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ANNEX 5

REPORT: PRODUCTION AND CONTROL OF WINE IN AUSTRIA

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Wine country Austria

Austria is a small wine country with around 50.000 hectares (ha) of viticulture, which account for around 1 % of vineyards in Europe (5.5 million hectare) respectively 0.7 % of the vineyard area of the world (7.4 million ha). From these vineyards around 250 million litre of wine are produced annually, which correspond to around 1.3 % of wine production in Europe and around 1 % of the world wide production of wine. Interestingly the consumption of wine in Austria is equal to the production of wine, nevertheless around 80 million litre of mainly red wine are imported and around 80 million litres, mainly white wine, are exported. The biggest wine importing countries are Italy (around 60 %), Spain (around 15 %), new world countries (Australia, Chile ... around 10 %), France (around 5 %) and others. The most important export markets are Germany (around 50 %), Scandinavian countries (Norway, Sweden ... around 10 %), USA (around 10 %), eastern European countries (Russia, Czech Republic ... around 10 %) and others like Japan, Great Britain and Switzerland. The wine consumption per head is quite stable over the years and lays around 30 litre per year. Contrary to the amount the place of wine consumption has changed within the last years strongly with an increase of consumption at home (around 45 %) at the expense of outdoor consumption in restaurants, festivals, markets and so on (around 50 %). As a consequence the sales in supermarkets and discounters are getting more and more important, while direct sales from the producers (an old Austrian habit) are losing market shares.

Roughly 70 % of the wine produced in Austria is white wine, while 30 % are red. The production of rosé wine and sparkling wine is very small. A small but very famous sector is the production of natural sweet wines (e.g. Trockenbeerenauslesen, Eiswein). In the vineyards of Austria you can find a wide range of different varieties - local, autochthonous varieties are dominating and are highly appreciated by the Austrian consumers, but also international varieties like Chardonnay, Cabernet Sauvignon and Syrah are cultivated successfully. The dominating white wine variety is Grüner Veltliner with around 35 % of surface, followed by Welschriesling (around 9 %), Müller Thurgau (around 8 %), Pinot blanc (around 6 %), Chardonnay (around 5 %), Rheinriesling (around 4 %) and many other varieties like Sauvignon blanc (around 1%) or Traminer (around 0,5 %). Within the red wine varieties two autochthonous varieties - Blauer Zweigelt (around 10 %) and Blaufränkisch (around 8%) - are dominating. Furthermore the production of red wines from the varieties Cabernet Sauvignon, Sankt Laurent, Blauer Portugieser, Merlot and Pinot noir is mentionable.

Almost all vineyards are located in the east of Austria, with the province of „Lower Austria -Niederösterreich" being dominating with around 32.000 ha, followed by „Burgenland" with around 15.000 ha - both provinces are united in the geographical origin „Weinland". In the province „Styria - Steiermark" on around 4.000 ha grapes are cultivated and wine from this area has the geographical origin „Steirerland". The smallest wine growing province is the capital of Austria „Vienna - Wien" with around 800 ha, because of its smallness it is also part of the geographical origin "Weinland". Beside that, roughly 50 ha of vineyards are in the mountainous provinces of Austria like Tyrol, Carinthia or Vorarlberg and these very special wines are summarized under the geographical origin "Bergland".

A very important development within the last years was the concentration and getting bigger of wine enterprises. Was in the year 1980 the number of wine producers around 30.000 farms with an average surface of around 1.5 ha, nowadays only around 6.000 professional wine producing companies have survived. These wineries cultivate more or less the same area of vineyards which results in an average surface of around 15 ha. This reduction of the number of wineries and enlargement of enterprises has led to a significant improvement of professionalism and also self-control within the wine business.

