INTENDED USE
BD Campylobacter Agar (Butzler) and BD Campylobacter Agar (Skirrow) are selective media for the isolation of Campylobacter species from clinical and other specimens.

PRINCIPLES AND EXPLANATION OF THE PROCEDURE
Microbiological method.
The genus Campylobacter includes important pathogens causing intestinal infections such as diarrhoea. In rural areas and in less developed countries, campylobacters are at least as frequent as Salmonella as intestinal pathogens. The most frequently isolated species is Campylobacter jejuni subsp. jejuni, whereas C. coli and C. lari are rarer.\(^1\)
Dekeyser et al. reported the isolation of C. jejuni from the feces of patients with diarrhea and acute gastroenteritis using a filtration technique and a selective medium with antimicrobics to suppress the normal enteric flora.\(^2\) Butzler, in 1973, developed a selective medium containing five antimicrobials.\(^3\) Skirrow, in 1977, reported a selective culture medium containing three antimicrobics.\(^4\)
In BD Campylobacter Agar (Butzler), meat extract and peptone provide the nutrients, and sodium chloride maintains the osmotic stability. Novobiocin and colistin inhibit Gram negative enteric bacteria, cephazolin and bacitracin inhibit Gram positive bacteria. Cycloheximide inhibits many fungi. Horse blood provides nutrients and, by supplying catalase and superoxide dismutase, destroy radicals and peroxides accumulating during exposure to air.
In BD Campylobacter Agar (Skirrow), heart infusion, casein peptone, and yeast extract provide nutrients, and sodium chloride maintains the osmotic stability. Vancomycin inhibits Gram positives, and trimethoprim and polymyxin B inhibit many Gram negative organisms. Lysed horse blood provides nutrients and heme for bacterial catalase.

REAGENTS
Formulas* Per Liter Purified Water

<table>
<thead>
<tr>
<th>BD Campylobacter Agar (Butzler)</th>
<th>BD Campylobacter Agar (Skirrow)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat Extract</td>
<td>Heart Muscle, Infusion from (solids)</td>
</tr>
<tr>
<td>Peptone</td>
<td>Pancreatic Digest of Casein</td>
</tr>
<tr>
<td>Sodium Chloride</td>
<td>Yeast Extract</td>
</tr>
<tr>
<td>Novobiocin</td>
<td>Sodium Chloride</td>
</tr>
<tr>
<td>Bacitracin</td>
<td>Vancomycin</td>
</tr>
<tr>
<td>Colistin</td>
<td>Trimethoprim</td>
</tr>
<tr>
<td>Cephazolin</td>
<td>Polymyxin B</td>
</tr>
<tr>
<td>Cycloheximide</td>
<td>Agar</td>
</tr>
<tr>
<td>Horse Blood, defibrinated</td>
<td>Horse Blood, defibrinated, lysed</td>
</tr>
<tr>
<td>pH 7.5 +/- 0.2</td>
<td>pH 7.3 +/- 0.2</td>
</tr>
</tbody>
</table>

*Adjusted and/or supplemented as required to meet performance criteria.

PRECAUTIONS
For professional use only.
Do not use plates if they show evidence of microbial contamination, discoloration, drying, cracking or other signs of deterioration.
Consult GENERAL INSTRUCTIONS FOR USE document for aseptic handling procedures, biohazards, and disposal of used product.
STORAGE AND SHELF LIFE
On receipt, store plates in the dark at 2 to 8°C, in their original sleeve wrapping until just prior to use. Avoid freezing and overheating. The plates may be inoculated up to the expiration date (see package label) and incubated for the recommended incubation times. Plates from opened stacks of 10 plates can be used for one week when stored in a clean area at 2 to 8°C.

USER QUALITY CONTROL
Inoculate representative samples with the following strains (for details, see GENERAL INSTRUCTIONS FOR USE document). Incubate plates in a microaerobic atmosphere at 35 to 37°C for 42 to 48 hours.

