



Acetaldehyde (K-ACHYD) Procedure for ChemWell®-T Auto-Analyser

Requirements:

- Acetaldehyde Assay Kit (K-ACHYD) (provides ~ 500 assays).
- K-ACHYD ChemWell®-T assay file.
- Use in association with the Acetaldehyde Assay Kit (K-ACHYD) product data booklet.

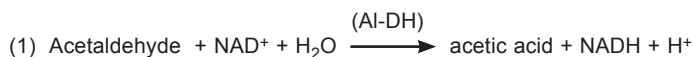
Use:

For the specific measurement of acetaldehyde especially in wines, fruit juices, beverages and food products.

For specific sample preparation methods refer to the Acetaldehyde Assay Kit (K-ACHYD) data booklet.

Assay Principle:

Conversion of ethanol via the following reactions is directly proportional to the coupled formation of NADH:



Procedure:

Prepare the assay reagents and calibrators and use with the K-ACHYD ChemWell®-T assay file.

Acetaldehyde Assay Kit Components:

- Bottle 1:** Buffer (12 mL, pH 9.0) plus sodium azide (0.02% w/v) as a preservative. Stable for > 2 years at 4°C.
- Bottle 2:** NAD⁺. Stable for > 5 years at -20°C.
- Bottle 3:** Aldehyde dehydrogenase solution (2.75 mL). Stable for > 2 years at -20°C.
- Bottle 4:** Acetaldehyde control powder. Acetaldehyde ammonia trimer (~ 2 g). Stable in a well sealed container (as supplied) for > 2 years at 4°C.

Preparation of Kit Components:

- Use the contents of bottle 1 as supplied. Stable for > 2 years at 4°C.
- Dissolve the contents of bottle 2 in 12 mL of distilled water. **Stable for > 1 year at 4°C** or > 2 years at -20°C (to avoid repetitive freeze / thaw cycles, divide into appropriately sized aliquots and store in polypropylene tubes).
- Use the contents of bottle 3 as supplied. Swirl the bottle to mix contents before use. Stable for > 2 years at -20°C.
- To prepare the K-ACHYD 4 calibrator (0.18 g/L) dissolve approximately 250 mg of acetaldehyde ammonia trimer (which corresponds to approx. 180 mg of acetaldehyde) in 1 L of distilled water. Store in a well sealed Duran® bottle and use on the day of preparation. When diluted, this solution is stable for ~ 2 days at 4°C.

Use serial dilutions of K-ACHYD 4 in distilled water to prepare K-ACHYD 2 and K-ACHYD 3.

Preparation of Assay Reagents: (per ~ 118 assays)

Reagent 1:

Component	Volume
distilled water	21 mL
bottle 1 (buffer)	2.4 mL
*bottle 2 (NAD)	2.4 mL
Total volume	25.8 mL

*after adding 12 mL of distilled water

Reagent 1 stability: > 2 days at 4°C / > 30 days at -20°C

Reagent 2:

Component	Volume
distilled water	2.4 mL
bottle 3 (Al-DH)	0.55 mL
Total volume	2.95 mL

Reagent 2 stability: > 2 days at 4°C / > 30 days at -20°C

Calibrators:

- K-ACHYD 1: 0 g/L (use distilled water)
K-ACHYD 2: 0.045 g/L acetaldehyde
K-ACHYD 3: 0.09 g/L acetaldehyde
K-ACHYD 4: 0.18 g/L acetaldehyde

Assay Parameters:

- Assay volumes: Reagent 1: 0.200 mL
Sample: 0.010 mL
Reagent 2: 0.025 mL
- Calibrators: 0, 0.045, 0.09, 0.18 g/L acetaldehyde
Reaction time: 4 min at 37°C
Wavelength: 340 nm
Assay type: endpoint
Reaction direction: increase
Linearity: up to 0.18 g/L of acetaldehyde

