SNAPSHOOT
ENGINEERED FOR A SAFER TOMORROW

# 현장을 이해하고, 필요한 솔루션을 연결합니다.

산업안전 · 추락방지 시스템
산업용 소재 · 건축자재
제품 제안부터 공급·시공·설치·교육까지




COMPANY INFORMATION

**스냅슛 (SNAPSHOOT)**

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TECHNICAL DOCUMENTS

## 인증서 · 데이터시트 · 기술자료

제품의 규격과 성능, 인증 및 적용 조건을 확인하기 위한 자료입니다.

ABOUT SNAPSHOOT

### 제품 공급을 넘어, 현장에 맞는 해결책으로

스냅슛은 산업현장의 작업 환경과 요구 조건을 바탕으로
적합한 제품과 시스템을 제안합니다. 현장 실사를 통해 설치 조건을 확인하고,
공급부터 시공·설치 및 사용 교육까지 필요한 과정을 함께합니다.

**추락방지 시스템**

안전대부착설비 · 수평·수직 라이프라인
레일 시스템 · 리지드 포스트

**밀폐공간 진입·구조 솔루션**

데빗암 · 삼각대 · 구조용 윈치
윈치 안전블록 · 구조장비

**산업안전 보호구**

전신형 안전대 · 랜야드 · 안전블록
작업 환경에 맞춘 개인보호구

**산업용 소재·건축자재**

산업용 테이프 · 접착제 · 기능성 소재
구조용 스크류 · 목조건축 자재

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홈페이지 바로가기 →
문서 라이브러리 바로가기 →
시공사례 바로가기 →
문의하기 →

본 페이지는 스냅슛의 자료 제공 안내용 표지입니다. 첨부된 인증서 및 기술자료의 발행 주체, 인증 대상과 적용 범위는 해당 원문을 기준으로 확인해 주세요.

Megazyme

www.megazyme.com

# ACETIC ACID (ACETATE KINASE FORMAT)

## ASSAY PROCEDURE FOR AUTO-ANALYSER APPLICATIONS

K-ACETAK 06/18

(550 Assays per Kit)




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## INTRODUCTION:

The most widely used method for enzymatic quantification of acetic acid is that employing acetyl-coenzyme A synthetase (ACS). However, this method is based on the use of an indicator reaction catalysed by L-malate dehydrogenase that is in permanent equilibrium, and therefore a non-stoichiometric increase in absorbance is observed from the acetate present in the sample. Thus, a slightly non-linear response to increasing acetate concentration is observed upon calibration, resulting in poor $R^2$ values. In addition (depending on the supplier) reagents prepared for auto-analyser applications can have very limited on-machine stability, due to rapidly increasing blank absorbance values. To overcome these issues, Megazyme developed this alternative acetic acid kit, based on the enzyme acetate kinase (AK; see equations 1–3 below), especially for the auto-analyser user. This reagent has improved on-machine stability, gives excellent linear calibration curves, and results in a stoichiometric change in absorbance due to the acetic acid present in the sample.

## PRINCIPLE:

(1) Acetic acid + ATP $\xrightarrow{\text{(acetate kinase; AK)}}$ acetyl-phosphate + ADP

(2) ADP + PEP $\xrightarrow{\text{(pyruvate kinase; PK)}}$ ATP + pyruvate

(3) Pyruvate + NADH + $H^+$ $\xrightarrow{\text{(D-lactate dehydrogenase; D-LDH)}}$ D-lactic acid + $NAD^+$

## SAFETY:

The general safety measures that apply to all chemical substances should be adhered to.

For more information regarding the safe usage and handling of this product please refer to the associated SDS that is available from the Megazyme website.

## KITS:

Kits suitable for performing a minimum of 550 assays in auto-analyser format are available from Megazyme.

The kits contain the full assay method plus:

**Bottle 1:** Buffer (11 mL, pH 7.4) plus sodium azide (0.02% w/v) as a preservative.
Stable for > 2 years at 4°C.

**Bottle 2:** NADH plus ATP, PEP and PVP.

Stable for > 2 years at either 4°C or below -10°C.

**Bottle 3:** Acetate kinase plus pyruvate kinase and D-lactate dehydrogenase suspension, 4.1 mL.
Stable for > 2 years at 4°C.

**Bottle 4:** Acetic Acid Standard (2 mL)
(1.8 g/L). Ready to use.
Stable for > 2 years at 4°C.

## PREPARATION OF REAGENT SOLUTIONS/SUSPENSIONS:

**1,3 & 4.** Use the contents of bottles 1, 3 and 4 as supplied.
Stable for > 2 years at 4°C.

**2.** Dissolve the contents of bottle 2 in 20 mL of distilled water. **Stable for > 1 year at 4°C** or stable for > 2 years below -10°C (to avoid repetitive freeze/thaw cycles, divide into appropriately sized aliquots and store in polypropylene tubes).

## REAGENT PREPARATION:

### Preparation of R1:

| Component | Optical path-length (mm) of analyser | | | | |
|---|---|---|---|---|---|
| | 6 | 7 | 8 | 9 | 10 |
| bottle 2 (after resuspension in 20 mL of water) | 3.9 mL | 3.3 mL | 2.8 mL | 2.2 mL | 2.2 mL |
| distilled water | 36.1 mL | 36.7 mL | 37.2 mL | 37.8 mL | 37.8 mL |
| Total volume | 40 mL | | | | |

### Preparation of R2:

| Component | Volume |
|---|---|
| bottle 1<br>bottle 3 (AK/PK/D-LDH) | 2.5 mL<br>1 mL |
| Total volume | 3.5 mL |

## EXAMPLE METHOD:

| | |
|---|---|
| **R1:** | 0.290 mL |
| Sample: | ~ 0.005 mL |
| **R2:** | 0.020 mL |

| | |
|---|---|
| **Reaction time:** | ~ 10 min at either 20-25°C or 37°C |
| **Wavelength:** | 340 nm |
| **Prepared reagent stability:** | > 7 days when refrigerated |
| **Calculation:** | endpoint |
| **Reaction direction:** | decrease |

**Linearity:** up to 30 µg/mL of acetic acid in the final reaction solution (equivalent to 0-1.8 g/L for the method described above, employing 0.005 mL of sample and a path-length of 4.6 mm).

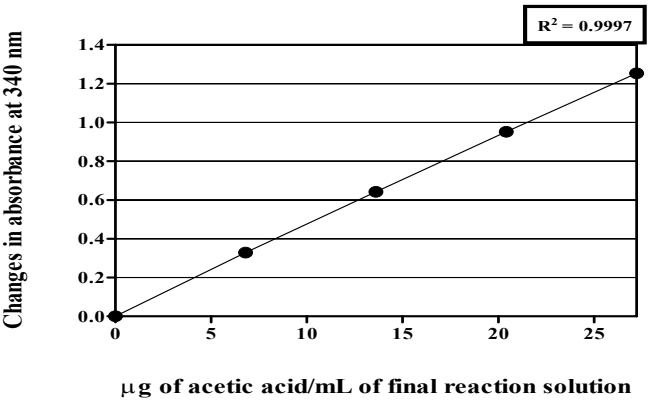



***Figure 1.*** Calibration curve demonstrating the linearity of **K-ACETAK**. The reactions used to generate this calibration curve were performed at 25°C for 10 min, using a 4.6 mm path-length cuvette.


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