



## Product 7 – Standard practical tasks

#### Task: microscope examination

Examine under the microscope the given plant sections and identify the cane and root sections.

#### Task: grafting

You get one rootstock of 120 cm length. Prepare it for grafting with a minimum length of 30 cm. Then prepare the scion you got. Carry out the Omega – mechanised grafting in a proper way.

#### Task: grafting

Carry out the omega-mechanised grafting according to the sample shown!

#### Task: planting

A new vineyard is to be planted. For this you plant one vine at the row that is shown to you in the vineyard.

#### Task: planting

Plant the 3 vines using the water spear in the marked row, using a space within the row of 1 m.

#### Task: soil sample

Use the Puerckhauer tool to take a soil sample that may be used for nutrient analysis. Put the soil in bags, close and label it.

How many samples per hectare should be taken to achieve a representative average of the vineyard?



#### Task: pruning

Name the training system and carry out a long spur pruning on the vine. Per vine, 10 buds are required. One fruit bearing cane and one substitute spur per vine are required.

You do not cut the spurs - you use clothes-pegs instead.



#### <u> Task: pruning</u>

Name the training system. Perform pruning using clothes, consider also the basal bud. Using two pegs, point out the cutting points on two canes, each carrying 7 buds. Using one peg, point out the cutting point in order to have a spur with 2 buds below the selected canes



#### Task: pruning

Carry out the pruning on the given vine. Leave one cane and a renewal spur on the vine. Training system to be developed: Goblet.

#### Task: pruning

Two vines should be pruned with 4 buds/m<sup>2</sup> and a growing area of 2.5 m2/vine. Carry out single cane pruning on the training system that is presented to you using clips instead of cuts. Remove all side canes and tendrils. Finally the vine should be ready for bending. If necessary one spur should be left.

#### Task: judging diseases

Which of these 8 sections shows

- a) Esca Vine Decline symptoms
- b) Eutypa Dieback?

#### Task: trunk topping

Which of the following kinds of trunk topping is the most proper way to recover vines affected by Esca Vine Decline?

#### Task: handling pesticides

Prepare a spray solution and handle the pesticide in a proper way, regarding safety requirements. First calculate the amount of pesticide you need, then mix the solution.

a) 0.5% spray solution for a 400 litres sprayer tank



Amount: \_\_\_\_\_ litres of pesticide

b) For a 250 litres sprayer tank (1 litre per hectare pesticide, 1000 litres per hectare solution)

Amount: \_\_\_\_\_ litres of pesticide

c) For a 800 litres sprayer tank (1.2 litres per hectare pesticide, 1000 litres per hectare solution)

Amount: \_\_\_\_\_ litres of pesticide

d) 0.3% spray solution for 7.000 m<sup>2</sup> vineyard (1000 litres per hectare solution)

Amount: \_\_\_\_\_ litres of pesticide

#### Task: spraying

Prepare the tractor and the sprayer and carry out the treatment of the marked vineyards rows.

#### <u> Task: spraying</u>

Set the nozzles of the sprayer for Guyot trained vines of 1 m cane length.

#### Task: irrigating

Identify the main components of the irrigation plant by placing the prepared cards to the proper component.

Then prepare the fertilization equipment for the following requirements:

- Dosage: 3 litres of fertilizer per hectare
- Irrigation time: 1 hour
- Area: 1,000 m<sup>2</sup> vineyard
- Fertilizer tank volume: 50 litres

Finally, plan an irrigation applying the fertilizer according to the following data:

- 1 day per week (Monday)
- Sector 1
- 1 hour of irrigation
- 30 minutes of fertilization







## Product 7 – Standard practical tasks

Field: Oenolgy

### 1. Laboratory

#### Task: acidity

Determine the total acidity with sodium hydroxide n/3 lye using 25 ml wine.

Answer: \_\_\_\_\_ grams per litre

#### Task: acidity

Select the more appropriated end-point indicator for the determination of the total acidity of the wine, by a titration with NaHO N/10.

