

Wir begleiten  
Ihre erfolgreiche  
Getränkeherstellung

Getränkeanalytik

**SCHLIESSMANN  
SCHWÄBISCH HALL**



Tel. 07 91 - 9 71 91-0 • Fax 9 71 91-25  
C. Schliessmann Kellerei-Chemie GmbH & Co.KG  
Auwiesenstr. 5 • D-74523 Schwäbisch Hall

version 04/2008

page 1/2

## Heads Separation test according to Prof. Pieper

- for the determination of the content of heads  
components in fruit spirits -

### Technical information and instructions for use

#### Background information:

The **heads separation test** is a rapid test for acetaldehyde in alcoholic distillates from fermented fruit mashes. Acetaldehyde is the character impact compound of the heads, the first part of the distillate collected from a still. The test enables the distiller to separate correctly the distillate. If he collects too few of the distillate as heads, unwanted components of the heads will diminish the quality of the heart and the potable brandy made from the heart. If he collects too much the heart will lose aroma and volume.

The **heads separation test** may be applied

- to **running distillates high in alcohol** during distillation to enable a correct separation into heads and heart (1.1)
- to **potable spirits** to judge their quality (2.1)
- to **complete hearts** freshly distilled from fruit mashes to determine their content of acetaldehyde. For this a sample of the heart has to be diluted with water to 60 %vol, then **2 ml** (instead of 5ml) of the diluted sample have to be analyzed according to 2.1.

#### Principle:

Acetaldehyde reacts in accordance to its concentration with two reagents to a colour between yellow, yellow-green and olive green.

#### Important safety instructions:

The test-solutions A and B are harmful resp. corrosive. Please take care as usual during handling chemical reagents! Used reagents should be disposed separately.

#### Extent of supply, materials:

- Colour evaluation table
- 100 ml beaker from PP, low form
- 2 ml syringe
- 5 ml syringe
- 2 test tubes
- Instructions

#### Extent of supply, reagents for 10 determinations:

- 10 x 5 ml test-solution A in brown-glass-ampoules
- 10 x 5 ml test-solution B in brown-glass-ampoules
- 10 x 5 ml buffer-solution P in clear-glass-ampoules

If stored in the darkness the reagents will remain stable at least until the shelf life date printed on the box (about 18 months). The influence of light and longer time will change the test-solution A to bluish-greenish (very good to recognize in the tip of the ampoule). Such solutions should be replaced by fresh ones.

#### Important! Control of the ampoules before application:

- Before the heads of the ampoules are broken off, please make sure that they don't contain any liquid; the test solution has to be completely in the body of the ampoule. Otherwise, the ampoule has to be knocked sloping carefully to a firm base until the head will be empty.

### 1.1 Procedure of the test applied to distillates high in alcohol:

As it is difficult to work at the still and to apply the test simultaneously, you should collect the first 1-2 liters of the running distillate from 100 liters of a fermented mash in numbered bottles of 100 or 200 ml. As the following distillate will belong to the heart there is enough time to test some of the small fractions of heads to enable their classification as heads or heart.

- Break off the head of the clear-glass-ampoule P and fill the buffer solution into the beaker by shaking the ampoule vigorously.
- Prepare each a brown-glass-ampoule A and B.
- After separation of a sufficient quantity of heads draw up a sample of the distillate from the receiver of the still into the syringe. Remove visible air bubbles by pushing up the piston of the syringe keeping the tip upwards. Then put exactly **1 ml** of the distillate into the beaker.
- After having broken off the heads of the brown-glass-ampoules A and B, shake their contents simultaneously completely into the beaker. Mix the liquid by a swinging movement.
- Wait for 1 to 1,5 minutes (timer, stopwatch).
- Fill the content of the beaker into a test tube just before the end of the waiting period.
- Compare immediately the colour of the liquid with the colour evaluation table, at the latest 2,5 minutes after addition of the reagents A and B, because the colour won't remain stable any longer.

### 1.2 Evaluation for distillates high in alcohol:

A sufficient separation of heads has been achieved if the colouring of the liquid corresponds at least to the grade II of the colour evaluation table or if it is lighter.

If the colour of the liquid is darker than grade II or even grade III, the heads haven't been sufficiently separated.

To achieve a spirit of good quality their volume has to be increased. In that case the test should be repeated with a sample of distillate drawn later in the course of distillation.

#### Translation of the colour evaluation table:

- Colour grade I or lighter:  
Especially low heads content
- Colour grade II or lighter:  
Normal heads content
- Colour grade II, III or darker:  
Too high heads content

### 2.1 Procedure of the test applied to diluted distillates resp. potable fruit spirits with an alcohol content of 38-45 %vol:

- Break off the head of the clear-glass-ampoule P and fill the buffer solution into the beaker by shaking the ampoule vigorously.
- Prepare each a brown-glass-ampoule A and B.
- Draw up a sample of the spirit into the syringe. Remove visible air bubbles by pushing up the piston of the syringe keeping the tip upwards. Then give exactly **5 ml** of the spirit into the beaker.
- After having broken off the heads of the brown-glass-ampoules A and B, shake their contents simultaneously completely into the beaker. Mix the liquid by a swinging movement.
- Wait for 1 to 1,5 minutes (timer, stopwatch).
- Fill the content of the beaker into a test tube just before the end of the waiting period.
- Compare immediately the colour of the liquid with the colour evaluation table, at the latest 2,5 minutes after addition of the reagents A and B, because the colour won't remain stable any longer.

### 2.2 Evaluation for potable spirits:

The potable spirit will have a normal content of heads components, if the colouring of the liquid corresponds at least to the grade II of the colour evaluation table or if it is lighter.

Spirits very low in acetaldehyde will show grade I.

If the colour of the liquid should be darker than grade II or even grade III, the concentration of heads components in the spirit is too high for a product of good quality.

The complete information in this leaflet represents our current experiences and knowledge.

Schliessmann Kellerei-Chemie does neither guarantee that the products can be used without prior profound testing, as described before, nor that no patent rights of others are violated by their use.