0.1 Distinction between additives and processing aids

FOOD ADDITIVE

This term means “any substance not normally consumed as a food by itself and not normally used as a typical ingredient of the food, whether or not it has nutritive value, the intentional addition of which to food for a technological (including organoleptic) purpose in the manufacture, processing, preparation, treatment, packaging, transport or holding of such food results, or may be reasonably expected to result (directly or indirectly) in it or its by-products becoming a component of or otherwise affecting the characteristics of such foods. The term does not include ‘contaminants’ or substances added to food for maintaining or improving nutritional qualities”.

PROCESSING AID

This term means “any substance or material, not including apparatus or utensils, and not consumed as a food ingredient itself, intentionally used in the processing of raw materials, food or its ingredients, to fulfill a certain technological purpose during treatment or processing and which may result in the non-intentional but unavoidable presence of residues or derivatives in the final product"[1]

Compounds admitted by the OIV for treatment of grape, must and wines and their status as additives and processing aids and the use levels or residual limits

Substances	INS or CAS no.	Code of Oenological Practices		OIV Codex file reference	Additive	Processing aid	
		Grape/ Must	Wine				
Acidity regulators							
Malic acid (D,L-; L-)	INS 296	File 2.1.3.1.1	File 3.1.1.1	COEI-1-ACIMAL	X		Maximum use level 4 g/L[2]
Lactic acid	INS 270	File 2.1.3.1.1	File 3.1.1.1	COEI-1-ACILAC	X		Maximum use level 4 g/L[2]
Tartaric acid L(+)	INS 334	File 2.1.3.1.1	File 3.1.1.1	COEI-1-LTARAC	X		Maximum use level 4 g/L[2]
Citric acid, monohydrate	INS 330		File 3.3.8; 3.3.1	COEI-1-CITACI	X		Maximum use level 4 g/L[2] Residual limit 1g/L
Potassium L(+) tartrate	INS 336	File 2.1.3.2.2	File 3.1.2.2	COEI-1-POTTAR		X	
Potassium hydrogen tartrate	INS 336i	File 2.1.3.2.2	File 3.1.2.2	COEI-1-POTBIT		X	

Substances	INS or CAS no.	Code of Oenological Practices		OIV Codex file reference	Additive	Processing aid	
		Grape/ Must	Wine				
Calcium carbonate	INS 170	File 2.1.3.2.2	File 3.1.2.2	COEI-1-CALCAR		X	
Potassium hydrogen carbonate	INS 501ii	File 2.1.3.2.2	File 3.1.2.2	COEI-1-POTBIC		X	
Calcium tartrate	INS 354		File 3.3.12	COEI-1-CALTAR		X	Maximum use level 200 g/L
Potassium carbonate	INS 501i	File 2.1.3.2.5		COEI-1-POTCAR		X	
Calcium sulfate *(liqueur wines only)*	INS 516	File 2.1.3.1.1.1		Ongoing	X		Maximum use level 2 g/L
Preservatives							
Ascorbic acid	INS 300	File 1.11; 2.2.7	File 3.4.7	COEI-1-ASCACI	X		Maximum use level 0.25 g/L[3] Residual limit 300 mg/L
Erythorbic acid	INS 315	File 1.11; 2.2.7	File 3.4.7	COEI-1-ASCACI	X		Maximum use level 0.25 g/L[3] Residual limit 300 mg/L
Sorbic acid	INS 200		File 3.4.5	COEI-1-SORACI	X		Maximum use level 0.2 g/L
Potassium sorbate	INS 202		File 3.4.5	COEI-1-POTSOR	X		Maximum use level 0.2 g/L
Lysozyme	INS 1105	File 2.2.6	File 3.4.12	COEI-1-LYSOZY	X	X	Maximum use level 0.5 g/L
Liquid sulphur dioxide	INS 220	File 1.12; 2.1.2	File 3.4.4	COEI-1-SOUDIO	X		Residual limit 150 mg/l for red wines, 200 mg/l for white and rosés wines, 300 mg/l: red wines, rosés and whites containing more than 4 g/l of reducing substances, 400 mg/l: exceptionally in certain sweet white wines
Potassium hydrogen sulphite	INS 228	File 2.1.2		COEI-1-POTBIS	X		
Ammonium hydrogen sulphite	CAS 10192-30-0	File 1.12; 2.1.2		COEI-1-AMMHYD	X		
Potassium anhydrous sulphite	INS 224	File 1.12		COEI-1-POTANH	X		

