

**Also known as**

CHRISTENSEN Agar

**Specification**

Solid medium for the detection of urease, according to ISO standards and DIN standard.

**Formula \* in g/L**

Gelatin peptone.....	1,000
Dextrose.....	1,000
Sodium chloride.....	5,000
Monopotassium phosphate.....	2,000
Phenol red.....	0,012
Agar.....	15,000

Final pH 7,0 ±0,2 at 25 °C

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

**Directions**

Suspend 24 g of powder in 950 mL of distilled water and bring to the boil. Sterilize in the autoclave at 121°C for 15 minutes. Let it cool to 50-55°C. Add 50 mL of Urea Sterile Solution 40% (Art. DSHB3006) and mix well. Distribute aseptically in tubes and let them solidify in a slanted position.

**Description**

Urea Agar complies with Christensen's specifications, and is recommended for the detection of ureolytic or urea degrading microorganisms, especially Enterobacteriaceae, although it can be used with Gram positive bacteria.

**Technique**

A pure culture is inoculated by surface streaking, and then incubated at 37°C. Generally, organisms with strong urease activity can be read after 3-5 hours. Reaction is evident as the medium changes colour from orange to pink-fuchsia, due to a strong alkalization produced by ammonia release.

**Quality control**
**Incubation temperature:** 37°C ±1.0

**Incubation time:** 5-18 h

**Inoculum:** 10<sup>3</sup>-10<sup>4</sup> CFU (Specificity) according to ISO 11133:2014/Amd 1:2018

**Microorganism**
**Growth**
**Remarks**

<i>Escherichia coli</i> ATCC® 25922	Good to very good	Urease (-)
<i>Salmonella typhimurium</i> ATCC® 14028	Good to very good	Urease (-)
<i>Proteus hauseri</i> ATCC® 13315	Good to very good	Urease (+)
<i>Proteus mirabilis</i> ATCC® 29906	Good to very good	Urease (+)
<i>Proteus mirabilis</i> ATCC® 43071	Good to very good	Urease (+)
<i>Enterobacter aerogenes</i> ATCC® 13048	Good to very good	Urease (-)

**References**

- ATLAS, R.M. & L.C. PARK (1993) Handbook of Microbiological Media. CRC Press Inc. London.
- CHRISTENSEN W.B. (1946) Urea decomposition as means of differentiating Proteus and Paracolon cultures from each other and from Salmonella and Shigella types. J. Bact. 52:461.
- DIN Standard 10160. Untersuchung von Fleisch und Fleischerzeugnissen. Nachweis von Salmonellen. Referenzverfahren.
- DOWNES, F.P. & K. ITO (2001) Compendium of methods for the microbiological examination of foods. 4th ed. APHA. Washington DC. USA.
- EDWARDS & EWING (1962) Identification of Enterobacteriaceae Burgess Pub. Co.
- FIL-IDF 93 Standard (2001) Milk and Milk products. Detection of Salmonella.
- ISO 6340 Standard (1995) Water Quality - Detection of Salmonella spp.
- ISO Standard 6579-1 (2017) Microbiology of food chain - Horizontal method for the detection, enumeration and serotyping of Salmonella - Part 1 : Detection of Salmonella spp.
- ISO 6785 Standard (2001) Milk and Milk products - Detection of Salmonella spp.
- ISO 21567 Standard (2004) Microbiology of food and animal feeding stuffs.- Horizontal method for the detection of Shigella spp.
- MARSHALL, R.T. (1992) Standard methods for the examination of dairy products. 16th ed. APHA. Washington DC. USA.
- ISO 11133:2014/ Adm 1:2018. Microbiology of food, animal feed and water. Preparation, production, storage and performance testing of culture media.

**Storage**

For laboratory use only. Keep tightly closed, away from bright light, in a cool dry place (+4 °C to 30 °C).