

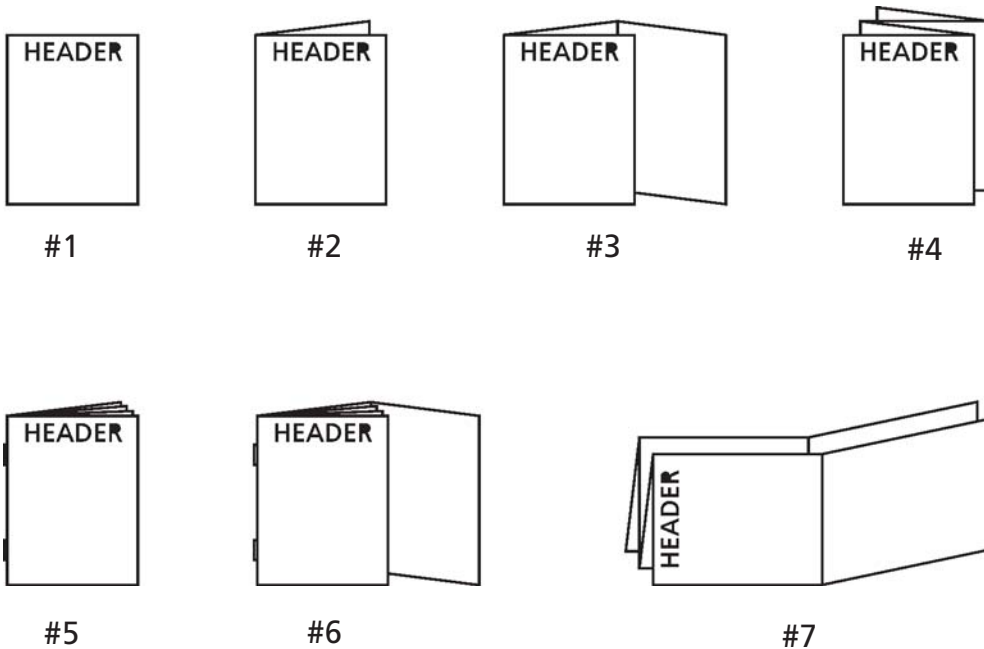
Revisions

SO 0191-5

Rev from	Rev to	ECO #
0499	0508	4694-08

Notes:

1. BD Cat. Number Various
2. Blank (Sheet) Size: Length: 10" Width: 4.25"
 Number of Pages: 2 Number of Sheets: 1
 Page Size: Length 10" Width 4.25" Final Folded Size: N/A
3. Style (see illustrations below): # 1



4. See Specification Control Number 8840281 for Material Information
5. Ink Colors: Printed two sides Yes No
 No. of Colors: 1 PMS# Standard Black
6. Graphics are approved by Becton, Dickinson and Company. Supplier has the responsibility for using the most current approved revision level

Vendor Spec Controlled by BD Caribe

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Part Number: 8840281		Category and Description Package Insert, Taxo Carbohydrate Discs	Sheet: 1 of 3 <hr/> Scale: N/A	A

BD BBL™ Taxo™ Carbohydrate Discs for the Differentiation of Microorganisms

8840281
2008/05

Description	Code	Unit	Cat. No.
Adonitol	Ad	1 vial Pkg. of 6	231057 231058
Arabinose	Ar	1 vial Pkg. of 6	231059 231060
Dextrose	D	1 vial Pkg. of 6	231061 231062
Dulcitol	Du	1 vial Pkg. of 6	231063 231064
Galactose	Ga	1 vial Pkg. of 6	231065 231066
Inositol	I	1 vial Pkg. of 6	231067 231068
Lactose	L	1 vial Pkg. of 6	231071 231072
Maltose	M	1 vial Pkg. of 6	231075 231076
Mannitol	Mn	1 vial Pkg. of 6	231077 231078
Raffinose	Ra	1 vial Pkg. of 6	231089 231090
Rhamnose	R	1 vial Pkg. of 6	231091 231092
Sorbitol	So	1 vial Pkg. of 6	231096 231097
Sucrose	Su	1 vial Pkg. of 6	231098 231099
Trehalose	Tr	1 vial Pkg. of 6	231100 231101

INTENDED USE

Taxo™ Carbohydrate Discs are for differentiation of microorganisms based on carbohydrate fermentation patterns. The discs provide a convenient alternative to the preparation and storage of carbohydrate solutions or media.

SUMMARY AND EXPLANATION

The ability of an organism to ferment a specific carbohydrate incorporated in a basal medium, resulting in production of acid and gas, has been used to characterize bacteria and aid in differentiation.

In 1949, Soto developed miniaturized fermentation tests using carbohydrate-impregnated paper discs.¹ Sanders et al. subsequently developed a screening method for identification of *Enterobacteriaceae* using reagent-impregnated discs.²

Taxo Carbohydrate Discs are paper discs impregnated with a variety of fermentable carbohydrates. When added to inoculated basal media, the patterns of fermentation reactions aid in identification of test organisms.

PRINCIPLES OF THE PROCEDURE

Carbohydrate added to a culture medium by means of a carbohydrate-impregnated disc diffuses through the medium. When a microorganism ferments a carbohydrate, the acid or acid and gas produced lowers the pH and the indicator in the medium changes color; e.g., phenol red changes from red to orange to yellow. If a carbohydrate is degraded oxidatively, acid is also produced which changes the indicator color.

Recommended basal media include **CTA Medium™** for determination of fermentation reactions of fastidious microorganisms; i.e., *Neisseria*, pneumococci, streptococci and nonsporeforming anaerobes, and Phenol Red Broth Base and Purple Broth Base for other organisms not generally considered to be nutritionally fastidious; i.e., clostridia, bacilli, common micrococci and *Enterobacteriaceae*. In these media, pancreatic digest of casein, which is low in fermentable carbohydrate, provides nutrients.

