

# Guida dell'oiv per l'identificazione dei rischi, dei punti critici di controllo e della loro gestione nell'industria vinicola

Stato: **Active**

**OIV**   **Norme e documenti tecnici**   **Resolutions**

## Guida dell'oiv per l'identificazione dei rischi, dei punti critici di controllo e della loro gestione nell'industria vinicola

OIV-OENO 630-2020 OIV Guide to identify hazards, critical control points and their management in the wine industry  
THE GENERAL ASSEMBLY,

CONSIDERING that food safety is one of the fundamental requirements in all societies,

CONSIDERING that in the last decades several local actions have been carried out that try to give a normative framework for food safety in wine production,

CONSIDERING the need to harmonize actions of wine safety practices in wine production processes,

CONSIDERING the need to have agreed criteria on potential hazards that might affect wine safety during processing and transformation of wine products,

CONSIDERING the need to identify the risks and the critical points on which the Operators, the Sector Organizations and the National or Regional Administrations must pay attention and review,

CONSIDERING the previous works carried out jointly by representatives of various Groups of Experts,

*vitivinicultural practices in order to minimise levels of Ochratoxin A in vine-based products; OIV-CST 369-2011 regarding the OIV Code of good vitivinicultural practices in order to minimize the presence of biogenic amines in vine-based products; OIV-COMEX 502-2012 relating to the Revision of the limit of detection and limit of quantification related to potentially allergenic residues of finning agent proteins in wine,*

DECIDES to adopt the following OIV GUIDE TO IDENTIFY HAZARDS AND CRITICAL CONTROL POINTS IN THE WINE INDUSTRY, and

REQUEST that this guide shall be periodically reviewed and complemented by applying it to the scope of other vine-based products, when deemed necessary.

## **OIV Guide to identify hazards and critical control points in the wine industry**

### **Introduction**

Companies of the Wine Sector must plan, implement, operate, maintain and update a Wine Safety Management System (WSMS), in accordance with the principles of the Hazard Analysis and Critical Control Points (HACCP) of the *Codex Alimentarius*. Said WSMS consist of effective management procedures that vitivinicultural products are safe for consumers.

The implementation of a HACCP system in a winery must always be accompanied by compliance with:

a prerequisites program (PRP) containing all the elements that can ensure wine safety or make up the hygiene system in a winery (see Annex 1)

processes of grape production according to Good Agricultural and Viticultural Practices (GAVP) and the OIV criteria

the standards of the International Code of Oenological Practices of the OIV and of *Codex Alimentarius*.

The analysis of the hazards, based in the HACCP system, can allow the risk assessment and if they exist the determination of the Critical Control Points as well as the resulting actions. This enables the development of a Self-Control Plan that makes wine production safe for human consumption.

The WSMS has to be compatible and referable to the OIV rules, particularly the International Code of Oenological Practices. It has also to comply with the national legislation and the specific winemaking orientations and other standards of quality voluntarily agreed by cellar of the country of origin.

The implementation process of the WSMS will be adjusted to the reality and uniqueness of each winery. The WSMS must be implemented both for the wine-producing and wine trading companies.

Since implementation of HACCP-based procedures in primary production enterprises is quite problematic, the availability of a Guide to Good Agricultural and Viticulture Practices (GAVP) for vineyards can become the best tool for an adequate program of vine protection and the harvests' sanitary specifications as well as for the whole wine production process.

HAZARD ANALYSIS AND CRITICAL CONTROL POINT (HACCP) SYSTEM AND GUIDELINES FOR ITS APPLICATION Annex to CAC/RCP 1-1969. Amendment 1999 and Revisions 1997 and 2003. Codex Alimentarius

UE COMMISSION NOTICE on the implementation of food safety management systems covering prerequisite programs (PRPs) and procedures based on the HACCP principles, including the facilitation/flexibility of the implementation in certain food businesses; Official Journal EU-2016/C, 278/01

ISO 22000:2018(E): Food safety management systems — Requirements for any organization in the food chain

## Definitions

For the purposes of this document, the following terms and definitions apply.

**Control point:** any step at which biological, chemical or physical hazards can be controlled.

**Corrective action:** action to take when the results of the monitoring of the CCPs (Critical Control Points) or oPRP (Operational Prerequisite Program) indicate loss in the control of the process or that a monitored parameter exceeds the pre-fixed critical limit.

**Critical Control Point (CCP):** step in the process at which control measurements are applied to prevent or reduce a significant wine safety hazard not to exceed a critical limit, and measures enable the application of corrections.

**Critical limit:** value that separates the acceptability from the unacceptability in a certain phase of a process. Critical limits are established to determine whether a CCP remains in control. If a critical limit is exceeded or not met, the products affected are to be handled as potentially unsafe products.

**Decision tree:** logical sequence of questions and answers that allow to make an objective decision on a specific question.

**Flow diagram:** schematic and systematic representation of the sequence and interactions of steps in the production and commercialization process.

**Good manufacturing practices (GMP):** work practices in the wine industry, including the design of a product, the use of ingredients that meet the established standards, the observation of codes of hygiene practices in the transformation of the product and the adequate distribution systems that ensure that the product reaches the consumer in satisfactory conditions.

**Gravity/Severity/Adverse effect:** impact of the potential outcome of the hazard on a consumer's health.

**Hazard analysis and critical control points (HACCP) system:** procedure that allows to identify, evaluate and control significant hazards for the wine chain of products.