Distinction between additives and processing aids

Substances	INS or CAS no.	Code of Oenological Practices		OIV Codex file reference	Additive	Processing aid	
		Grape/ Must	Wine				
Antioxidant							
Glutathione	CAS 70-18-8	File 2.2.8	File 3.4.18	COEI-1-GLUTAT	X		Maximum use level 0.02 g/L
Sequestrant							
Oenological carbon	INS 153	File 2.1.9	File 3.5.9	COEI-1-CHARBO		X	Maximum use level 1 g/L
Selective vegetal fibres	-		File 3.4.20	COEI-1-FIBVEG		X	
Fermentation activators							
Ammonium chloride	INS 510		File 4.1.8	COEI-1-AMMCHL		X	
Ammonium sulphate	INS 517		File 4.1.7	COEI-1-AMMSUL		X	Maximum use level 0.3 g/L
Diammonium hydrogen phosphate	INS 342		File 4.1.7	COEI-1-PHODIA		X	Maximum use level 0.3 g/L
Thiamine hydrochloride	CAS 67-03-8	File 2.3.3	File 4.1.7	COEI-1-THIAMIN		X	Maximum use level 0.6 g/L
Cellulose food grade	INS 460	File 2.3.2		COEI-1-CELLUL		X	
Microcrystalline cellulose	INS 460	File 2.3.2	File 3.4.21	COEI-1-CELMIC		X	
Anti-foaming agent							
Fatty acid mono- and diglycerides	INS 471	File 2.3.2		COEI-1-ACIGRA		X	
Clarifying agents							
Protein of plant origin from wheat		File 2.1.17	File 3.2.7	COEI-1-PROVEG		X	
Protein of plant origin from peas		File 2.1.17	File 3.2.7	COEI-1-PROVEG		X	
Protein of plant origin from potatoes		File 2.1.17	File 3.2.7	COEI-1-PROVEG		X	
Isinglass			File 3.2.1	COEI-1-COLPOI		X	
Gelatin	CAS 9000-70-8	File 2.1.6	File 3.2.1	COEI-1-GELATI		X	

Substances	INS or CAS no.	Code of Oenological Practices		OIV Codex file reference	Additive	Processing aid	
		Grape/ Must	Wine				
Egg (albumin)	CAS 9006-59-1		File 3.2.1	COEI-1-OEUALB		X	
Casein (calcium caseinate)	CAS 9005-43-0	File 2.1.16		COEI-1-CASEIN		X	
Potassium caseinate	CAS 68131-54-4	File 2.1.15	File 3.2.1	COEI-1-POTCAS		X	
Alginic acid	INS 400		File 3.2.1	COEI-1-ALGIAC		X	
Skim milk[4]			File 3.2.1.	COEI-1-LAIECR		X	
Potassium alginate	INS 402		File 4.1.8	COEI-1-POTALG		X	
Calcium alginate	INS 402		File 4.1.8	COEI-1-ALGIAC		X	
Cellulose	INS 460	File 2.1.11.1	File 3.2.2.1 3.2.2.2	COEI-1-CELLUL		X	
Chitin-glucan	CAS Chitin 1398-61-4 CAS Glucan 9041-22-9	File 2.1.23	File 3.2.1; 3.2.1.3; 3.4.17	COEI-1-CHITGL		X	
Chitosan	CAS 9012-76-4	File 2.1.22	File 3.2.1; 3.2.12; 3.4.16	COEI-1-CHITOS		X	
Diatomite	CAS 68855-54-9	File 2.1.11	File 3.2.2	COEI-1-DIATOM		X	
Kaolin	CAS 1332-58-7		File 3.2.1	COEI-1-KAOLIN		X	
Perlite	CAS 93763-70-3	File 2.1.11	File 3.2.2	COEI-1-PERLIT		X	
Colloidal silicon dioxide solution	INS 551	File 2.1.10	File 3.2.1; 3.2.4	COEI-1-DIOSIL		X	
Bentonites	INS 558	File 2.1.8	File 3.3.5	COEI-1-BENTON		X	
Polyvinylpolypyrrolidone (PVPP)	INS 1202		File 3.4.9	COEI-1-PVPP		X	Maximum use level 0.8 g/L

