the tip (without safety cap) in the sample container with the tip against the sample container wall holding the ampoule at a 45° angle. Gently push the tip against the sample container wall with a slight twisting motion. The ampoule tip will break and the sample will automatically be drawn into the ampoule. Make sure to keep the ampoule tip in the sample until it has finished filling.

- Remove the ampoule from the sample.
- Incubate the ampoule at 37 °C. Check hourly for a light pink color. When the light pink color develops, record the time in hours from start of the test to the appearance of the light pink color and check the chart below for bacterial levels.
- Sterilize sample container with 10% bleach before next test. For example, to a 20 mL bacterial sample, add 2 mL or ~40 drops bleach solution. Mix and wait for 10 minutes. Rinse 3 times with sterile milli-Q water to remove residual bleach.

Approximate bacteria population:

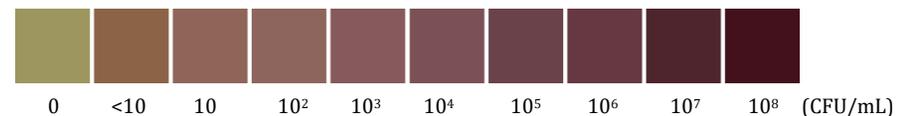
Elapsed Time (hrs)	Approximate bacteria population (CFU/mL)
1.5	10 ⁸
3	10 ⁷
5	10 ⁶
7	10 ⁵
9	10 ⁴
11	10 ³
13	10 ²
18	10 ¹
24	1 – 10
30 or more	< 1

COLOR-BASED METHOD

If using the supplied sample cup, triple rinse the cup with the water sample prior to use.

- Gather the sample in the supplied sample cup filling to the 25 mL line or preferably in a single use sterile sample container.
- (Optional) If samples contain chlorine, add 5 drops of the De-chlorination solution for every 25 mL of sample. Swirl to mix and let sit 2 minutes.
- Remove the ampoules from box and carefully remove and save the provided safety cap. Inspect the ampoule tips for breakage. If broken discard properly and get a new ampoule.
- With an unbroken ampoule, place the tip (without safety cap) in the sample container with the tip against the sample container wall holding the ampoule at a 45° angle. Gently push the tip against the sample container wall with a slight twisting motion. The ampoule tip will break and the sample will automatically be drawn into the ampoule. Make sure to keep the ampoule tip in the sample until it has finished filling.
- Remove the ampoule from the sample.
- Incubate for 24 hours at 37 °C.
- At the end of incubation compare the color intensity of sample tubes to the color reference to determine bacterial levels.

Color reference for the Color-based method



EXPECTED RESULTS

Positive growth is indicated by a pink-red color.

LIMITATIONS OF PROCEDURE

This test is designed to grow aerobic bacteria and give a pink-red color. Although infrequent, some bacteria can be inhibited by the TTC indicator or not react with the indicator.

The TTC indicator is photo sensitive. Keep ampoules out of direct sunlight. Ampoules exposed to direct sunlight will develop a pink to red color in the absence of bacterial growth.

STORAGE

Upon receipt, store tubes in the dark at 2 – 25 °C. Avoid freezing and overheating. Ampouled media stored as indicated may be inoculated up to the expiration date. Minimize exposure to light.

PRODUCT DETERIORATION

Do not use ampoules if they show evidence of microbial contamination, discoloration, or other signs of deterioration.

EXPIRATION DATE

The product is stable if stored properly for 1 year from manufacture. The expiration date applies to media stored at or below 25 °C without direct exposure to light.

LABORATORY QUALITY CONTROL

Incubate the listed bacterial strains for about 16 hours, until reach 2.0 absorbance @600nm (~10⁹ CFU/mL).

Perform CFU counting to determine the cell density of bacterial cultures.

Mix bacterial cultures at 50%/50% ratio.

Dilute the mixed bacterial culture with sterile phosphate buffered saline (PBS) to the final CFU/mL of 10⁸, 10⁷, 10⁶, 10⁵, 10⁴, 10³, 10², 10, and 1. Use sterile PBS buffer as negative control.

Inoculate ampoules with these bacterial cultures and incubate in an aerobic environment at 37 °C. Perform biological triplicates for each cell density and negative control.

Examine the color development of all inoculated ampoules and record the time of the appearance of pink color up to 24 hours post inoculation.

QUALITY CONTROL ORGANISMS

Escherichia coli ATCC 25922

Good Growth.

Staphylococcus aureus ATCC 25923

Good Growth.

WARNING AND PRECAUTIONS

- For *in vitro* Diagnostic Use.
- For laboratory and field use by trained professionals.
- The AMT RAPID TM is a glass ampoule with a sharp tip when activated. USE EXTREME CAUTION when breaking the tip. Always carefully apply the provided safety cap.
- Dispose of broken unused ampoules in a broken glass receptacle.

- Dispose of used ampoules in an appropriate sharps container or sealed puncture resistant receptacle then offer for biohazard processing according to local, state and Federal regulations.
- Keep away from children.
- Not for use as a diagnostic tool on humans or animals.
- Observe aseptic techniques and established precautions against microbiological hazards throughout all procedures before, during and after use.
- Prepared ampoules, specimen containers and other contaminated materials must be sterilized by autoclaving or disinfectant solution before discarding.

REFERENCE

1. **American Public Health Association.** 1917 Standard Methods for water analysis, 3rd ed. American Public Health Association Washington D.C.
2. **American Public Health Association.** 1923 Standard Methods for water analysis, 5th ed. American Public Health Association Washington D.C.
3. **American Public Health Association.** 1923 Standard Methods for Milk analysis, 4th ed. American Public Health Association Washington D.C.

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