O Phenolphthalein O Methyl orange O Methylene blue

#### <u> Task: acidity</u>

Solve the problem:

A sample of 10 ml of white wine was diluted to 10 ml with water. The solution is titrated with 22,66 ml NaOH 0,05412 M using an appropriated indicator. Calculate the total acidity of the wine as grams of tartaric acid per 100ml of wine (H2C4H4O6 Pm = 150). Observe that the final point of the indicator occurs when the two acid hydrogen were considered.

Answer: \_\_\_\_\_ grams per 100 ml

#### Task: acidity

Determine the total acidity of the wine using N/10 NaOH solution. What indicator is used?

†O litmus	© methylene blue	<sup>†</sup> O bromothymol blue
Answer:	grams per 100 ml	

Based on the measurement, the total acidity is \_\_\_\_\_\_ g/l for tartaric acid.

#### Task: alcohol content

Assemble the distillation equipment for determining the alcoholic degree.



#### Task: alcohol content

Determination of the alcoholic grade by ebuliometry: The ebullition temperature of the water is 100, 2 °C and the ebullition temperature of the wine is 92,9 °C

Use the Dujardin-Salleron disc to obtain the alcoholic grade of the wine.

Answer: \_\_\_\_\_\_ % alcohol

#### Task: alcohol content

The alcoholic grade of the wine can be determined by aerometry. In this case the determination work needs a prior distillation of the wine. Which equipment (A, B or C) should be used for this propose?

OA OB OC

#### <u>Task: pH</u>

Classify the following red wine samples according to their pH value from highest to lowest pH, using the pH-meter.

	Sample	pH-value
1. Highest pH:		
2. 2 <sup>nd</sup> -highest pH:		
3. 2 <sup>nd</sup> -lowest pH:		
4. Lowest pH:		

#### <u>Task: pH</u>

Find the wine pH, using the pH meter (the pH meter was previously calibrated). Make two pH determinations (maximum difference = 0,03)

The wine pH value is \_\_\_\_\_

#### <u>Task: pH</u>

Determine the pH-value of the must.

The pH value is \_\_\_\_\_

#### Task: instruments

Choose for the sample two adequate volumetric indicators to observe the final point.

#### Task: SO<sub>2</sub>

Classify the two wine samples according to their SO<sub>2</sub> content from highest to SO<sub>2</sub>, using the volumetric method.

Sample pH-value

1. Highest SO<sub>2</sub>:



2. Lowest SO<sub>2</sub>:

#### Task: SO<sub>2</sub>

Determine the free  $SO_2$  of the white wine sample, using the iodine N/50 as titrant. Select the appropriated end-point indicator for this titration!

OA OB OC

The volume of iodine N/50 used was \_\_\_\_\_ ml

Take a look at the tables and report the free SO<sub>2</sub> of the wine in mg/L

\_\_\_\_\_ mg/L

Knowing that the total SO<sub>2</sub> is 126 mg/L, calculate the combined SO<sub>2</sub>!

\_\_\_\_\_ mg/L

#### <u>Task: SO<sub>2</sub></u>

Determine the amount of free sulphur dioxide with iodine N/40 using 20 ml wine.

Answer: \_\_\_\_\_ mg per litre

#### Task: SO<sub>2</sub>

Determine the free sulphur dioxide  $(SO_2)$  content of the given white wine. What solution is used for the task?

O potassium bi-iodate O NaOH O potassium iodide

Answer: \_\_\_\_\_ mg per litre

The used amount of the standard alkaline solution is \_\_\_\_\_ cm<sup>3</sup>.

Based on this, the free sulphurous acid content of the wine is	
mg/I SO <sub>2</sub> .	

#### Task: SO<sub>2</sub>

Determine the amount of free sulphur dioxide with Titrovin-equipment.

Answer: \_\_\_\_\_ mg per litre

#### Task: sugar content

Classify the must samples according to their °Oechsle from highest to lowest degree, using the certified must spindle.

		Sample	°Oe	
1.	Highest °Oe:			
2.	2 <sup>nd</sup> -highest °Oe:			
3.	2 <sup>nd</sup> -lowest °Oe:			
4.	Lowest °Oe:			



#### Task: sugar content

Determine the sugar content in the must with the must spindle using °Oechsle.