Development of the wine law in Austria:

Wine production in Austria has a very long tradition. First finding of viticulture and wine production date back to around 1.000 B.C. when Celts settled in this area. Later when big parts of Austria belonged to the Roman Empire, the viticulture saw a time of prosperity. After many years of war and confusion caused by the peoples movement, a continuous development with the foundation of numerous monasteries the viticulture in Austria started, which, however, often interrupted dramatically by destructive wars (e.g. 30 years war, 1st and 2nd world war) lasts until now. Simultaneously the development of the predecessor of the wine law occurred. Already in the 15th and 16th centuries (1498: "Ordnung und Satzung über Wein") simple rules against fraud were formulated and a simple differentiation of wines according to geographical origin (e.g. name of villages: Rust, Krems, Retz) was established. A remarkable step forward for wine and food control was the first publication of a "Food Law - Codex Alimentarius Austriacus" during the reign of the emperor Franz Josef II in the year 1896. Based on that general food law specific laws like the wine law (1907) were developed and amended if necessary. A dramatically break happened in the year 1985 when a very small group of unscrupulous wine trader took illegal advantage of the big demand of sweet Austrian wines in Germany. The cheating traders bought simple wine and diluted it with water, sugar and cheap chemicals (e.g. glycol). For that illegal fraud they used the expertise of highly educated chemists, who developed a technique, which was not detectable with the analytical control techniques of that time. Only with the usage of sophisticated analytical methods (e.g. GC-MS), which were only used in research laboratories and not standard in wine control laboratories at this time, it was possible to detect that fraud. But Austria has drawn a lesson from that very bad experience and has learned that at least four factors are absolutely necessary for an effective wine control:

- a) a strict, clear and logical wine law;
- b) a complete documentation of the production process and personal control at the place of production (wine police - Kellereiinspektoren),
- c) self control by the wine industry, who realises that fraud destroys the image and the survival of the whole wine business;
- d) modern equipped wine control laboratories with skilled and motivated chemists.

As a consequence of the glycol-scandal in the year 1985 the cheating wine traders were sent to prison for many years, a new, and strict wine law was released and the number of the wine police officers was doubled. Young wine maker replaced the old ones and as a consequence the philosophy of the surviving producer changed ("quality instead of quantity!"). After some hard years the efforts of the farmers were rewarded and the consumers in Austria, but also in other countries, restarted again, to drink more and more Austrian wine. The next remarkable change for the wine business happened in 1995 when Austria joined the European Union, with the consequence, that the basis of the wine law and the regulation for the table wine were not longer a national law but a common regulation for the whole EU. Beside that Austria kept strict and detailed rules for the production of country, quality and late harvest wines ("Prädikatsweine"). The latest reform of the EU wine legislation in the year 2009 made also a new edition of the Austrian wine law necessary. Within this new release, in accordance to the food law, the idea to define the quality of wine in relation to the production area was implemented completely.

Wine law in Austria:

The legislation for wine production in Austria is based on two pillars. The first pillar, defining the principle rules for growing, production and control of wine as well as the minimum requirements for simple (table) wine, is the European legislation consisting of following regulation: EC-No. 491/09; EC-No. 1234/07; EC-No. 479/08; EC-No 606/09 and EC-No. 607/09. Within these regulations it is prescribed that Austria belongs to the wine producing

zone B and therefore important limits e.g. for minimum sugar content at harvest, maximum enrichment and other allowed wine making practices (e.g. acidification) are laid down at that level. Also the maximum limits for sulphur dioxide and volatile acidity in wine as well as many labelling rules and tolerances are defined in these EU regulations.

The specific regulation for the production of country wine ("wine with geographical origin") and quality wine including Prädikatsweine ("wine from protected geographical indication") as well as the geographical description of the wine producing districts, origins and indications is prescribed in the Austrian Wine Law 2009, which is therefore the second pillar for wine legislation. Further topics of the Austrian wine law concern the wine control and punishment of unprofessional or illegal wine making practices (sentence by court or administration).

According to the above mentioned legal status three categories of non sparkling wine are produced in Austria:

1. (Table) wine - (Tafel)-Wein:

Wines of this category represent the lowest quality level and fulfil the requirements defined in EU regulation Nr. 491/09 which adapted the EU regulation No. 1234/07. The minimum requirement for the grapes designated for table wine production are that they have to come from registered grape varieties, that they have to be produced in the EU and that they have a minimum natural alcohol content corresponding to the wine zone B above 6 vol%. For table wine of EU-wine zone following limits are set: minimum content of effective alcohol above 8,5 vol%; minimum titratable acidity above 3.5 g/l (calculated as tartaric acid) and maximum content of total alcohol (sugar + alcohol) below 15 % vol. With the amendment of 2009 the member countries have the possibility to produce a new category of table wine with the indication of variety and/or vintage year. The minimum standards can be prescribed by the national legislation. Austria has decided to lay down strict regulation similar to quality wine for that kind of wine. It is defined that only grapes from Austria and only from cultivars without names of production areas (e. g. Traminer, Weißburgunder, Rheinriesling) and a surface of production bigger than 500 hectares are allowed for that type of table wine. The minimum sugar content of grapes at harvest has to be above 14°KMW (Klosterneuburger Mostwaage = 140 g sugar per 1000 g grape juice) and the minimum acidity in the wine has to be above 4 gram per litre (calculated as tartaric acid), which is the limit for country and quality wines in Austria. Also the maximal yield per hectare has to be smaller than 9.000 kilogram (corresponds to 6.800 litres) and the final product has to be typical for the mentioned variety and free of defects.