<table>
<thead>
<tr>
<th>Strains</th>
<th>BD Campylobacter Agar (Butzler)</th>
<th>BD Campylobacter Agar (Skirrow)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Campylobacter jejuni</em> subsp.* jejuni* ATCC™ 33291</td>
<td>Growth good to excellent</td>
<td>Growth good to excellent</td>
</tr>
<tr>
<td><em>Campylobacter fetus</em> subsp.* fetus* CCM 5682</td>
<td>Growth fair to good</td>
<td>Growth good to excellent</td>
</tr>
<tr>
<td><em>Escherichia coli</em> ATCC 25922</td>
<td>Inhibition complete</td>
<td>Inhibition complete</td>
</tr>
<tr>
<td><em>Proteus mirabilis</em> ATCC 14153</td>
<td>Inhibition complete</td>
<td>Inhibition partial to complete</td>
</tr>
<tr>
<td><em>Enterococcus faecalis</em> ATCC 29212</td>
<td>Inhibition complete</td>
<td>Inhibition complete</td>
</tr>
</tbody>
</table>

PROCEDURE

Materials Provided
BD Campylobacter Agar (Butzler) or BD Campylobacter Agar (Skirrow), both provided in 90 mm Stacker™ plates. Microbiologically controlled.

Materials Not Provided
Ancillary culture media, reagents and laboratory equipment as required.

Specimen Types
Fresh stool specimens or rectal swabs from patients suspected to be infected with *Campylobacter* species, or meat and other food samples (see also PERFORMANCE CHARACTERISTICS AND LIMITATIONS OF THE PROCEDURE). Stool specimens, swabs, and food samples should not be older than 24 to 48 hours. Swabs must be inserted into appropriate transport media (e.g., Cary Blair medium). If not processed immediately, store specimens in transport media at 4 to 8°C. Avoid desiccation and exposure to oxygen.

Test Procedure
Streak the specimen for dilution as soon as possible after it is received in the laboratory onto BD Campylobacter Agar (Butzler) or BD Campylobacter Agar (Skirrow). Meat or other foods should first be minced or homogenized and then inoculated directly or after suspension in a small amount of peptone broth onto the medium. If material is being cultured directly from a swab, roll the swab over a small area of the surface at the edge; then streak from this inoculated area. The application of a special filtration technique for the processing of specimens followed by the inoculation of selective and non-selective media has been described. Incubate inoculated plates, protected from light, at 35 ± 2°C or 42 ±2°C in a reduced oxygen, increased carbon dioxide (=microaerobic) atmosphere. The incubation at 42°C results in better selectivity, but is inhibitory to *Campylobacter jejuni* subsp. *doylei* and a variety of other species. The microaerobic atmosphere can be achieved by using BD CampyPak (together with catalyst) or CampyPak Plus disposable gas generator envelopes in BD GasPak jars, or using a BD CampyPouch™ system. Alternatively, the atmosphere can be achieved using evacuation of BD GasPak vented jars and replacement with cylinder gases. An incubation period of 2 to 3 days is usually sufficient, but 5 to 7 days of incubation were shown to increase the isolation rates.
Results
After 42 to 48 hours incubation in a microaerobic atmosphere, the plates are inspected for typical *Campylobacter* colonies. Fresh isolates, especially of *C. jejuni*, tend to swarm on these and other campylobacter media while other species might produce convex colonies. A positive oxidase test and a Gram stain showing curved to gull wing-shaped Gram negative rods are further hints for the successful isolation. Further tests are necessary for confirmation of the identification.

**PERFORMANCE CHARACTERISTICS AND LIMITATIONS OF THE PROCEDURE**

BD Campylobacter Agar (Butzler) and BD Campylobacter Agar (Skirrow) are media for the isolation of *Campylobacter* species from human stool specimens.\(^1\)\(^,\)\(^5\)\(^,\)\(^6\)

Due to the presence of cephazolin, growth of certain *C. fetus* subsp. *fetus* strains and other campylobacters sensitive to first generation cephalosporins might be inhibited on BD Campylobacter Agar (Butzler). It is recommended to include less selective media such as BD Campylobacter Bloodfree Selective Medium. Refer to the references for a full discussion of the isolation techniques.\(^1\)\(^,\)\(^5\)

Cycloheximide in BD Campylobacter Agar (Butzler) does not inhibit most *Candida* species. Also, fungi are not inhibited on BD Campylobacter Agar (Skirrow).

**REFERENCES**


**PACKAGING/AVAILABILITY**

BD Campylobacter Agar (Butzler)
Cat. No. 256058 Ready-to-use Plated Media, cpu 20

BD Campylobacter Agar (Skirrow)
Cat. No. 254464 Ready-to-use Plated Media, cpu 20

**FURTHER INFORMATION**

For further information please contact your local BD representative.