**HACCP plan:** document prepared in accordance with the principles of the HACCP system, to ensure control of the hazards that are significant for wine safety.

**Lot:** defined quantity of a product produced and/or processed and/or packaged essentially under the same conditions. The lot is determined by parameters established beforehand by the organization and may be described by other terms, e.g. batch.

**Operational Prerequisite Program (Operational PRP or oPRP):** control measure or combination of control measures applied to prevent the occurrence of a significant wine safety hazard and for which

an action criterion and a measure or observation allows effective control of the process and/or product.

**Prerequisite Program (PRP):** basic conditions and activities that are necessary within the organization and throughout the wine chain to maintain wine safety. The PRPs needed depend on the segment of the wine chain in which the organization operates and the type of organization.

**Preventive measure:** any activity or action that has the purpose of preventing a wine safety hazard or that its critical limit is not exceeded.

**Probability/Frequency/Likelihood:** magnitude of possibility occurrence of the hazard in the product.

**Risk:** A function of the probability of the occurrence of an adverse health effect and the severity of that effect, consequential to presence hazard(s) in wine.

**Step:** A point, procedure, operation or stage in the wine chain including raw materials, from primary production to final consumption.

**Traceability:** the possibility of finding and following the track - through all the stages of production, transformation and distribution of a wine.

**Wine chain:** sequence of the stages in the production, processing, distribution, storage and handling of a wine and its ingredients, from primary production to consumption.

**Wine safety:** guarantee system that wine will not cause an adverse health effect for the consumer when it is prepared and/or consumed in accordance with its intended use.

**Wine safety hazard / Hazard:** biological, chemical or physical agent in wine with the potential to cause an adverse health effect.

the combination of control measures, surveillance and assurance activities. The latter aims at providing evidence that control measures are working properly such as validation and verification, documentation and record keeping.

### **Context and scope**

This Guide is intended to harmonize the analyse of hazards and propose as orientative example the level of risk and the critical control points in relation to wine safety and hygiene pre-requisites that may occur during the steps of winemaking. This harmonization is convenient for OIV members and other countries and Institutions that have OIV as a reference,

At the organizational level, this document tries to highlight and solve a fundamental part of the WSMS. The Wine Sector of each country must apply it according its productive specificity.

And this Guide is open to the incorporation of new elements of risk when available scientific reasons or consumer protection makes it necessary.

Whereas *Codex Alimentarius* structures the HACCP system in 7 basic principles and 5 preliminary phases (see Annex 2), this Guide focuses on the determination of points 6 and 7, which correspond to Principle 1: "Hazard Analysis" and all Principle 2: "Determination of Critical Control Points (CCP)".

This Guide facilitates, according to the *Codex Alimentarius*, the determination of preventive measures, critical limits, monitoring systems, corrective measures and verification of the system, for each of CCP or oPRP found.

### **Objective:**

To raise awareness of the possible existence of hazards, risks and critical control points, as well as their control for production of safe vitivinicultural products for the health of consumers

To raise awareness of the producing companies and the Administrations of the implementation of the necessary measures to ensure, the wine safety including specific characteristics of the sector.

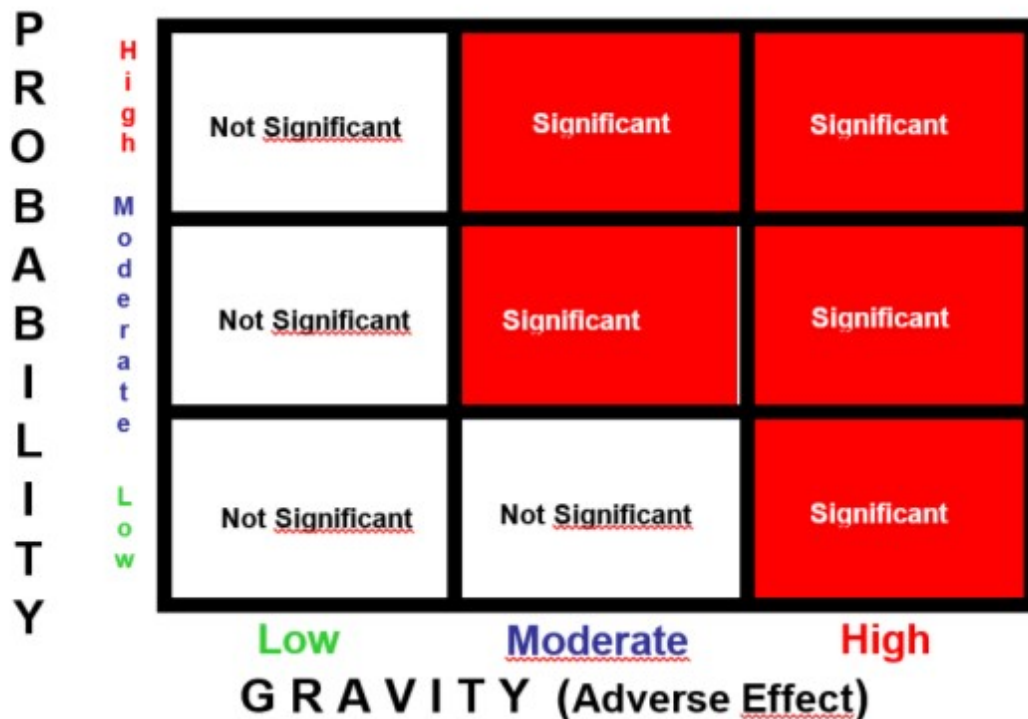
To provide the priorities of the OIV to elaborate the corresponding specific Codes that identifies the control actions for each of the CCP or oPRP.

