

## 27048 Christensen's Urea Agar (Urea Agar Base acc. to Christensen, Urea Test Agar)

For the differentiation of urea-metabolizing microorganisms. Weak urease producers such as *Klebsiella*, *Enterobacter* etc. can also be differentiated. *Yersinia pseudotuberculosis* (urea positive) from *Yersinia pestis* (urea negative) acc. to Thal and Chen (1955).

### Composition:

Ingredients	Grams/Litre
Gelatine peptone	1.0
D(+)-Glucose	1.0
Potassium dihydrogen phosphate	2.0
Sodium chloride	5.0
Phenol red	0.012
Agar	12.0
Final pH 6.8 +/- 0.2 (at 25 °C)	

Store prepared media below 8°C, protected from direct light. Store dehydrated powder in a dry place in tightly-sealed containers at 2-25°C.

### Directions:

Dissolve 21 g in 950 ml distilled water. Sterilize by autoclaving at 121°C for 15 minutes. After cooling to 50°C, add aseptically 50ml (10 vials) sterile filtered 40% urea solution (Cat. No. 08582). Mix well and let cool as slants. Urea decomposes very easily by heat. As negative control takes a slant without addition of urea.

### Principle and Interpretation:

Christensen's Urea Agar was formulated to detect and differentiate urolytic and urea degrading microorganisms. *Proteus* species are rapid urease positives and can be differentiated from urease positive *Enterobacteriaceae* like *Citrobacter*, *Enterobacter* and *Klebsiella*. Also gram positive bacteria with urease activity can be detected.

Christensen observed that the addition of gelatine peptone, dextrose and reduced content of buffer supports a luxuriant growth at an early stage. Urea is the substrate and can be degraded from certain organisms, which results in ammonia building. The ammonia makes the media alkaline and therefore the indicator phenol red change the color to pink-red. Prolonged incubation may cause alkaline reaction in the medium.

Cultural characteristics after 18-24 hours at 35°C.

Organisms (ATCC)	Growth	Urease
<i>Enterobacter aerogenes</i> (13048)	+++	-
<i>Escherichia coli</i> (25922)	+++	-
<i>Proteus vulgaris</i> (13315)	+++	+
<i>S. serotype Typhimurium</i> (14028)	+++	-



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## References:

1. Rustigan and Stuart, Proc. Soc. Exp. Biol. Med., 47, 108 (1941)
2. W.B. Christensen, J. Bacteriol. 69, 103 (1946)
3. E. Thal, T.H. Chen, J. Bacteriol. 69, 103 (1955)
4. J. MacFaddin, Biochemical Tests for Identification of Medical Bacteria, 2<sup>nd</sup> ed. Williams and Wilkins, Baltimore (1980)
5. P.A. Villasante et al., J. Clin. Microbiol. 25, 584 (1987)
6. International Organization for Standardization (ISO), Water Quality – Detection of *Salmonella* ssp., Draft ISO/DIS 6340 (1995)
7. International Organization for Standardization (ISO), Microbiology of food and animal feeding stuffs. Horizontal methods for the detection of *Salmonella* ssp., Draft ISO/DIS 6579 (2002)
8. DIN Standard 10160. Untersuchung von Fleisch und Fleischerzeugnissen. Nachweis von Salmonellen. Referenzverfahren.
9. FIL-IDF 93 Standard, Detection of *Salmonella* (2001)

## Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

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