Since the price for table wine is usually very low, the market share of table wine is constantly diminishing and is now around 20 %.

2. Country wine - Landwein:

This wine category represents the medium quality range and represents the wine with geographical origin as defined in EU regulation 607/09. The exact rules are prescribed in the Austrian wine law 2009 § 9 as follows:

- ✓ Grapes have to be only from one region (Weinland, Bergland, Steirerland),
- ✓ grapes have to come from defined quality wine varieties,
- ✓ minimum sugar content of juice at harvest > 14°KMW,
- ✓ minimum titratable acidity of wine > 4 g/l (calculated as tartaric acid),
- ✓ maximum yield per hectare < 9.000 kilogram (or 6.800 litre),
- ✓ the wine has to be typical and without severe defects.

Since this category has not a very strong image, only a limited amount of country wine is produced in Austria (around 10 %).

Quality wine - Qualitätswein:

Quality wine corresponds to the term wine from protected geographical indication and its minimum standards are fixed in the Austrian wine law 2009 § 10 as follows:

- ✓ grapes have to be only from one area (Gebiet),
- ✓ grapes have to come from defined quality wine varieties,
- ✓ minimum sugar content of the juice at harvest $> 15^{\circ}\text{KMW}$
- ✓ effective alcohol in the wine $> 9 \text{ vol\%}$, (exception: Prädikatswein $> 5 \text{ vol \%}$),
- ✓ minimum titratable acidity of wine $> 4 \text{ g/l}$ (calc. as tartaric acid),
- ✓ maximum yield per hectare $< 9.000 \text{ kg}$ (6.800 litres).
- ✓ the wine has to pass an official, governmental chemical and sensorial evaluation which results in an official certificate called "Staatliche Prüfnummer". Within the sensorial evaluation it is proved it the wine is without defects and typical for the variety and area
- ✓ quality wine has to be sold in bottles, barrels, ceramic, bag in box or directly.

This group of wines is steadily growing and represents recently around 70% of Austrians wine production.

Within the important category of quality wine three further interesting sub-categories exist:

- Kabinett-wines (wines without enrichment),
- Prädikatsweine (noble wines, late harvest and botrytised wines) and
- DAC-wines (typical wines for special regions)

3a) Kabinett-wine is a quality wine with additional parameters, defined in the Austrian wine law 2009:

- ✓ minimum sugar content of grape juice $> 7^{\circ}\text{KMW}$,
- ✓ no enrichment (no addition of sugar to grape juice), *S* no sweetening (no addition of sugar to wine),
- ✓ effective alcohol in wine $< 13,0 \text{ vol\%}$,
- ✓ maximum residual sugar in wine $< 9 \text{ g/l}$

Following these regulations Kabinett-wine represents the criteria of a harmonious, not too strong and not too sweet "natural wine" and is quite well accepted by the consumers.

3b) Prädikatswein - noble-wines are usually sweet, quality wines for which enrichment (addition of sugar to juice) and sweetening (addition of sugar to wine) is absolutely forbidden and strictly controlled. The residual sugar, which can be up to 300 g/l, has to be achieved by stopped fermentation. To enable an effective control of quality and amount of grapes for production of Prädikatswein the harvest has to be announced one day before harvest. During harvest and pressing an inspector of the wine police (Bundeskellereiinspektion) controls the amount and sugar content of the grapes and writes a report (Mostwäger-Bestätigung). Additionally further rules are fixed in the Austrian wine law:

- ✓ first selling date 1st March (Spätlese) respectively 1st May (all others)
- ✓ Beerenauslese, Ausbruch und Trockenbeerenauslese wines have to exhibit a distinct perceptible smell and taste of botrytised grapes
- ✓ minimum sugar content of grapes at harvest defined as degree