REAGENTS

Taxo Carbohydrate Discs are 1/2" discs made from high quality absorbent paper impregnated with approximately 20 mg of carbohydrate per disc.

Warnings and Precautions:

For Laboratory Use.

Observe aseptic techniques and established precautions against microbiological hazards throughout all procedures. After use, plates, tubes and other contaminated materials must be sterilized by autoclaving before discarding.

Storage Instructions: On receipt, store at -20° to +8°C. After use, store vial at 2 to 8°C to protect product integrity.

Use oldest discs first and discard expired discs. Allow containers to come to room temperature before opening. Return unused discs to the refrigerator.

The expiration date applies to product in intact container stored as directed. Do not open until ready to use.

Product Deterioration: Do not use discs if they show evidence of discoloration or other signs of deterioration. If a positive reaction color is apparent before incubation, this could be an indication of deterioration of the disc.

SAMPLES

These discs are not for testing mixed flora. The organism to be tested must first be isolated as separated colonies by streaking onto appropriate culture media.

PROCEDURE

Materials Provided: Depending upon which product is ordered, one of the carbohydrate discs listed above is provided.

Materials Required But Not Provided: Ancillary culture media, quality control organisms and laboratory equipment as required for this procedure.

Test Procedure:

1. Use in Semisolid Media

This is the preferred method since reactions are readily observable in medium adjacent to the disc. **CTA Medium** is suitable for this purpose.

Select appropriate **Taxo** discs on the basis of organisms to be tested. Transfer aseptically one disc to each tube of basal medium. Inoculate by stabbing the medium once with a straight needle to about one-half its depth. As the needle goes into the agar the disc is pushed aside into the agar near the surface.

Neisseria, unlike most organisms, should be inoculated only on the surface layer of the agar, without stabbing, after addition of the disc.

2. Use in Liquid Media

Selected discs are transferred aseptically to tubes containing about 2 mL of broth, usually either Phenol Red Broth or Purple Broth Base. Inoculum is then introduced.

3. Use with Plated Media

Several discs may be applied to one plate of Phenol Red Agar Base or other appropriate medium. The medium is first inoculated by swabbing or streaking the surface. Alternatively, a sterile surface of agar may be overlaid with a thin layer of agar (about 4 mL) seeded with a loopful of an actively growing broth culture and the discs aseptically pressed into the surface before the agar has hardened.

Incubate tubes and plates aerobically at 35 ± 2°C. Examine semi-solid media periodically after 15 – 18 h for growth and reactions. Examine liquid media after 4 – 6 h and plates after 12 – 18 h. Tubes and plates should be discarded as soon as a positive reaction occurs.

User Quality Control:

1. Examine discs for signs of deterioration as described under "Product Deterioration."
2. Check performance by inoculating disc-containing media with pure cultures of stable control organisms that produce known, desired reactions. The following cultures are recommended:

CTA Medium™

Culture	Taxo Carbohydrate Disc Reactions										
	D	Du	Ga	L	M	Mn	Ra	R	So	Su	Tr
<i>Neisseria gonorrhoeae</i> ATCC™ 43069	a	–	–	–	–	–	–	–	–	–	–
<i>Staphylococcus aureus</i> ATCC 6538P		K	a	a	a	a	K	K	K	a	a
<i>Corynebacterium pseudodiphtheriticum</i> ATCC 10700	–										

Phenol Red Broth Base with 3.5 g/L Agar

Culture	Taxo Carbohydrate Disc Reactions		
	Ad	Ar	I
<i>Escherichia coli</i> ATCC 25922	MRK	agM	MRK
<i>Klebsiella pneumoniae</i> ATCC 10031	a		a
<i>Salmonella enterica</i> subsp. <i>enterica</i> serotype Choleraesuis ATCC 10708		MKR	

Key: a = acid M = motile R = reduced g = gas
K = alkaline – = growth; no reaction

RESULTS

With semisolid media, the bottom of the tube serves as a control. Reactions begin near the disc and depend upon rate of growth and size of the inoculum. Formation of gas is apparent from bubbles at the surface, around the disc or along the line of inoculation. Motility may be judged simultaneously.

In liquid media, reactions of enteric bacilli and other nonfastidious bacteria are prompt, especially if the inoculum is large.

On plated media, a positive reaction is determined by appearance of a yellow zone around the disc.

LIMITATIONS OF THE PROCEDURE

In liquid and plated media reversal of pH may occur due usually to further breakdown of acid formed from carbohydrates, or to accumulation of ammonia from breakdown of nitrogen compounds, or both. Detection of gas formation is not reliable.

Rapid reversal of reactions in semisolid media is uncommon. Ordinarily, reactions can be recorded over a longer period of time than with either broth or plate cultures of enteric bacilli.

Frequent observation of results is necessary since organisms do not necessarily ferment all carbohydrates at the same rate, so that one **Taxo** Carbohydrate Disc may indicate fermentation by a color reaction and then that reaction may reverse, while the reaction with another carbohydrate is just beginning.

REFERENCES

1. Soto, O.B. 1949. Fermentation reactions with dried paper discs containing carbohydrate and indicator. Puerto Rican J. Public Health Trop. Med. 25:96-100.
2. Sanders, A.C., J.E. Faber and T.M. Cook. 1957. A rapid method for the characterization of enteric pathogens using paper discs. Appl. Microbiol. 5:36-40.

Becton, Dickinson and Company
7 Loveton Circle
Sparks, MD 21152 USA
800-638-8663

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