Answer: \_\_\_\_\_ ° Oechsle

Calculate the expected alcohol content of the given must.

Answer: \_\_\_\_\_\_ % alcohol

#### Task: densitiy

Measure the density of the white wine sample at a temperature of 20 °C Select the appropriated densimeter!

O densimeter A

O densimeter B

Answer: \_\_\_\_\_



### 2. <u>Cellar</u>

#### Task: fining

Name the three wine agents:

Α.	
B	
С	

#### Task: fining

Prepare the given amount of fining agents adequately for fining!

#### Task: wine additives

Recognise the wine additives and name them on the list below (A, B, C).

Potassium metabisulfite	
Sulphur	
Activated carbon	
Citric acid	
Ascorbic acid	
Silica	
Wine yeast	
Yeast nutrient	
Liquid gelatine	
Nacalit	

#### Task: racking

Carry out the racking of wine from the given barrique cask to the barrel!

- Build up the line with the pump
- Pump the wine from the barrique cask to the barrel
- Empty the line and disconnect the pump

#### Task: filtration

Pack the cellulose sheet filter properly! Use 4 sheets.

#### <u> Task: clarifying</u>

Carry out a clarifying process using gelatine

- Quantity of wine: 95 litres
- Dose: 5 grams/HI



#### Task: pumping

Move the wine from tank A to tank B without ventilation.

#### Task: disinfection

This tank has a disinfectant solution inside.

- Action 1 –Place in a suitable way the "washing ball" in this tank
- Action 2 Make the connection between the hoses, the pump and the tank
- Action 3 Link the pump to the electric power
- Action 4 Make sure that you made this in correct position
- Action 5 Place the cleaning solution into circulation with the pump

#### Task: disinfection

Use the foam cleaner!

- Make 15 litres of 1% solution of the given disinfectant (calculate and measure it)
- Fill the machine with the solution and put it into operation with the helpf of a compressor.
- Clean the given equipment!

#### Task: Bottling

Bottle 10 bottles of wine by using the vacuum bottle filler and membrane filters!

- Adjust the fill-level, fill the bottles, seal them and put capsules on
- Empty the filler and rinse with water

#### Task: Yeast

You have 2 hl of must. Prepare the yeast starter by using 25 gr / hl of yeast. The inoculation should be 1%.

- Calculate and measure the necessary amount of yeast
- Hydrate the yeast
- Prepare the solution
- How many degrees Celsius can be the difference between the temperature of the yeast solution and the must?

O max. 8 °C O > 15 °C O > 10 °C

#### Task: Sampling

Take a sample of the tank with the hose and label it.





# Product 7 – Standard practical tasks

#### 1. Triangle test

1.1. Which two white wines are identical? (tick the two identical wines)

OA OB OC

1.2. Which two red wines are identical? (tick the two identical wines)

OA OB OC

#### 2. <u>Sequence test</u>

2.1. Put the three wines in order according to their acidity. (1 = lowest acidity, 2 = medium acidity, 3 = highest acidity)

\_\_\_\_\_A \_\_\_\_\_B \_\_\_\_\_C

2.2. Put the three wines in order according to their content of unfermented sugar.
 (1 = lowest sugar content, 2 = medium sugar content, 3 = highest sugar content, tent)

\_\_\_\_\_A \_\_\_\_B \_\_\_\_\_C

2.3. Put the three wines in order according to their age. (1 = youngest, 2 = medium age, 3 = oldest wine)

\_\_\_\_\_A \_\_\_\_\_B \_\_\_\_\_C

2.4. Put the three Port wines in order according to their age. (1 = youngest, 2 = medium age, 3 = oldest wine)

\_\_\_\_\_A \_\_\_\_\_B \_\_\_\_\_C



2.5. Put the three wines in order according to their age. (1 = 1 year, 2 = 5 years, 3 = 10 years)



2.6. Put the three wines in order according to their SO<sub>2</sub> content. (1 = highest SO<sub>2</sub>, 2 = medium, 3 = lowest SO<sub>2</sub> content)

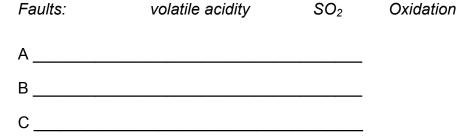
A	B	C

2.7. Assess the 3 wine samples according to the following characteristics. Put the letter of the 3 sample into each line!

