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Test Vessels for *Speedy Breedy*, *the* portable Microbial Respirometer

Safety note: Autoclave test vessels after use, without opening them!

Empty Vessel (BAC020)

Empty, **gamma irradiated sterile single-use vessels** for use in Speedy Breedy portable respirometer. Vessels can be filled with media for users' own specific tests, through a port in the lid, which also features a self-sealing syringe membrane

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Broad Spectrum

Culture Medium: Tryptone Soy Broth **(BAC021)**

Tryptone Soy Broth (TSB) is a widely used culture medium for the broad-spectrum growth of **aerobic bacteria and yeasts**. TSB is particularly suitable for environments where a simple "contamination" / "no contamination" result is necessary such as **checking the effectiveness of sterilisation procedures**.

TSB can also be used when assessing total numbers of aerobic bacteria present (Total Viable Count or TVC) based on Speedy Breedy Time to Detection.

E.coli and Coliforms

Culture Medium: MacConkey Broth **(BAC022)**

Culture Medium: MacConkey Broth Plus (Modified MacConkey Broth)

Escherichia coli and total coliform numbers are often used as a hygiene indicator.

A standard culture medium for the growth of coliforms, MacConkey Broth is a selective medium containing several components which suppress **Gram-positive organisms and non-bile tolerant** Gram-negative organisms. MacConkey Broth is also a differential medium, containing a pH indicator system whereby growth of coliform species, which are **able to ferment lactose**, leading to **a colour change of the medium from purple to yellow**.

Use of MacConkey Broth with incubation **temperatures of 36°C** will facilitate the detection of total coliforms. **Increasing incubation temperature to 44°C** increases the selectivity of the medium such that **only E. coli** will be detected, the non-E. coli species of coliforms unable to tolerate the higher temperature…

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Modified MacConkey Broth is supplemented with additional selective agents to suppress the growth of Pseudomonas spp. in samples, of value particularly in water testing, where samples may contain high cell numbers of Pseudomonas spp.

Used with Speedy Breedy, these culture vessels offer an excellent, rapid, sensitive and quantitative method for assessing samples for the presence of coliforms and / or more specifically, E. coli.

Enterococci and Streptococci

Culture Medium: Azide Dextrose Broth (***Enterococci and Streptococci***) **(BAC024)**

Culture Medium: Ethyl Violet Azide Broth (***Enterococci Only***) **(BAC025)**

Enterococci are often used as a hygiene indicator in **water testing**, not only in the water industry but wherever water cleanliness may pose a risk, from infection control to food hygiene.

Two Speedy Breedy Enterococcus media are available. The first, **Azide Dextrose** (AD) Broth, acts to selectively detect **enterococci and streptococci**, whilst the second, **Ethyl Violet Azide** (EVA) Broth has been shown to **inhibit the growth of streptococci** whilst still **facilitating the growth of enterococci**, so offering an extra level of selectivity where required.

Pseudomonas aeruginosa

Culture Medium: ***Pseudomonas aeruginosa*** Broth **(BAC023)**

Found through-out the world around us, ***Pseudomonas aeruginosa*** is of particular interest in health care environments (where there is the risk of infection from **contaminated water**) and to those using industrial equipment and fluids (where the organism typically enters production systems through **contaminated process water** and can be the cause of product degradation and the cause of **biofilm** production).

Speedy Breedy ***Pseudomonas aeruginosa*** Culture Vessels use a culture medium designed to selectively permit growth of ***P. aeruginosa*** and inhibit the growth of other organisms.

Salmonella Detection

Culture Medium: Modified Brilliant Green Broth **(BAC028)**

Salmonella is a well-known cause of **food-poisoning** and production of many food and drink products require quality testing to ensure a complete absence of the bacterium. Such pathogen testing is particularly important for **ready-to-eat foods** that do not undergo any cooking process after distribution.

The Speedy Breedy Salmonella Culture Vessel provides contains a growth medium purposefully designed to encourage selective Salmonella growth and detection (even with low numbers of bacteria).

Used with Speedy Breedy, the Salmonella Culture Vessel provides an excellent, rapid, sensitive screening method for assessing samples for the presence of Salmonella spp.