### **Implementation**

#### **5.1. Determination of Potential Hazards and Risks in wine production**

Potential hazards may occur in every winemaking steps. The presence of contaminants, excessive residues, undesirable derivatives of naturally occurring substances, materials and chemical compounds may compromise food safety of vitivinicultural products. The potentials hazards agreed at the moment, are listed in Table 1.

Once the hazards are identified, it is necessary to assess the risk associated with each one of them in the production context. The assessment is done by the three-tier risk matrix for two



## 5.2. Appreciations levels:

The risk assessment is made using the qualitative method and sustains some uncertainties related at ranking of the probability of occurrence and gravity related with each hazard (Appreciation).

Gravity/Severity/Adverse effect		(*) Adaptation of Official Journal EU-2016/C, 278/01 (See Normative References).  Each country or organisation taken account their own process and historical data about one determinate hazard can modify the level of Appreciation of Probability and the consideration of Risk associated. The Table 1 can be taken like example or indication in the absence of elements for all hazards.
Appreciation	Criteria (*)	
Low	There is minimal risk for the consumer related to wine safety (nature of hazard e.g. paper, soft plastic, large size foreign materials, chemical substances or microbes without health concern).	
Moderate	No serious injuries and/or symptoms or only when exposed to an extremely high concentration during a long period of time. A temporary but clear effect on health (e.g. small pieces).	
High	A clear effect on health with short-term or long-term symptoms which results rarely in mortality (e.g. gastro-enteritis). The hazard has a long-term effect; the maximal dose is not known (e.g. dioxins, residues of pesticides, and mycotoxins). Fatalities by a control failure and high risk would be rare	
Probability/Frequency/Likelihood		

Low	The probability that the hazard will occur in the final product available to consumer is very limited. The control measures for the each hazard are of a general nature (PRPs) and these are related at PRPs;	To simplify the task of operators with similar processes or to comply with the same regulations, sectoral organizations or competent administrations are encouraged to carry out work to pool risk analysis steps, to identify compounds for which specific measures must be taken, implemented and detail effective measures
Moderate	Failing or lacking of the specific control measure does not result in the systematic presence of the hazard in the end product but the hazard can be present in a certain percentage of the end product in the associated batch.	
High	Failure or absence of the specific control measure will result in a systematic error, there is a high probability that the hazard is present in all end products of the associated batch.	

Table 1. Relationship of potential identified hazards in winemaking process: Still and sparkling wine (Annex 4)

Num. HAZARD	STAGE OF OCCURRENCE	GRAVITY	PROBABILITY	RISK	COMMENTS
1. Presence of undesirable, non-pathogenic microorganisms in equipment and usable inputs	<p>Grapes production</p> <p>Reception of harvest</p> <p>Purchase/Reception of wine</p> <p>Cellar equipment</p> <p>Reception of Oenological additives and processing aids</p>	Low	Moderate	Not significant	Contamination in container transport systems, winery equipment and usable inputs ...
2. Residues from vineyard: plant protection products and herbicides	<p>Grapes production</p> <p>Reception of harvest</p>	High	Moderate	Significant	

3. Residues of fats, oils, etc.	Reception of harvest Crushing Pressing Bottling Tirage	Low	Moderate	Not significant	Use of lubricants, (use only for quality) for mobile mechanisms reception, harvest, crushing, pressing, ... and bottling
4. Mycotoxins (like OTA) from grape fungus	Grapes production Reception of harvest Purchase/Reception of wine	High	Low	Significant	Significant in regions propitious to the development of ochratoxine producing fungi
5. Excessive concentration of metals or trace elements very toxic (lead,...)	Grapes production: environment contamination Transport of harvest Reception of harvest Crushing Must clarification Alcoholic fermentation (A.F.) Fermentation and storage in vats of concrete uncoated, or equipment with non-food complements or not suitable for must or wine, paints and ceramics for non-food use, etc.	High	Low	Significant	The contaminant produced preferential steps may disappear in certain circumstances in the course of alcoholic fermentation  This contaminant can originate at any stage of the processing process, notably by use of obsolete deteriorated equipment not suitable for must or wine
6. Presence of low or non-toxic metals	Transport of harvest Reception of harvest	Low	Moderate	Not significant	May produce enrichment



	Alcoholic fermentation (A.F.)  Reception of Oenological additives and processing aids  Racking  Clarification  Tirage  2 <sup>nd</sup> . Fermentation - Maturation				Also by equipment with non attachment not suitable must or v  Attention: oenological additives auxiliary
7. Contamination by cleaning and disinfection products	All stages of production:  Reception of harvest  Crushing  Must clarification  Alcoholic fermentation  Malolactic fermentation  Racking  Clarification  Cold stabilization  Wine maturation/storage  Filtration  Bottling  Tirage  2 <sup>nd</sup> . Fermentation - Maturation)  Degorgement  Refilling	Moderate	Moderate	Significant	Only use products intended the wine industry.  It may occur any stage processing  Cleaning products be stored controlled access pl