Substances	INS or CAS no.	Code of Oenological Practices		OIV Codex file reference	Additive	Processing aid	
		Grape/ Must	Wine				
Yeast protein extracts		File 2.1.24; 2.1.25	File 3.2.14	COEI-1-EPLEV		X	
Stabilising agents							
Sodium Carboxymethylcellulose	INS 466		File 3.3.14	COEI-1-CMC	X		Maximum use level 0.2 g/L
Metatartaric acid	INS 353		File 3.3.7	COEI-1-METACI	X		Maximum use level 0.1 g/L
Yeast mannoproteins			File 3.3.13	COEI-1-MANPRO	X		
Dimethyl dicarbonate	INS 242		File 3.4.13	COEI-1-DMDC	See footnote [5]	See footnote[6]	
tartaric acid D,L-	CAS 133-37-9	File 2.1.21	File 3.4.15	COEI-1-DLTART		X	
Potassium D,L-tartrate			File 3.4.15	COEI-1-POTRAC		X	
Gum arabic	INS 414		File 3.3.6	COEI-1-GOMARA	X		Maximum use level 0.3 g/L
Copper sulphate, pentahydrate	CAS 7758-99-8		File 3.5.8	COEI-1-CUISUL		X	Maximum use level 0.01 g/L Residual limit 1 mg/L[7]
Copper citrate	CAS 866-82-0		File 3.5.14	COEI-1-CUICIT		X	Maximum use level 0.01 g/L Residual limit 1 mg/L[4]
Potassium hexacyanoferrate (II)	INS 536		File 3.3.1	COEI-1-POTFER		X	
Calcium phytate	CAS 3615-82-5		File 3.3.1	COEI-1-CALPHY		X	
PVI/PVP copolymer	CAS 87865-40-5	File 2.1.20	File 3.4.14	COEI-1-PVIPVP		X	Maximum use level <0.5 g/L Residual limit Vinylpyrrolidone ≤ 10 µg/L Vinylimidazole ≤ 10 µg/L Pyrrolidone ≤ 25 µg/L Imidazole ≤ 150 µg/L