Staphylococcus Detection

- Culture Medium: Mannitol Salt Broth **(BAC030)**

Staphylococcus aureus is a common bacterium found on the skin and in the respiratory tract in healthy people. The ability to produce toxins associated with **food poisoning** means that ***S. aureus*** is of particular interest in the food testing industry as products, particularly ready-to-eat foods, should be free of contamination.

Containing a growth medium selective for ***Staphylococcus*** bacteria, the growth medium can also be used to **differentiate *S. aureus*** from other ***non-S. aureus spp***. by exhibiting **bright colour** change in the event of detecting ***S. aureus*** contamination.

Listeria Detection

- Culture Medium: Modified Demi Fraser Broth **(BAC029)**

The Listeria bacteria are most well known for the important human pathogen Listeria monocytogenes. Able to grow even at low temperatures, this bacterium is associated with the food poisoning disease Listeriosis.

Causing several thousand cases of illness each year, with a significant proportion of fatal cases, it is important that food producers, particularly those producing ready-to-eat foods, confirm that their products are completely free of Listeria

Selective for Listeria bacteria, the Listeria Culture Vessel contains growth medium which facilitates the rapid detection of Listeria spp. using Speedy Breedy when screening samples for the pathogen.

Yeast Detection

- Culture Medium: Yeast & Mould Broth (**All Yeast Detection**) **(BAC027)**
- Culture Medium: Modified Yeast & Mould Broth (**Wild Yeast Detection**) **(BAC026)**

Yeasts are a group of micro-organisms which include both favourable and unfavourable species.

Some species of yeast are essential in food production processes such as **brewing and baking**, whilst others can be detrimental (such as wild yeasts affecting brewing processes) or even pathogenic.

A basic Yeast Broth medium is available to detect all yeast species that may be present in a sample, whilst a modified, Wild Yeast Broth is available for Speedy Breedy users interested in detecting contamination in the brewing industry. The **Wild Yeast Broth selectively inhibits brewing strains** so that only wild strains are detected.

Both Yeast Broth and Wild Yeast Broth **contain components to inhibit bacterial growth** to ensure that detection is specific to yeasts.

Vibrio Detection

Culture Medium: Modified Alkaline Peptone Broth **(BAC031)**

The ***Vibrio spp***. bacteria are a group of typically marine-inhabiting organisms. The group includes a number of known human pathogens but most notably the organism ***Vibrio cholerae*** – the bacterium associated with Cholera.

A modification of the routinely used enrichment broth for Vibrio spp., the growth medium in the Speedy Breedy culture vessel facilitates recovery of Vibrio spp. bacteria whilst selectively suppressing the growth of other species including other halotolerant organisms.

Lactic Acid Spoilage Bacteria Detection Lactobacillus spp. & Pediococcus spp.

Culture Medium: Modified NBB Broth for **(BAC033)**

The lactic acid bacteria are a group of organisms incorporating known food and beverage-spoilage species. Capable of producing acidic compounds affecting taste, these species can also produce relatively high volumes of carbon dioxide which may lead to leading packaging damage.

Lactobacillus spp. and ***Pediococcus spp***. are known spoilage organisms particularly in the **brewing industry**, with a tolerance of the alcohol and pH conditions of brewing that inhibit many other species.

A modification of the routinely used spoilage-detection and enrichment broth, NBB Broth, the growth medium within the Speedy Breedy culture vessel **facilitates the selective growth and detection of these Gram positive organisms**, whilst **suppressing non-spoilage organisms**.

Perfringens Detection

Culture Medium: Modified Shahidi-Ferguson Broth **(BAC032)**

Clostridium perfringens is most commonly known as being the bacterium associated with food poisoning. ***C. perfringens*** is also associated with gas gangrene. As one of the most common bacterial causes of food poisoning, food producers are typically required to ensure that products are free of this hardy, spore-forming organism.

The Speedy Breedy Perfringens Culture Vessel contains a **growth medium purposefully designed to create anaerobic test conditions** and encourage recovery of and selective growth and detection of ***C. perfringens*** (even with low numbers of bacteria present in a sample).

Used with Speedy Breedy, the Perfringens Culture Vessel provides an excellent, rapid, sensitive screening method for assessing samples for the presence of ***C. perfringens***.