8. Presence of foreign bodies	Originating from the harvest (vegetable remains, dust and material's vineyard)	Moderate	Moderate	Significant	e.g.: wood, metal, glass stones, etc.
	From mechanical equipment				
	From the plug and others electrical equipment				
	Tirage				
	Filling/bottling				
9. Contamination by Bisphenol A and diglycidyl ether of Bisphenol	Must clarification	High	Low	Significant	Equipment coated with epoxy-ph resins deteriorate epoxy-ph resins poured or suitable for must or wine that can release toxic compounds
	Alcoholic fermentation				
	Malolactic fermentation				
	Wine maturation/storage				
10. Residues of refrigerants Monoethylene glycol (or ethane-1,2-diol) and Diethylene glycol (or 2-hydroxyethoxy)ethan-2-ol)	Must clarification	High	Moderate	Significant	Refrigerant circuits corrode or wine deteriorate  Favor the non-toxic substances such as propylene glycol, polyethylene glycol or anhydrous alcohol
	Alcoholic fermentation				
	Cold stabilization				
	Degorgement				
11. Monopropylene glycol (or Propane-1,2-diol) waste and calcic or sodium brines	Must clarification  Alcoholic fermentation	Low	Moderate-	Not significant	Refrigerant circuits corrode or wine deteriorate

12. Presence of Ethyl Carbamate	Alcoholic fermentation Malolactic fermentation Wine maturation	High	Low	Significant	Originate fermenta processes (mainly accompa by therm processes long maturatio
13. Presence of biogenic amines	Malolactic fermentation Wine maturation	Moderate	Moderate	Significant	Originate fermenta and matu process ( histamine  Severity i limited to people w food intoleran biogenic
14. Presence of cyanide derivatives	Ferric stabilization with ferrocyanide	High	Low	Significant	Originate treatmen potassiu ferrocyan  Treatmer usual
15. Presence of Polycyclic Aromatic Hydrocarbons	Maturation in oak	High	Low	Significant	Originate excessive toasting o to be in c with wine  A degree over toas mainly ot by direct could inc the frequ  This contamin is also po due to th presence

16. Presence of Phthalates, Nonylphenes compounds	Alcoholic fermentation Wine maturation/stockage Bottling	High	Low	Significant	From:  Plastic Containe (*)  Equipment coated w epoxy res containin phthalate deteriora (*)  Plastic hc deteriora (*)  Plastic bc and bag- or (*)  (*) not su for must wine
17. Persistent organic compounds: biphenyl polychlorinated compounds, dioxins, furans	Maturation in oak Capped with cork	High	Low	Significant	From the environm could be incorpora into the c wood and that wou contact v the wine.  Belong to group of environm contamin
18. Presence of glass splinters	Alcoholic fermentation Bottling Degorgement Refilling	High	Moderate	Significant	From bot and bottl process.  From bre lighting equipme thermom for contr

19. Bottle explosion and uncontrolled or untimely expulsion of the plug	<p>Maturation in bottle</p> <p>Bottle conditioning</p> <p>2nd. Fermentation - Maturation</p> <p>Clarification in bottle</p> <p>Degorgement</p> <p>Manipulation during consumption</p> <p>Expedition</p>	Moderate	Moderate	Significant	Problems to excess filling of bottles at temperature changes or storage and transport
20. Sulphur dioxide in excess	<p>Purchase/reception of wine</p> <p>Assembly</p> <p>Bottling</p>	High	Low	Significant	<p>Error in calculation of SO2 during the wine making and bottling process.</p> <p>Delay or starting alcoholic fermentation sparkling wine making</p>
21. Presence of allergenic substances	<p>Clarification</p> <p>Bottling</p>	High	Moderate	Significant	<p>Severe reactions allergic products by presence of:</p> <ul style="list-style-type: none"> <li>- clarifying proteins on egg, milk and other agents with animal proteins wheat.</li> <li>- lysozyme</li> <li>- sulphur dioxide</li> </ul>

### 5.3. Determination of CRITICAL CONTROL POINTS (CCPs)

are to be managed alone as oPRPs or these operational programs with defined measures are needed to manage the critical limits of CCPs. (See Annex 3)

In Table 2, are related, as example or indication in the absence of elements, how should it be treated one hazard with significant risk: as oPRP and the preventive measures to apply (PRPs) or CCP also possible to be managed by a preventive plan.

In many cases of risk significant implement suitably PRPs or modify the process or its conditions, without modifying the quality standards of product, is enough to avoid its treatment as CCP.

When determining whether the hazards are controlled by oPRP or CCP, it must be determined in turn what kind of preventive or corrective measures have to be taken to eliminate the hazard or lead below the critical limit, as well as monitoring criteria, acceptability conditions, follow-up procedures, verification measures, responsibilities and record keeping, , according the guidelines for HACCP of *Codex Alimentarius*.