Klosterneuburger Mostwaage ($^{\circ}\text{KMW}$ = gram sugar per 100 gram juice)

- Spätlese - late harvest wine ($> 19^{\circ}\text{KMW}$),
- Auslese - selected grapes ($> 21^{\circ}\text{KMW}$),
- Beerenauslese - selected berries ($> 25^{\circ}\text{KMW}$),
- Ausbruch ($> 27^{\circ}\text{KMW}$),

Trockenbeerenauslese - dry berry selection (> 30°KMW),

Eiswein - ice wine (> 25°KMW),

Strohwein - straw wine (> 25°KMW)

3c) DAC-wines are typical wines for special regions. Therefore only the absolutely best suited grape varieties are allowed for wine production in the defined areas. For each DAC wine the interprofessional committee of that region proposes minimum requirements which, after consultation with the ministry of agriculture, are released as a directive of the government. Within the last eight years directives for seven DAC wines were published:

DAC - WEINVIERTEL (first Austrian DAC by directive VO 23/2003)

DAC - KREMSTAL

DAC - TRAIENTAL

DAC - KAMPTAL

DAC - LEITHABERG

DAC - MITTELBURGENLAND

DAC - EISENBERG

Generally the DAC directives contain detailed descriptions for the desired sensorial characteristics of the wines and stricter rules for the degustation. Furthermore additional analytical limits (e.g. maximum sugar content at 6 g/l; maximum effective alcohol at 12.0, 12.5 or 13.0 % vol; maximum malic acid for red wines at 0.2 g/l) are set.

The development of DAC wines is a dynamic field within the wine business of Austria and further outcomes can be expected within the next future. Also the consumer has accepted these new brands very well and good sales at satisfying prices can be achieved.

Wine control in Austria:

In Austria the control, but also the production, of wine is coordinated by the Federal Ministry of Agriculture, Forestry, Environment and Water Management, situated in Vienna. Within the ministry the agenda of wine are concentrated in the department III, section VIII -wine, which is led by Dr. Christian JABOREK. The ministry instructs operative working bodies like the Bundeskellereiinspektion („wine police“), Bundesamt für Weinbau, Eisenstadt („Federal Office of Wine Growing“) and Höhere Bundeslehranstalt und Bundesamt für Wein- und Obstbau, Klosterneuburg („Education and Research Institute for Viticulture and Pomology“) to perform the practical work of wine control.

The different roles of the above mentioned bodies are described as follows:

a) Bundeskellereiinspektion (BKI) - wine police:

The BKI comprises around 30 employees from which around 10 are working in administration and 20 are directly active in wineries. The main tasks of the Bundeskellereiinspektion are

... control that Austrian wine producers follow the wine law

(mainly by visits at wineries, traders, shops.. „in situ control“).

... guarantee the high quality level of Austrian wines

... control the vineyard area with regard to size, grape variety and ownership ...

register the amount of wine harvested respectively stored in the wineries

... help to improve the quality of Austrian wines (mainly by advice and information).

Under the leadership of its current head Mr. Ing. Alfred ROSNER, the BKI has turned from an old fashioned office to a very innovative and modern organisation. Most of the wine control officers work external from an home office close to the producers and are employed with laptop, mobile phone and mobile internet, so that they can get

always and everywhere the information which they need within very short time. Since the BKI also collects all relevant data beginning from vineyard surface and variety to harvest and storage of wine, each officer has a very clear picture of each winery which he is going on to control. This extremely high degree of transparency is one of the most important and effective tools in the Austrian wine control. Gaps within this control system caused by trade are closed, because each transfer (e.g. sale) of wine has to be well documented.

Performing their control task the BKI makes around 10.000 winery visits per year and takes around 2.000 samples for chemical and/or sensorial analysis. Furthermore roughly 7.000 advising talks are performed. From the taken wine samples only very few have to be complained, mainly because of incorrect labelling or low quality.

b) Bundesamt für Weinbau, Eisenstadt (BAWB-Office of Wine Growing''):

The BAWB comprises around 70 employees and is the 1st instance in the Austrian wine control. The head of the institute, Mr. Dr. Walter FLAK is an international well known researcher and expert. The control is focused on quality wines and so every year around 40.000 wine samples are chemically and sensorially evaluated. From the submitted wines roughly 12% (around 5.000 samples) are rejected, mainly of too low sensorial quality (11 %). The most often occurring sensorial defects are reductive note, volatile acidity, mouldiness and brettanomyces. Such wines can then be improved by fining or blending and re-submitted or sold in a lower quality category, if the sensorial defect was not too severe.

