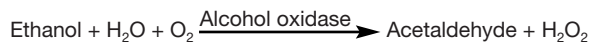


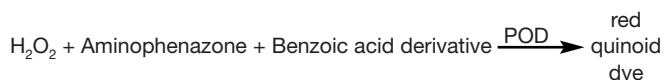
## Alcohol

### Principle

The enzyme alcohol oxidase catalyses the following reaction:



The resulting hydrogen-peroxide combines with aminophenazone and a benzoic acid derivative in the presence of peroxidase, which acts as a catalyst, to form a red quinoid dye.



POD = Peroxidase

### Range of Application

Spirits, beers, alcohol-free beers, fruit juices

### Storage Information

The test reagents are stable at +2 to +8°C up to the expiry date given on the package.

### Interferences

Oxidizing agents interfere with the determination. Reducing agents (e.g. ascorbic acid) do not interfere provided that concentrations in the dilution do not exceed 20 mg/L.

The measurement results must be subjected to plausibility checks (dilute and/or spike the water sample).

### Removal of Interferences

Turbid samples must be filtered before the analysis is carried out (membrane filtration set LCW 904). Fruit juices that are highly acidic or have a high particulate content should be filtered and the pH should be adjusted. Samples that contain CO<sub>2</sub> must be degased for **one minute** while stirring before the analysis.

### Special note

In the case of alcohol-free beers the recommended dilution level should not be exceeded, otherwise low-bias results may be obtained. The result obtained from the sample can, however, be checked for plausibility through more dilution levels (1 : 60, 1 : 70).

### pH/Temperature

The pH of the sample must be between pH 2 and pH 6.

The sample and the reagents should therefore have a working temperature of 20°C.

### Safety Advice

On grounds of quality and reliability, the analysis should be carried out only with original HACH LANGE accessories.

### CADAS 100 (LPG 185 / ≥ LPG 210)

If this test is not already stored in your instrument please ask your HACH LANGE Agency for programming instructions.

### Note

The change indicated by the new edition date and the new colour of the working procedure concerns a **change of the procedure and the dilution table**.

**Applies to all types of photometer**

**Alcohol**

*Edition 99/02*

**Sample preparation**

Approx. **20 mL** of distilled water (free of alcohol) should be introduced into a **50 mL** volumetric flask before the sample or the preliminary dilution according to the dilution table are pipetted into it. Then the flask is filled up to the **50 mL** mark with distilled water (free of alcohol).

Screw a **DosiCap A** (LCK 300 A) onto the cuvette and invert a few times.

Into the same cuvette pipette  
diluted sample 0.2 mL

Close cuvette and invert a few times. After **30 min** invert again, thoroughly clean the outside of the cuvette and evaluate.

*Edition 99/02*

Field of : application	Fruit juices	Alcohol-free beer < 0.5 vol %	Low-alcohol "light beers", medium-gravity beers	Strong beer, wine, spirits
Estimated alcohol content (g/L)	0.05 – 0.50	0.5 – 5.0	5 – 50	50 – 500
Estimated alcohol content (Vol%)	0.006 – 0.06	0.06 – 0.6	0.6 – 6.0	6 – 60
Dilution-factor	1 : 5	1 : 50	1 : 500	1 : 5000
Preliminary dilution *	none	none	5 mL sample	0.5 mL sample
Dilution *	10 mL sample	1 mL sample	1 mL preliminary dilution	1 mL preliminary dilution

\* **Sample volume/preliminary dilution in a 50 mL measuring flask**

**Conversion of the reading into vol %:**  
displayed result (g/L) x dilutionfactor x 0.126

<b>LP2W</b>	<i>94/03</i>
Alcohol • F <sub>1</sub> = 0 • F <sub>2</sub> = 0.065 • K = 0	
<b>CADAS 30/30S/50/50S</b>	<i>94/03</i>
Alcohol • λ: 490 nm • Pro.: 10 • F <sub>1</sub> = -0.033 • F <sub>2</sub> = 0.033 • F <sub>3</sub> = 2.000 • K = 0	
<b>ISIS 6000/9000</b>	<i>94/03</i>
Alcohol • λ: 500 nm • Pro.: 10 • F <sub>1</sub> = -8.364 • F <sub>2</sub> = 6.700 • F <sub>3</sub> = 0.010 • K = 0	
<b>CADAS 100 / LPG 185</b>	<i>94/03</i>
Alcohol • λ: 502 nm • F = 0.065	
<b>CADAS 100 / ≥ LPG 210</b>	<i>94/03</i>
Alcohol • λ: 502 nm • F <sub>1</sub> = 0.065	