Table 2.Suggestion of handling of hazards in winemaking process (still wine and sparkling wine)

Note: “Good Manufacturing Practices”, “The Workers' Training Plan” and “Traceability Control Plan” are GENERAL PREVENTIVE MESURES TO APPLY for all hazards related

HAZARD	SPECIFIC PREVENTIVE MEASURES TO APPLY	Hazard Treatment	
		oPRP	CCP
2. Residues from vineyard: plant protection products and herbicides	Good Agricultural and Viticultural Practices  PRP: Suppliers Control Plan  PRP: Cleaning and disinfection Plan	oPRP	--
4. Mycotoxins like OTA from fungus of grape	OIV Code of sound vitivinicultural practices in order to minimise levels of ochratoxin A in vine-based products (2005)  Good Agricultural and Viticultural Practices  PRP: Suppliers Control Plan  PRP: Cleaning and disinfection Plan	oPRP	--

<p>5. Contamination by excessive concentrations of heavy or light metals or trace elements</p>	<p>Good Agricultural and Viticultural Practices</p> <p>PRP: Suppliers Control</p> <p>PRP: Hygienic design for buildings, facilities and equipment</p> <p>PRP: Maintenance Plan for buildings, facilities and equipment</p> <p>PRP: Cleaning and disinfection Plan</p>	<p>oPRP</p>	<p>--</p>
<p>7. Contamination by cleaning and disinfection products</p>	<p>PRP: Cleaning and disinfection Plan</p> <p>PRP: Hygienic design for buildings, facilities and equipment</p> <p>For cleaning and disinfection products the critical limit is "not detectable" which is guaranteed by a once fixed cleaning and disinfection plan and is checked in certain time intervals.</p>	<p>oPRP</p>	<p>CCP</p>

8. Presence of foreign bodies	<p>Good Agricultural and Viticultural Practices</p> <p>PRP: Suppliers Control Plan</p> <p>PRP: Hygienic design for buildings, facilities and equipment</p> <p>PRP: Maintenance Plan for buildings, facilities and equipment</p> <p>The presence of foreign bodies is checked by visual inspection or other optical methods (e.g. X-ray). The critical limit is “no foreign body”.</p>	oPRP	CCP
9. Contamination by Bisphenol A and diglycidyl ether of Bisphenol	<p>PRP: Hygienic design for buildings, facilities and equipment</p> <p>PPR: Maintenance Plan for buildings, facilities and equipment</p> <p>PRP: Suppliers Control Plan</p> <p>PRP: Cleaning and disinfection Plan</p>	oPRP	--
10. Residues of refrigerants Monoethylene glycol and Diethylene glycol	<p>PRP: Hygienic design for buildings, facilities and equipment</p> <p>PPR: Maintenance Plan for buildings, facilities and equipment</p>	oPRP	--
12. Presence of Ethyl Carbamate	<p>Good Agricultural and Viticultural Practices</p> <p>PRP: Suppliers Control Plan</p>	oPRP	--



13. Presence of Biogenic Amines	<p>OIV Code of good vitivinicultural practices in order to minimise the presence of biogenic amines in vine-based products</p> <p>Good Agricultural and Viticultural Practices</p> <p>PRP: Suppliers Control Plan</p>	oPRP	--
14. Presence of Cyanide Derivatives	<p>PRP: Hygienic design for buildings, facilities and equipment</p> <p>PRP: Maintenance Plan for buildings, facilities and equipment</p> <p>PRP: Suppliers Control Plan</p> <p>CCP depending on the products produced; critical limit – legal regulations</p>	oPRP	CCP
15. Presence of Polycyclic Aromatic Hydrocarbons	<p>PRP: Suppliers Control Plan</p> <p>PRP: Cleaning and disinfection Plan</p> <p>CCP depending on the products produced; critical limit – legal regulations</p>	oPRP	CCP-
16. Presence of Phthalates, Nonylphenolic compounds	<p>PRP: Hygienic design for buildings, facilities and equipment</p> <p>PRP: Maintenance Plan for buildings, facilities and equipment</p> <p>PRP: Suppliers Control Plan</p> <p>PRP: Cleaning and disinfection Plan</p>	oPRP	--

17. Persistent organic compounds: biphenyl polychlorinated compounds, dioxins, furans	<p>PRP: Suppliers Control Plan</p> <p>PRP: Hygienic design for buildings, facilities and equipment</p> <p>PRP: Maintenance Plan for buildings, facilities and equipment</p> <p>PRP: Cleaning and disinfection Plan</p>	oPRP	--
18. Presence of glass splinters from bottle	<p>PRP: Maintenance Plan for buildings, facilities and equipment</p> <p>PRP: Suppliers Control Plan</p> <p>The presence of foreign bodies like glass splitters is checked by visual inspection or other optical methods (e.g. X-ray). The critical limit is "no foreign body".</p>	-oPRP	CCP
19. Bottle explosion and uncontrolled expulsion of the plug	<p>PRP: Suppliers Control Plan</p> <p>PRP: Storage and transportation Plan</p> <p>Caused by carbon dioxide content as well as 2nd fermentation/maturation (critical limit - no explosion; definition of a maximum carbon dioxide pressure)</p>	oPRP	CCP

20. Sulphur dioxide/Sulphites in excess	<p>Good Agricultural and Viticultural Practices</p> <p>PRP: Maintenance Plan for buildings, facilities and equipment</p> <p>PRP: Suppliers Control Plan</p> <p>CCP depending on the products produced; critical limit – legal regulations</p>	oPRP	CCP
21. Presence of allergenic substances (Clarifying and stabilizing with proteins based on egg, milk and wheat or with sulphur dioxide, ...)	<p>Specific Clarification Code OIV</p> <p>PRP: Allergen Control Plan</p> <p>PRP: Labelling of Product Plan</p> <p>CCP depending on the products produced; critical limit – legal regulations</p>	oPRP	CCP

The development of the management sheets is the responsibility of the business but also of the sectorial organizations or administrative institutions competent in each country. They know better than anyone the productive uniqueness and the possible dangers that may arise.

