RAPID UREA BROTH (LYOPHILIZED)

INTENDED USE
Remel Rapid Urea Broth (Lyophilized) is recommended for use in qualitative procedures for rapid differentiation of microorganisms on the basis of urease production.

SUMMARY AND EXPLANATION
The detection of urease activity is routinely used in clinical microbiology laboratories to aid in identification of gram-negative bacteria. In 1941, Rustigian and Stuart developed a medium for detection of urease activity by *Proteus* spp. In further testing, they determined other urea-positive genera within the *Enterobacteriaceae* could be detected in a medium with a reduced buffering capacity. Rapid Urea Broth is such a medium. It allows for rapid urease detection in enteric gram-negative bacilli other than *Proteus* spp. This medium is recommended by the American Public Health Association.

PRINCIPLE
Microorganisms that hydrolyze urea by means of the urease enzyme produce ammonia. This alkaline end product causes the pH indicator, phenol red, to change from yellow-orange to pink-red. A balance of monopotassium phosphate and disodium phosphate comprise the buffering system to produce a rapid change in pH, changing phenol red indicator accordingly.

REAGENTS (CLASSICAL FORMULA)*
- Urea: 20.0 g
- Yeast Extract: 0.1 g
- Phenol Red: 0.01 g
- Disodium Phosphate: 0.095 g
- Monopotassium Phosphate: 0.091 g
- Demineralized Water: 1000.0 ml

pH 6.9 ± 0.2 @ 25°C

*Adjusted as required to meet performance standards.

PRECAUTIONS
This product is for *In Vitro* diagnostic use and should be used by properly trained individuals. Precautions should be taken against the dangers of microbiological hazards by properly sterilizing specimens, containers, and media after use. Directions should be read and followed carefully.

STORAGE
Store lyophilized product in its original container at 2-8°C until used. Allow product to equilibrate to room temperature before use.

PRODUCT DETERIORATION
This product should not be used if (1) after rehydration, the color of the broth is not light-orange but rather pink to red, (2) the expiration date has passed, or (3) there are other signs of deterioration.

SPECIMEN COLLECTION, STORAGE, TRANSPORT
Specimens should be collected and handled following recommended guidelines.

MATERIALS REQUIRED BUT NOT SUPPLIED
- Loop sterilization device
- Inoculating loop, swabs, collection containers
- Incubators, alternative environmental systems
- Supplemental media
- Quality control organisms
- Saline or demineralized water
- Plastic tubes
- Water bath
- Pipettes

PROCEDURE
1. Reconstitute Rapid Urea Broth (Lyophilized) by adding 3 ml of demineralized water or neutral saline (pH 7.0 ± 0.2) to the vial. Mix to dissolve. The color of the broth should be light-orange. If the color is pink or red, do not use.
2. Inoculate the 3 ml vial directly or aliquot 0.5 ml of the broth into plastic tubes. The inoculum may be removed from TSI Agar, KIA, Tryptic Soy Agar, or other agar medium having heavy growth in pure culture. To obtain rapid results, use a large inoculum, 2-3 loopfuls of the test isolate.
3. Incubate the tube aerobically at 33-37°C. The use of a water bath will accelerate results.
4. Examine for a pink-red color development at 15 minutes, 30 minutes, 60 minutes and 4 hours.

Note: Store rehydrated broth at 2-8°C and use on the day it is prepared.

INTERPRETATION
Positive Test - A pink-red color development
Negative Test - No color change

QUALITY CONTROL
All lot numbers of Rapid Urea Broth (Lyophilized) have been tested using the following quality control organisms and found to be acceptable. Positive and negative controls should be tested in accordance with established laboratory quality control procedures. If aberrant quality control results are noted, patient results should not be reported.

CONTROL
- Cryptococcus neoformans ATCC® 34877: Aerobic, up to 4 h @ 33-37°C - Positive
- Proteus mirabilis ATCC® 12453: Aerobic, up to 4 h @ 33-37°C - Positive
- Escherichia coli ATCC® 25922: Aerobic, up to 4 h @ 33-37°C - Negative
LIMITATIONS
1. The use of glass tubes may result in false-positive results and is not recommended.
2. Urea test media rely on demonstration of alkalinity and are not specific for detection of urease activity. Peptones in the medium may be hydrolyzed releasing amino acids which raise the pH and may result in false-positive reactions. A control test using the same test medium without urea can be used to facilitate interpretation of questionable reactions.

BIBLIOGRAPHY

PACKAGING
Rapid Urea Broth (Lyophilized):
REF R20388, 3 ml/Vial ........................................... Each

Symbol Legend

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