Chemical evaluation of quality wines:

The chemical analysis for quality wines contains following analytical parameters:

- Free and total sulphuric acid (mg/l)
- Effective alcohol (% vol and g/l)
- Total alcohol (% vol and g/l)
- Reducing sugars (g/l)
- Relative Density
- Titrateable Acidity (g/l)
- Dry extract (g/l)
- Volatile acidity (g/l - occasional)

And for red wines additionally:

- Artificial colorants
- Anthocyanidindiglucosids (mg/l)

Rejections caused by chemical parameters are rare and only in very few wines, incorrect levels of sulphur dioxide or volatile acidity are found. Due to the high number of samples (in average 200 samples per day) fast, automated methods like FTIR have to be applied. Nevertheless all methods are validated since the BAWB is an international certified laboratory according to EN ISO/IEC 17.025 since 1998. The correctness of data is permanently controlled by internal and external audits and by participation in collaborative trials.

During the year 2010 big efforts were made to implement the new directives of the EU (regulation EU No. 607/2009) concerning analytical methods according to the O.I.V. list of recommended analytical methods. As a consequence the analytical parameter reducing sugar shall be substituted by the term "sum of glucose and fructose" and an enzymatic method has to be established. Also the parameter volatile acidity shall be replaced by acetic acid, estimated enzymatically, in the near future.

Sensorial evaluation of quality wines:

As already mentioned above, beside all analytical efforts, almost all submitted wines meet the chemical limits set by the EU or described in the wine law, but quite many

(around 11%) fail to pass the sensorial evaluation. The panel for the sensorial evaluation consists of six skilled and trained experts, mainly wine producers but also traders, sommeliers, consumers and experts. Obviously all wines are presented anonymously but with informations concerning variety, vintage year, production area and type of quality wine (e.g. Kabinett, Beerenauslese, DAC). The judging question is quite simple - „Does the wine fulfil the described character and typicality regarding variety, vintage year and production area and is it without any defect". The judgement is according to the majority of votes, therefore with a voting of 6:0, 5:1 and 4:2 (yes:no votes) a wine has passed the evaluation. If a wine is judged 3:3 (yes:no) it will be repeated at the next tasting session. With all other votes a wine has been rejected, except one of the tasters has noted „cork" or something similar. When a wine passes the chemical and sensorial examinations it is certified by a number, the so called „Staatliche Prüfnummer". This quality number can only be used for the identical wine, any unauthorised usage is severely punished.

c) Höhere Bundeslehranstalt und Bundesamt für Wein- und Obstbau, Klosterneuburg (HBLAuBA - „Education and Research Institute for Viticulture and Pomology"):

The HBLAuBA comprises around 150 employees and is the 2nd instance in the Austrian wine control system. Most of the employees, however, are occupied with educational duties or with research regarding production and processing of fruits, grapes, wines and other fruit derived products. Also the main task of the chemistry department is research and only a small group of around 5 persons is part time busy with analysis and judgement of samples delivered by the wine control (BKI) or from wine producers, who are not satisfied with the results of the 1st instance (refutation of rejection). Roughly 4000 wines are analysed for these official purposes in Klosterneuburg every year. Therefore the laboratory at the HBLAuBA Klosterneuburg also has to have at least the same range of analytical methods and is also certified according to EN ISO/IEC 17.025 since the year 2000. Identical to the BAWB Eisenstadt at the HBLAuBA Klosterneuburg the analytical parameters relative density, reducing sugar, effective alcohol and titratable acidity are estimated by means of automated FTIR analysis, however, additionally the old standard chemical or physical methods are performed in parallel. Different techniques like distillation followed by acidimetric titration (method of Paul), flow injection analysis (FIA) and iodometric titration are used for the determination of free and total sulphuric acid.