## Annexs

### Annex 1: Prerequisite Program (PRP).

Configure the hygiene system in a winery:

Hygienic design of buildings, facilities and equipment,

Workers' training plan

Good manufacturing practices

Maintenance plan for buildings, installations and equipment

Cleaning and disinfection plan

Personnel hygiene plan

Waste control plan

Water supply control plan

Storage and transportation plan,

Complaint and recall management plan,

Control of chemicals plan

Labelling of product plan

Traceability control plan

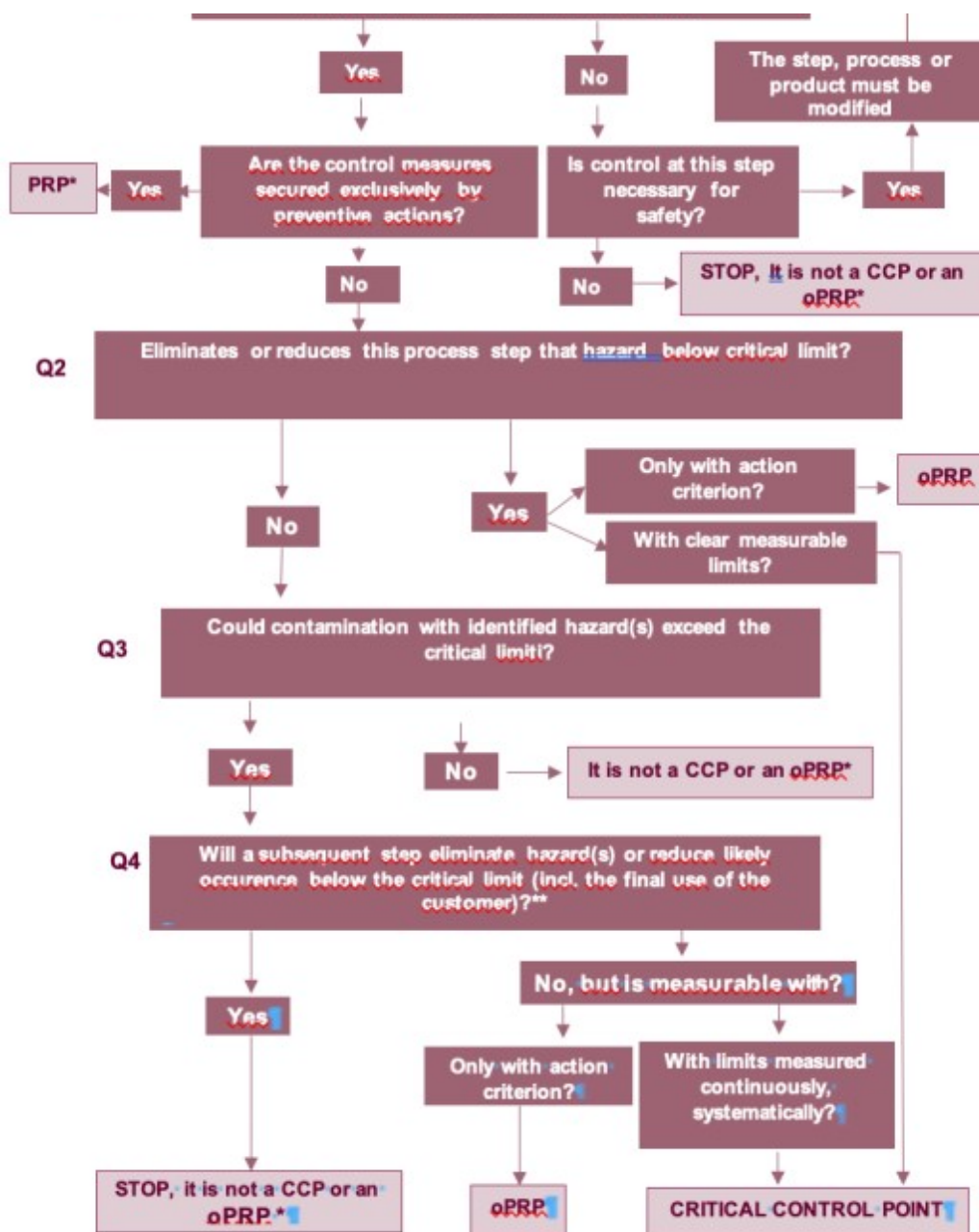
Supplier control plan

Allergen control plan

## **Annex 2. Structures of the HACCP system**

The *Codex Alimentarius*, structures the HACCP system in 7 basic principles and 5 previous phases. All are obligatory in order to apply it correctly. These are:

- Establishment of the HACCP working group
  - Description of activities and products
  - Identify the intended use of the products
  - Preparation of flowchart
  - Check Flow Chart
  - Hazard analysis and determination of preventive measures. Principle 1
  - Determination of critical control points (CCPs). Principle 2
  - Establishment of critical limits for each CCP. Principle 3
  - Establishment of a monitoring system for each CCP. Principle 4
  - Adoption of corrective measures. Principle 5
  - Checking the system. Principle 6
  - Establishment of a documentation and registration system. Principle 7
- Annex 3: Decision tree to recognize a PRP, oPRP or CCP**