*Edition 94/03*

**Alcohol**

**Evaluation**

1. Press "Mode" key and check program control number:  
**— : 28**
2. Insert program filter **480 nm**.
3. Select test with "Mode" key.
4. Insert zero-solution cuvette.
5. Insert sample cuvette.

Parameter	Display	Meas. range
Alcohol	Alc. LCK 300	0.01 – 0.12 g/L

## Alcohol

Edition 94/03

## Evaluation

1. Press any key.
2. Check program control number: **\_\_ : 32**
3. Select test with ↑ or ↓ key.
4. Insert zero-solution cuvette.
5. Insert sample cuvette.

Parameter	Display	Meas. range
Alcohol	Alc. LCK 300	0.01 – 0.12 g/L

## Alcohol

Edition 94/03

## Evaluation

1. Insert filter **480 nm**.
2. Select »Dr. Lange« mode.
3. Select test number (see below).
4. Control number must be **4**.
5. Insert zero-solution cuvette and press blue key.
6. Insert sample cuvette and press green key.

Parameter	Test-No.	Meas. range
Alcohol	300	0.01 – 0.12 g/L

## Alcohol

Edition 94/03

## Evaluation

1. Insert filter **500 nm**.
2. Enter factor (see below) and store ↑.
3. Insert zero-solution cuvette and press "Null" (zero) key.
4. Insert sample cuvette and press "Ergebnis mit Faktor" (result with factor) key.

Parameter	Factor	Meas. range
Alcohol	0.065	0.01 – 0.12 g/L

## Alcohol

Edition 94/03

## Evaluation

1. Insert program filter **500 nm**.
2. Press "Tests" key until display (see below) appears.
3. Control number must be **2**.
4. Insert zero-solution cuvette and press "Null" (zero) key.
5. Insert sample cuvette and press "Ergebnis" (result) key.

Parameter	Display	Meas. range
Alcohol	Alcohol LCK 300	0.01 – 0.12 g/L

**Alcohol**

Edition 94/03

**Evaluation**

1. Insert zero-solution cuvette.
2. Insert sample cuvette.

Parameter	Meas. range
Alcohol	0.01 – 0.12 g/L

**Alcohol**

Edition 94/03

**Evaluation**

1. Check program control number:  
 \_\_ : **38 (CADAS 200)**  
 \_\_ : **32 (ISIS 6000)** ⇒ Select »CUVETTE TEST« mode.
2. Select test number (see below).
3. Control number must be **4**.
4. Insert zero-solution cuvette and press blue key.
5. Insert sample cuvette and press green key.

Parameter	Test-No.	Meas. range
Alcohol	300	0.01 – 0.12 g/L

**Alcohol**

Edition 94/03

**Evaluation**

1. Select »TEST« mode.
2. Select symbol (see below).
3. Check factors and measuring wavelength in memory »Mem« (**LPG 185**) or control number must be **7 (LPG 210)**.
4. Insert zero-solution cuvette and press "NULL" (zero) key.
5. Insert sample cuvette and press "MESS" (measure) key.

Parameter	Symbol	Meas. range
Alcohol	300	0.01 – 0.12 g/L

**Alcohol**

Edition 94/03

**Evaluation**

1. Select »Barcode-programs«.
2. Select test number (see below).
3. Control number must be **4**.
4. Insert zero-solution cuvette and press "Zero".
5. Insert sample cuvette and press "Read".

Parameter	Test-No.	Meas. range
Alcohol	300	0.01 – 0.12 g/L