LCK300 Alcohol

DOC312.53.94091

0.01–0.12 g/L Alcohol C_2H_5OH LCK300

Scope and application: For spirits, beers, alcohol-free beers and fruit juices.

Test preparation

Test storage

Storage temperature: 2–8 °C (35–46 °F)

pH/Temperature

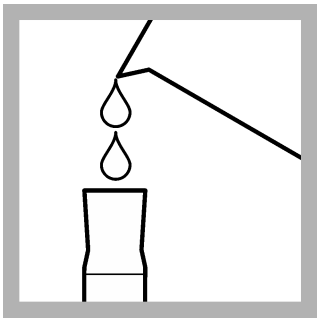
The pH of the water sample must be between pH 2–6.

The temperature of the water sample and reagents must be 20 °C (68 °F).

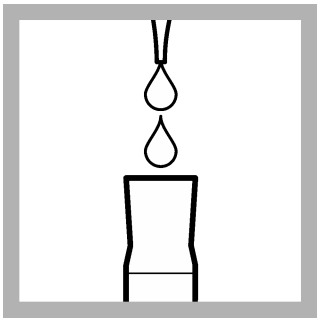
Before starting

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 be checked for plausibility through more dilution levels (1 : 60, 1 : 70).
Review safety information and expiration date on the package.
Review the Safety Data Sheets (MSDS/SDS) for the chemicals that are used. Use the recommended personal protective equipment.
Dispose of reacted solutions according to local, state and federal regulations. Refer to the Safety Data Sheets for disposal information for unused reagents. Refer to the environmental, health and safety staff for your facility and/or local regulatory agencies for further disposal information.

Sample preparation



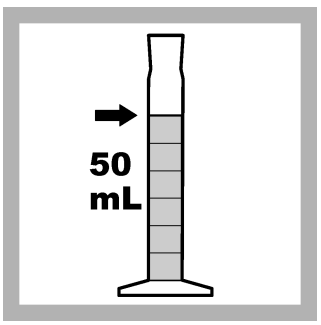
Add approximately **20 mL** of **distilled water** (free of alcohol) to a 50 mL volumetric flask,



before the sample or the preliminary dilution according to the dilution table are pipetted into it.

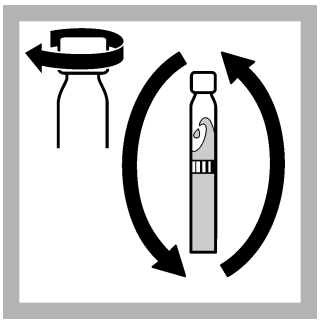
Field of application:	**Fruit juices**	**Alcohol-free beer < 0.5 vol %**	**Low-alcohol "light beer", medium gravity beer**	**Strong beer, wine, spirits**
Estimated alcohol content (g/L)	0.05–0.50	0.5–5.0	5–50	50–500
Estimated alcohol content (Vol %)	0.006–0.06	0.06–0.6	0.6–6.0	6–60
Dilution factor	1 : 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 dilution factor x **0.126**

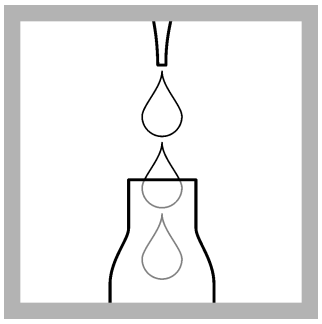


Fill the flask up to the **50 mL** mark with distilled water (free of alcohol).

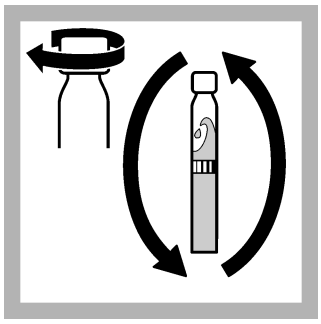
Procedure



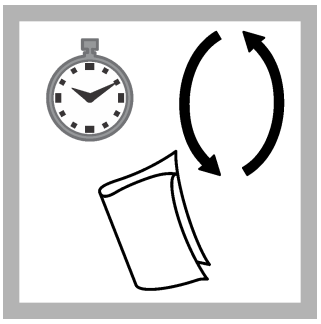
1. Screw a **DosiCap A** on the cuvette and invert a few times.



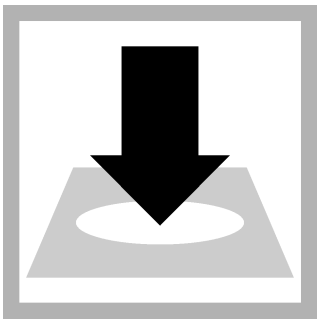
2. Into the **same** cuvette pipet **0.2 mL diluted sample**.



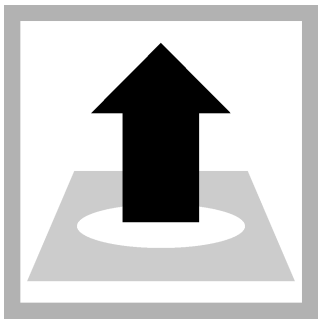
3. Close the cuvette and invert a few times.



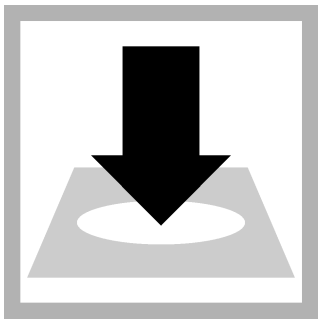
4. After **30 minutes**, invert a few times more, thoroughly clean the outside of the cuvette and evaluate.



5. Insert the zero-cuvette into the cell holder.
DR1900: Go to Stored Programs. Select the test: push **ZERO**.



6. Remove the zero-cuvette.



7. Insert the sample-cuvette into the cell holder.
DR1900: Push **READ**.

Interferences

Oxidizing agents interfere with the determination. Reducing agents (for example 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 sample).

Removal of interferences

Turbid samples must be filtered before the analysis is carried out (membrane filtration set LCW904). 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_2 must be degased for **1 minute** while stirring before the analysis.

Summary of method

The enzyme alcohol oxidase catalyses the following reaction:

$$\text{Ethanol} + H_2O + O_2 \xrightarrow{\text{Alcohol oxidase}} \text{Acetaldehyde} + H_2O_2$$

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.

$$H_2O_2 + \text{Aminophenazone} + \text{Benzoic acid derivative} \xrightarrow{\text{Peroxidase}} \text{red quinoid dye}$$

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