



## UREA in milk

### PRINCIPLE

Urease converts urea to ammonia. A Phenolic derivate reacts with ammonia ions and forms a colored complex green-blue, whose intensity, read at 700nm, is proportional to the urea concentration in sample.

### REAGENTS

**Reagent R1 (ready in cuvette):** Phenolic derivate  
**Reagent R2:** Alkaline solution

### REAGENTS PREPARATION

Reagent **R1** ready to use.  
Reagent **R2** ready to use.

### STABILITY

Reagents are stable up label expiration date. Store at **2 - 8 °C**. Keep reagents away from light.

### SAMPLE

Whole, skim and pasteurized milk. It's very important to mix well the milk bottle before sampling.

### REACTION CONDITION (Edit)

Chan:	700 nm	Timer BLK:	5 min
K factor:		Timer SMP:	3 min
Q sign:	- or +	Temperature:	37°C
Q offset:		Mode:	END POINT
Decimal:	1	Sample:	5 µL
Anl/Std:	ANL (for testing) - STD (standardization)		

### OPERATING PROCEDURE

Select the test Urea on well 3:  
**3: Urea** on DISPLAY appears Timeout 5 min

Put **5 µL** of sample into cuvette with reagent **R1**, mix IMMEDIATELY and put it into the incubation cell. Do it for every sample to test. A session of analysis permits to test until to 14 samples. At the end, press "**Enter**" for the countdown. 5 minutes later press:  
**ENTER** on DISPLAY appears Insert blank

Mix well and put the cuvette, just incubated at 37°C (R1 + sample), into the reading cell with the green light. Press "**Enter**" immediately. Do it for every sample to test. Press "**STOP**" with the "arrow up" for reading the samples. Add **200 µL** of Reagent **R2** into the cuvette and mix well. Put the cuvette into the incubation cell. Do it for every sample to test. At the end, press "**Enter**" for the countdown. 3 minutes later press:  
**ENTER** on DISPLAY appears Insert sample

Mix well and put the cuvette into the reading cell with the green light. Press "**Enter**" immediately. At the end of the session of analysis, results appear as mg/dL di Urea.

### STANDARDIZATION PROCEDURE

Select in EDIT the function "**STD**". Select the test Urea on well 3:  
**3: Urea** on DISPLAY appears Insert Conc. 1, 2, 3 ...  
< 0.0 >

Insert the standards concentration and confirm with "**Enter**". Minimum number accepted: 3 standards. At the end, press "**STOP**" for reading the standards. Follow the same procedure described for testing the samples. At the end, on the display appears the "K factor", the "q offset" and the "r<sup>2</sup>" of the linear regression. Press "**MEMO**": the values are stored in "Edit" in automatic mode.

### LINEARITY

This method is linear up to 100 mg/dL. Samples with higher concentration should be diluted 1:2 with distilled water. Multiply result by diluted factor. The sensitivity is 5 mg/dL.

### NORMAL VALUES

18-32 mg/dL

### NOTES

- CAUTION!** It's very important to mix the milk bottle well before testing. The sample must be homogeneous.
- Clin the tip with adsorbent paper without suck the milk inside.
- Put the milk into the cuvette and mix it immediately.
- Mix the cuvette before reading the blank and the sample.
- After incubation, the stability of blank signal is 15 minutes and the stability of colour signal is 15 minutes.
- Avoid to contaminate the reagents and the sample with hands.