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## PHENOLFIX test

version 02/2013

- simple quick test for polyphenols in must, wine, fruit  
juice and alcoholic liquors -

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### Technical information and instructions for use

#### What are polyphenols?

"Polyphenols" is a collective name for a group of chemical compounds occurring in vegetable pigments (anthocyanidins, flavones) and tanning agents (catechins, tannins).

#### Significance of polyphenols in wine production:

The fruits' own polyphenols contained in fruit, as well as in the juices and wines extracted from the same, have a technological significance as a lees agent and finings partner, as an antioxidant, preservative and protection against an untypical aging note. From the sensory point of view, polyphenols are important as a colour and flavour carriers.

Non-fruit polyphenols are used as vegetable tannins for fining purposes and for the storage in barrique barrels or the chip treatment, as well as for perfecting wine flavours.

#### Polyphenolic contents in wines:

In modern wine production, efforts are made to extract in white wines as little tanning agents from the skin of the grapes as possible by means of gentle wine production, preliminary sedimentation of the must and renouncing the initiation of the mash fermentation. White wines possess polyphenolic contents between 60 and 200mg/l.

In view of the fact that the actions favouring the yield of pigments in red wines do also favour the extraction of tanning agents, their polyphenols content is as high as 4000mg/l.

#### Analytical significance of the polyphenols:

First of all, there is a connection between the polyphenolic content of the gathered grapes and their physiological maturity and the ideal time of harvest respectively.

The polyphenolic content is furthermore an indicator of quality as a measure for the applied processing technology. It furthermore permits an objective quantification of the before-mentioned technological and sensory effects.

#### Measuring principle of the PHENOLFIX test:

This practical quick test is a redox titration with a clear recognition of the end point by colour change.

#### Comparison with the reference method:

The results of the PHENOLFIX test are comparable with those according to the EEC Regulation 2676/90, the photometrically determined Folin-Ciocalteu index. The PHENOLFIX test, however, is as far as procurement and implementation are concerned, substantially lower priced and easier, and in addition insensitive to ascorbic acid, sulphurous acid, fructose and alcohol in the wine-specific concentrations.

#### Implementation and evaluation:

As to the implementation diagram and the evaluation of the **PHENOLFIX test**, please refer to the reverse side. The blank value should be determined every day, to be in a position to take minor changes of the titration reagent mathematically into account. As "test solution" for the determination of the basic value, wine can be used directly, in most cases without diluting it.

In the result, the polyphenolic content is expressed as gallic acid and catechin equivalent respectively.

Only deep-red wines rich in polyphenols should be diluted with water. In this case, the **polyphenolic concentration of the diluted sample** has to be multiplied by the dilution factor.

#### Extent of supply:

The test kit consists of three reagents for approx. 100 determinations (incl. dosing cylinder), one 2 ml syringe, 3 pasteur pipettes and 5 test tubes 160 x 16 mm.

The full information contained in this leaflet is based on our current experiences and knowledge. Schliessmann Kellerei-Chemie does neither guarantee that the products, as described above, can be used without prior intensive testing, nor that by their use no patent rights of third parties are being injured.

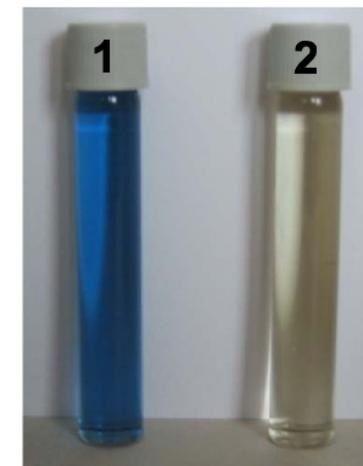
## Implementation diagram: Determination of the content of total polyphenols by the PHENOLFIX-Test

### Blank value

#### Determination

1. Fill 10 ml of „reagent 1“ into the test tube **1**
2. Add 6 - 8 drops of „reagent 2“ and shake **1**
3. Add „reagent 3“ slowly with the pasteur pipette drop by drop and shaking until the color changes **2**

**Number of drops blank value**

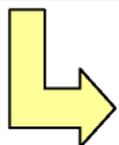


### Basic value

#### Determination

1. Fill 10 ml of „reagent 1“ into the test tube **1**
2. Add 6 - 8 drops of „reagent 2“ and shake **1**
3. Add 1 ml of sample with the syringe **1**
4. Add „reagent 3“ slowly with the pasteur pipette drop by drop and shaking until the color changes **2 + 3**

**Number of drops basic value**



#### Calculation:

**(Number of drops basic value – Number of drops blank value) x 50 =**  
mg polyphenols per litre of sample