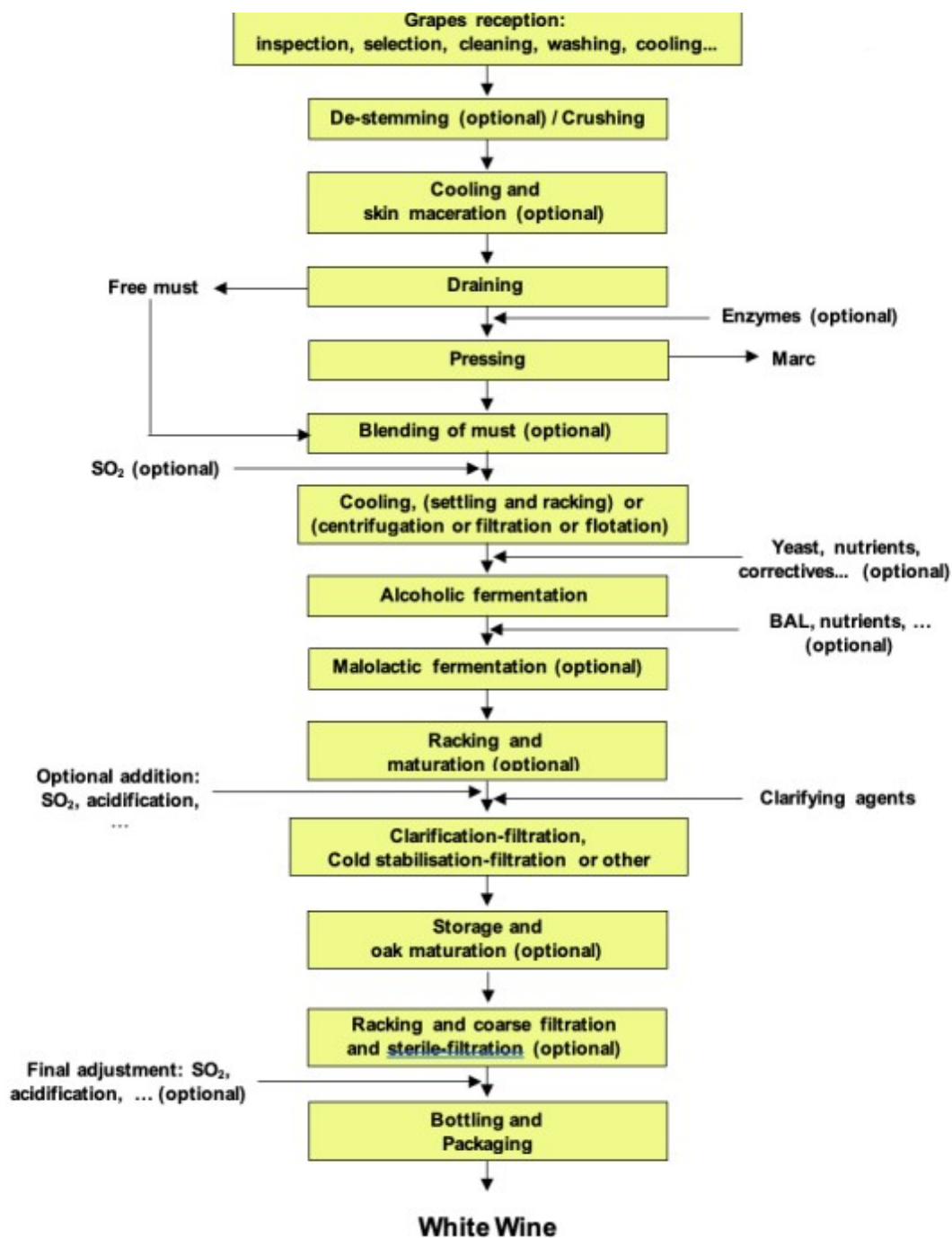


\* Go to the next identified hazard of the winemaking process.