	Lowest	medium	highest
Acidity			
Bitter			
Sweet			
Salty			

#### 3. Wine faults

3.1. Recognise the wine faults in the three wines. Match one fault to each wine.



3.2. Recognise the wine faults in the five wines. Match one fault to each wine.

Possible faults: Bitterness Butyric acid Vinegar taste Mouldy taste Brettanomyces SO<sub>2</sub> Oxidation Filter taste Cork taste





3.3. Recognise the wine faults in the five wines. Match one fault to each wine.

Possible faults:	Filter taste	Vinegar taste
	Butyric acid	Brettanomyces
	Mouldy taste	Bitterness
	SO2	Cork taste
	Oxidation	H2S

Α.	
Β.	
С	
D	
E.	

#### 4. Wine aromas

4.1. Recognise the four aromas. Write the aroma next to each letter. *Possible aromas: Banana Orange* 

Peach

Strawberry

Black currant

Lemon Apple Raspberry Cherry

A .	
B	
С	
D	

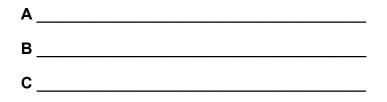


This project has been funded with support from the European Commission. This publication [communication] reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein. 4.2. Recognise the five aromas. Write the aroma next to each letter. You can only smell, not taste!

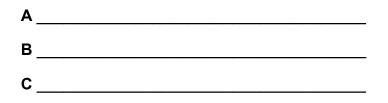
Vanilla Litchi Lemon	Honey Almond Clove
Green peppers	Cherry
Apple	Orange
	Litchi Lemon Green peppers

#### 5. Varieties

5.1. Recognise the three white wine varieties. Write the variety next to the letter. *Varieties: Sauvignon Blanc – Chardonnay – Rheinriesling* 



5.2. Recognise the three white wine varieties. Write the variety next to the letter. *Varieties: Traminer – Trebbiano – Moscato* 



5.3. Recognise the three red wine varieties. Write the variety next to the letter. Varieties: Zweigelt – Cabernet Sauvignon – Pinot Noir



- A \_\_\_\_\_\_ B \_\_\_\_\_\_ C \_\_\_\_\_
- 5.4. Recognise the three red wine varieties. Write the variety next to the letter. *Varieties: Merlot – Cabernet Sauvignon – Syrah* 
  - A \_\_\_\_\_\_ B \_\_\_\_\_\_ C \_\_\_\_\_
- 5.5. Recognise the three red wine varieties. Write the variety next to the letter. *Varieties: Grenache – Cabernet Franc – Sangiovese*

A	
в	
_	
C	

#### 6. Wine growing regions

6.1. Allocate the correct wine growing region to each wine.

 Possible regions:
 Bordeaux
 Navarra

 Baden-Württemberg
 Chianti

 Cótes du Rhone
 Burgenland

 Rioja
 Rioja

 B
 C

6.2. Allocate the correct wine growing region to each wine.

Possible regions: Bordeaux Chianti La Mancha Baden Burgenland Villany



Α_	 
В_	 
C_	 

#### 7. Wine style

7.1. Which of the two wines is aged in wood barrels? Tick one!

		ΟΑ	C	ЭΒ				
7.2. Which of the wine samples are aged in wood barrels?								
	O A	ОВ	ΟC	OD				
7.3. Which of the wine samples is "international style" of a wide-spread variety?								
	ΟΑ	ОВ	0 C					
7.4. Which of the two wines is younger?								
		O A	C	ОВ				

#### 8. Sparkling wine

8.1. Which grape variety was used to make all 3 sparkling wines? Tick one!

O Chardonnay	O Pinot blanc	O Pinot Meuniér
--------------	---------------	-----------------

