CUSTOMBIOTECH

Urea

Test principle: Kinetic UV test

$$\text{Urea} + 2\ H_2O \xrightarrow{\text{Urease}} 2\ NH_4^+ + CO_3^{2-}$$

$$NH_4^+ + \alpha\text{-ketoglutarate} + \text{NADH} \xrightarrow{\text{GlDH}} \text{L-glutamate} + NAD^+ + H_2O$$

Kinetic test with urease and glutamate dehydrogenase. Urea is hydrolyzed by urease to form ammonium and carbonate. In the second reaction, a-ketoglutarate reacts with ammonium in the presence of glutamate dehydrogenase (GlDH) and the coenzyme NADH to produce L-glutamate. In this reaction, two moles of NADH are oxidized to NAD for each mole of urea hydrolyzed.

The rate of decrease in the NADH concentration is directly proportional to the urea concentration in the sample. It is determined by measuring the absorbance at 340 nm.

Proposed reagent composition

Reagent 1

Composition	Concentration	Catalog Number
Buffer (CAPSO, pH 9.65)	5 mmol/l	
NADH	>0.23 mmol/l	10 004 642 103
Preservative, such as Sodium azide		

Reagent 2

Composition	Concentration	Catalog Number
Buffer (BICINE, pH 7.6)	1000 mmol/l	11 525 778 103
α-Ketoglutarate, di-Na	>8.3 mmol/l	10 040 584 103
Urease	>6 kU/l	11 759 132 103
GlDH	>0.9 kU/l	10 190 462 103 or 11 434 993 103
Preservative, stabilizer, such as Sodium azide Albumin	0.5 %	10 738 328 103

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