Validation of analytical methods:

The repeatability within the laboratory was found to be following:

Relative density:	± 0,0005
Reducing sugars:	± 0.7 g/l
Titratable acidity:	± 0.3 g/l
Effective alcohol:	± 0.2 % vol

One of the most important duties of the wine control is to check, if the wine, which is sold, is the same that was sent to the quality examination of the „Staatliche Prüfnummer". Therefore maximum tolerable differences from the first analytical certificate have to be fixed as follows:

Tolerable difference between analytical value found in control analysis and at first examination for quality wine „Staatliche Prüfnummer" (=acceptable interlab oratory difference-comparability):

Relative density:	± 0,0010
Reducing sugars:	± 1.4 g/l
Titratable acidity:	± 0.6 g/l
Effective alcohol:	± 0.4 % vol

Since HBLAuBA is mainly occupied with research projects and educational works including assistance of bachelor, master and PhD studies, it is provided with quite modern equipment in the field of wine and fruit analysis. For instance HPLC methods for analysis of phenolics, amino acids, organic acid, artificial sweeteners, GC-MS methods for the determination of aromatic substances or illegal additives, ELISA for analysis of allergens and mycotoxins as well as AAS respectively ICP-OES equipment for analysis of various elements are available and can also be used for wine control purposes on demand. The head of the department for chemistry and biology, which consists of around 25 people is Dr. Reinhard EDER, who is also active in different O.I.V. commissions as expert and delegate.

EU wine data base:

With the entry of Austria into the EU in the year 1995 also the work for the EU-wine data bank has started. Due to structural changes, however, it did not start effectively before 2000, when HBLAuBA became the responsible body for the vinification and basic wine analysis. Due to financial restrictions it was only possible to establish a national laboratory which performed the IR-MS analysis of carbon and oxygen isotopes and the analysis of the hydrogen isotopes is until today an open and unsolved problem. As a consequence of these unfinished situation and also the fact, that isotopic analysis has not yet shown any remarkable benefit for the Austrian wine control the analysis of stable isotopes is not widely used. Nevertheless, the wines for the EU-wine data base are produced at HBLAuBA and the values of the C and O isotopes are regularly entered in the data bank. Furthermore very interesting analysis beside isotopic analysis are performed and used as databank for the characterisation of Austrian wines.

Control of table and country wines:

An important task which is shared between the two official laboratories of HBLAuBA and BAWB is the control of table and country wines from Austria and also the control of imported wines. The quality check of table and country wines is not so strict regulated as for quality wines and the control comprises only a randomly selected part of all wines of these categories. Around 1000 wines of these lower quality categories are annually sampled from the wine police (BKI) and brought to HBLAuBA and BAWB, where the minimum requirements have to be proved and the merchantable quality has to be checked. For the investigation of such wines usually a wider range of analytical parameters is checked:

For instance the content of heavy metals like copper and iron is determined by means of AAS or ICP-OES and the absence or level of conservants like sorbic acid, benzoic acid or sodium acid is checked by means of HPLC. Furthermore enzymatical methods for the analysis of many other parameters like D-, DL- or L-malic acid, glucose and/or fructose and/or sucrose, citric acid, glycerol, acetic acid, glucuronic acid, pyruvate, L-ascorbic acid are applied. In suspicious samples or samples which are selected by change illegal additives like glycol or glycerol are analysed by means of GC-MS. Additionally from more and more samples a scan of aromatic substances is recorded and compared with previously analysed wines. If new frauds or illegal practices appear on the international wine market like usage of Natamycin (Pimaricin) or production of artificial wine the necessary analytical methods are established and suspicious wines are controlled.

Conclusion:

The level of wine production in Austria has changed significantly within the last 30 years. Nowadays the wineries are aware of the fact, that only correct production processes, self

discipline and transparency can bind the consumer to their product and so guarantee a sustainable survive of their business. Beside that the Austrian wine control has enlarged the number of control inspectors while at the same time the number of wineries has diminished significantly, and so enabling more often and intense control of each producer. Additionally, with the help of modern electronic equipment and complete control of production amounts and sites, the Austrian wine control has the possibility to check quickly and effectively the legality of production.

Within the Austrian wine production the quality wine is the most dominating and most prestigious category with around 70 % of production and therefore the focus of control work is laid onto these wines. Annually around 40.000 quality wines are checked according to nine (white wine) or eleven (red wine) parameters and approximately 12 % fail this examination, mainly because of deficits in sensorial quality.

Furthermore around 2.000 table or country wines or imported wines are controlled if they fulfil the minimum requirements defined in EU regulations or national laws. Beside routine analysis also sophisticated instrumental techniques are applied to check the absence of fraud, illegal additives or health damaging substances.