INTENDED USE
Remel Charcoal Agar is a solid medium recommended for use in qualitative procedures for selective isolation of *Bordetella pertussis* and *Bordetella parapertussis*.

SUMMARY AND EXPLANATION
Whooping cough is caused by *Bordetella pertussis* and *Bordetella parapertussis*, which are among the most fastidious bacteria known and require special culturing techniques. In 1955, Proom demonstrated nicotinic acid was an essential growth factor for the bordetellae.1 Ensminger et al. used a charcoal medium for growing *B. pertussis* in vaccine production.2 Mishulow et al. used Charcoal Agar in place of Bordet-Gengou for isolation of *B. pertussis* from clinical specimens.3 In separate studies, cephalexin (40 μg/ml) was added to Charcoal Agar and found to be superior to penicillin and menticillin for selective recovery of *B. pertussis*.4,5 Regan and Lowe added 10% defibrinated horse blood to Charcoal Agar supplemented with 40 μg/ml cephalexin and reported it to be an excellent enrichment and transport medium.6 In separate studies, Hoppe et al. reported horse blood was superior to sheep blood or human blood for recovery of *Bordetella* and ambient air provides more luxuriant growth of bordetellae than incubation in 5-10% CO₂.7,8

PRINCIPLE
Beef extract, peptones, and nicotinic acid provide essential nutrients for the growth of *Bordetella*. Starch and charcoal are added to absorb toxic fatty acids and peroxides. The addition of horse blood supplies growth factors for *B. pertussis* and neutralizes inhibitory substances. With addition of cephalexin, Charcoal Agar Base provides for selective isolation of *Bordetella* spp. from respiratory specimens by inhibiting penicillin-resistant staphylococci, some coliforms, and some strains for *Haemophilus influenzae*.

REAGENTS (CLASSICAL FORMULA)*
Beef Extract.......................................................... 10.0 g
Casein/Meat Polypeptone ........................................... 10.0 g
Starch................................................................. 10.0 g
Sodium Chloride.................................................... 5.0 g
Charcoal............................................................... 4.0 g
Nicotinic Acid..................................................... 1.0 mg
Agar....................................................................... 12.0 g

*pH 7.4 ± 0.2 @ 25°C

*Adjusted as required to meet performance standards.

PRECAUTIONS
This product is For Laboratory Use only. It is not intended for use in the diagnosis of disease or other conditions.

PREPARATION OF DEHYDRATED CULTURE MEDIUM
1. Suspend 51 g of medium in 1000 ml of demineralized water.
2. Heat to boiling with agitation to completely dissolve.
3. Sterilize by autoclaving at 121°C for 15 minutes or following established laboratory procedures.
4. Cool to 45-50°C and add 10% defibrinated horse blood. To make a selective medium, add cephalexin to a final concentration of 20-40 mg per liter.

PROCEDURE
1. Consult current editions of appropriate references for the recommended procedure for sample preparation, inoculation, testing, and interpretation.

QUALITY CONTROL
Each lot number of the Charcoal Agar Base has been manufactured, packaged, and processed in accordance with current Good Manufacturing Practice regulations. All lot numbers have been tested using the following quality control organisms and have been found to be acceptable. Testing of control organisms should be performed in accordance with established laboratory quality control procedures. If aberrant quality control results are noted, sample results should not be reported.

CONTROL
- *Bordetella pertussis* ATCC® 12742
- *Bordetella parapertussis* ATCC® 15237
- *Escherichia coli* ATCC® 25922
- *Staphylococcus aureus* ATCC® 25923

INCUBATION
- Ambient, up to 5 days @ 33-37°C
- Ambient, up to 5 days @ 33-37°C
- Ambient, 18-24 h @ 33-37°C
- Ambient, 18-24 h @ 33-37°C

RESULTS
- Growth
- Growth
- Inhibition (partial to complete)
- Inhibition (partial to complete)

BIBLIOGRAPHY

Refer to the front of Remel Technical Manual of Microbiological Media for General Information regarding precautions, product storage and deterioration, sample collection, storage and transportation, materials required, quality control, and limitations.

ATCC® is a registered trademark of American Type Culture Collection.

IFU452861, Revised August 23, 2010