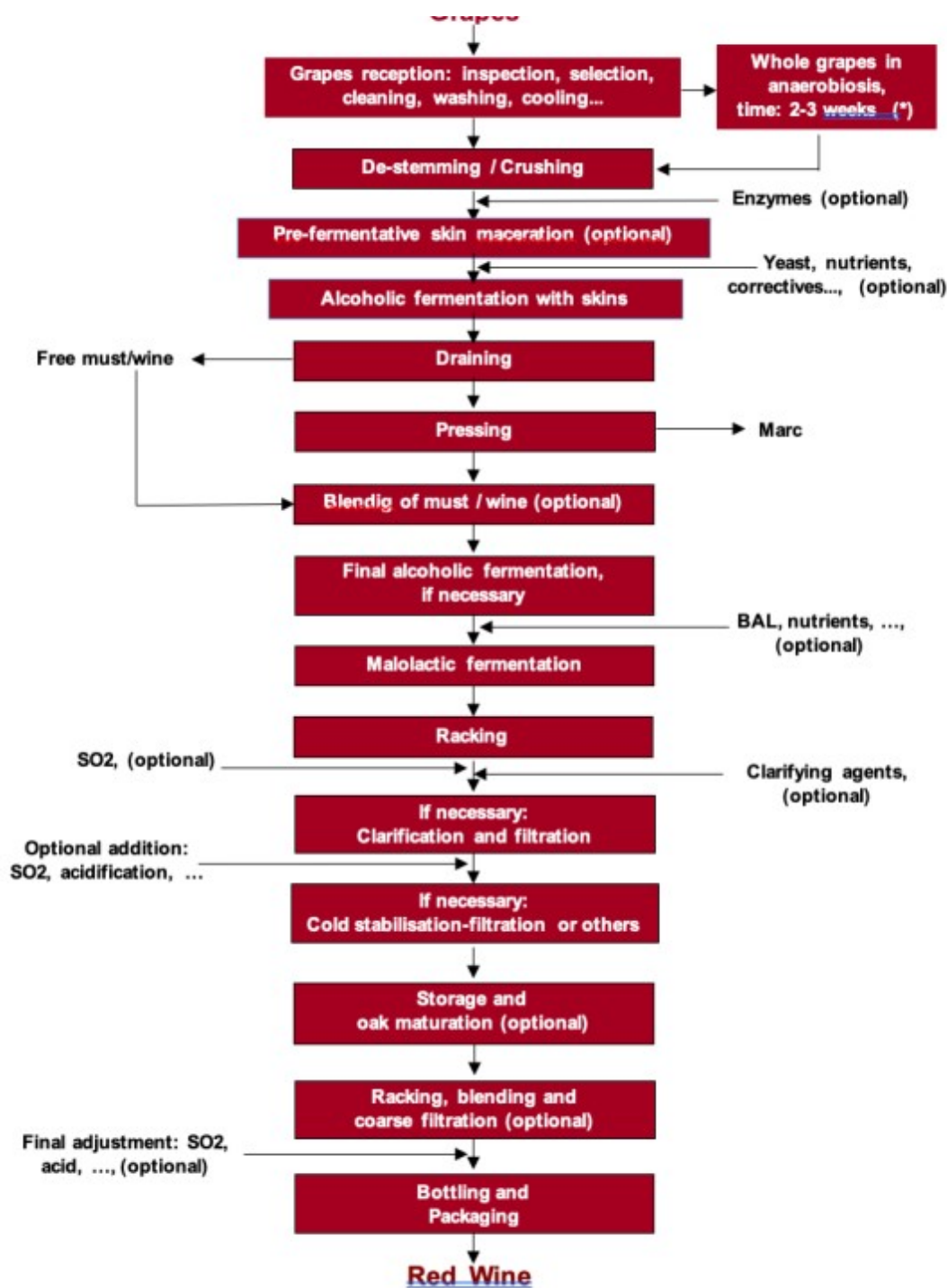
#### Annex 4: Flow Diagram

These diagrams are illustrative and simplified. It is possible that some step is not carried out or has some modification or is not adapted to the specificity of the winery.

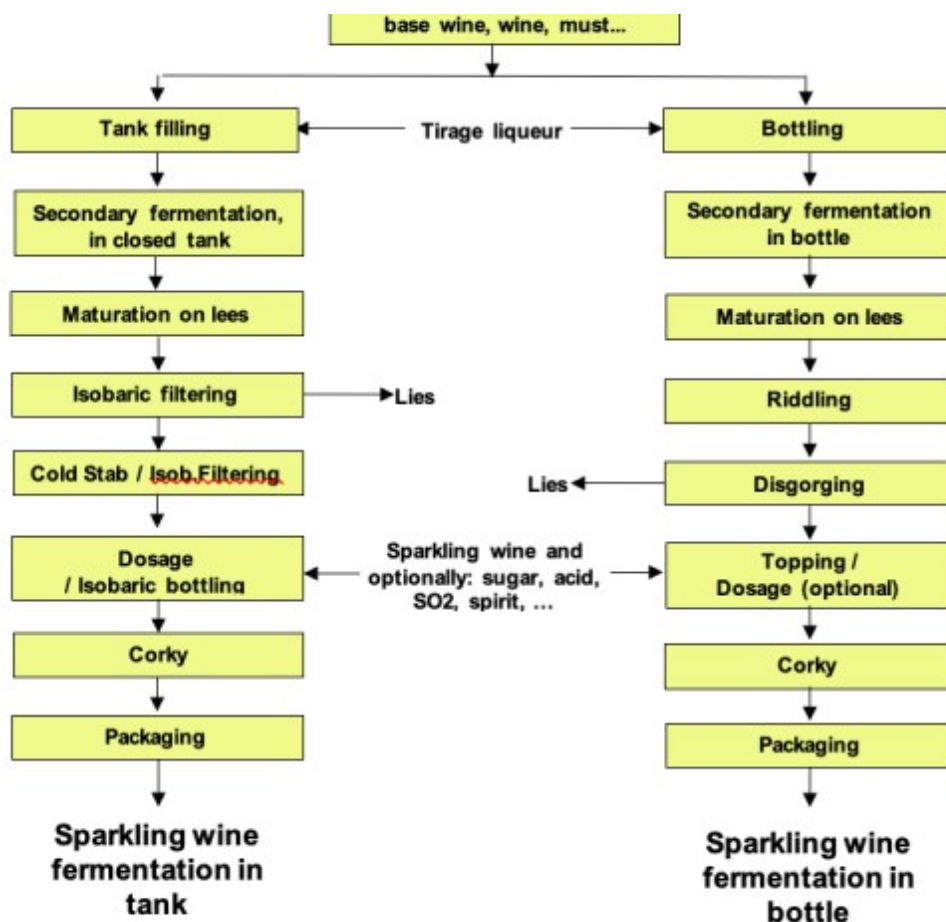
#### Annex 4a: White wine process



## Annex 4b: Red wine process



#### Annex 4c: Sparkling wine process



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