

MM0204

TSI Agar (Triple Sugar Iron Agar)

Use and description:

Medium used for the biochemical characterisation of enterobacteria in general and of *Salmonella* in particular in the analysis of food products and in screening for contamination of non-sterile pharmaceutical products. The principle of the medium relies on the ability of enterobacteria to ferment glucose (with or without production of gas), lactose, and saccharose and to reduce sulphates to sulphides which produces a black precipitate of iron sulphide.

Composition per liter:

Sodium chloride.....	5.000 g
Agar.....	12.000 g
Peptone.....	20.000 g
Meat extract.....	3.000 g
Yeast extract.....	3.000 g
Lactose.....	10.000 g
Saccharose.....	10.000 g
Glucose.....	1.000 g
Ferric citrate.....	0.300 g
Sodium thiosulphate.....	0.300 g
Phenol red.....	0.025 g

Final pH of the ready to use medium: 7.4 ± 0.2

Medium preparation:

Add 65 grams of dehydrated culture medium to 1 liter of distilled water. Mix well and bring to the boil to dissolve completely. Distribute and sterilize by autoclaving for 15 min at 121°C. Allow the medium to set in sloped form with a butt about 2,5 cm deep.

Quality specification:

Dehydrated medium: homogeneous, light beige to pinkish beige, fine powder.
Ready to use medium: red-orange and clear to trace hazy.

Microbiological response:

Organism	Result (Slant/Butt/Gas/H₂S)
<i>Escherichia coli</i> ATCC 25922	A/A/+/-
<i>Pseudomonas aeruginosa</i> ATCC 27853	K/K/-/-
<i>Salmonella typhimurium</i> ATCC 14028	K/A/-/+
<i>Proteus mirabilis</i> ATCC 12453	K/A/-/+
<i>Shigella flexneri</i> ATCC 12022	K/A/-/-

Typical reactions:

Organism	Butt	Slope	H₂S
<i>Enterobacter aerogenes</i>	AG	A	-
<i>Enterobacter cloacae</i>	AG	A	-
<i>Escherichia coli</i>	AG	A	-
<i>Proteus vulgaris</i>	AG	A	+
<i>Morganella morganii</i>	A or AG	NC or ALK	-
<i>Shigella dysenteriae</i>	A	NC or ALK	-
<i>Shigella sonnei</i>	A	NC or ALK	-
<i>Salmonella typhi</i>	A	NC or ALK	+
<i>Salmonella paratyphi</i>	AG	NC or ALK	-
<i>Salmonella enteritidis</i>	AG	NC or ALK	+
<i>Salmonella typhimurium</i>	AG	NC or ALK	+

Key: AG = acid and gas formation A = acid NC = no change ALK = alkaline

Storage:

Dehydrated medium should be stored between 10 to 25°C. Once opened, place the container in a dark, dry place. The dehydrated medium should not be used if there is any lump or the color has changed from the original.