Substances	INS or CAS no.	Code of Oenological Practices		OIV Codex file reference	Additive	Processing aid	
		Grape/ Must	Wine				
Potassium polyaspartate	CAS 64723-18-8		File 3.3.15	COEI-1-POTASP	X		Maximum use level 0.1 g/L
Enzymes							
Arabinanases	EC 3.2.1.99	File 2.1.4; 2.1.18	File 3.2.8; 3.2.11	COEI-1-ACTARA		X	
Beta-glucanases (β1-3, β1-6)	EC 3.2.1.6		File 3.5.7	COEI-1-ACTGLU		X	
Cellulases	EC 3.2.1.4	File 2.1.4; 2.1.18	File 3.2.8; 3.2.11	COEI-1-ACTCEL		X	
Glycosidases	EC 3.2.1.20	File 2.1.19	File 3.2.9	COEI-1-GLYCOS		X	
Glucosidases	EC 3.2.1.21	File 2.1.19	File 3.2.9			X	
Pectinlyases	EC 4.2.2.10	File 2.1.4; 2.1.18	File 3.2.8; 3.2.11	COEI-1-ACTPLY		X	
Pectinmethylesterases	EC 3.1.1.11	File 2.1.4; 2.1.18	File 3.2.8; 3.2.11	COEI-1-ACTPME		X	
Polygalacturonases	EC 3.2.1.15	File 2.1.4; 2.1.18	File 3.2.8; 3.2.11	COEI-1-ACTPGA		X	
Hemicellulases	EC 3.2.1.78	File 2.1.4; 2.1.18	File 3.2.8; 3.2.11	COEI-1-ACTGHE		X	
Urease	EC 3.5.1.5		File 3.4.11	COEI-1-UREASE		X	
Beta-glucanases	EC 3.2.1.58		File 3.2.10	COEI-1-BGLUCA		X	
Proteases		File 2.2.12	File 3.3.16	COEI-1-PROTEA		X	
Gases							
Oxygen	INS 948	File 2.1.1	File 3.5.5	COEI-1-OXYGEN		X	
Nitrogen	INS 941	File 2.2.5	File 3.2.3	COEI-1-AZOTE		X	

Substances	INS or CAS no.	Code of Oenological Practices		OIV Codex file reference	Additive	Processing aid	
		Grape/ Must	Wine				
Argon	INS 938	File 2.2.5	File 3.2.3	COEI-1-ARGON		X	
Carbon dioxide	INS 290			COEI-1-DIOCAR			
		File 1.7				X	
		File 2.2.3			X[8]		
		File 2.2.5.				X	
		File 2.3.9				X	
			File 3.2.3			X	
			File 3.5.17		X		
			File 4.1.10			X	
			File 4.5		X		
			File 6.15		X		
Fermentation agents							
Active Dry Yeasts	INS 510		File 4.1.8	COEI-1-LESEAC		X	
Lactic acid bacteria	INS 342		File 4.1.7	COEI-1-BALACT		X	
Yeast autolysates	-	File 2.3.2		COEI-1-AUTLYS		X	
Yeast hulls	-	File 2.3.4		COEI-1-YEHULL		X	Maximum use level 0.4 g/L
Inactivated yeasts	-	File 2.3.2		COEI-1-INAYEA		X	
Inactivated yeasts with guaranteed glutathione levels	-	File 2.2.9	File 3.4.19	COEI-1-LEVGLU		X	Maximum use level (glutathione) 0.02 g/L
Others							
Caramel *(special wines only)*	INS 150a, 150b, 150c, 150d		File 4.3; 6.1	COEI-1-CARAMEL	X		

Substances	INS or CAS no.	Code of Oenological Practices		OIV Codex file reference	Additive	Processing aid	
		Grape/ Must	Wine				
Dimethyl dicarbonate (DMDC)			File 3.4.13				
Silver Chloride			File 3.5.15				
Oenological tannins		File 2.1.7 File 2.1.17	File 3.2.6 File 3.3.1	COEI-1-TANINS		X	
Skim milk			File 3.2.1				
Grape sugar							
Rectified alcohol of agricultural origin			File 3.5.1				
Rectified alcohol of vitivinicultural origin			File 3.5.1				
Carbon dioxide		File 1.7 File 2.1.14 File 2.2.3 File 2.2.5 File 2.3.9	File 4.1.10 File 4.5				
Acidification by yeasts		File 2.1.3.1.2.1					
De-acidification by yeasts		File 2.1.3.2.3.1					
De-acidification by lactic acid bacteria		File 2.1.3.2.3.3					
Inoculation with yeasts		File 2.3.1					
Fumaric acid			File 3.4.2; 3.4.23		X		Recommanded doses of 300-600 mg/L

Processes admitted by the OIV for treatment of grape, must and wines

Substances	Code of Oenological Practices		OIV Codex file reference
	Grape/Must	Wine	

Substances	Code of Oenological Practices		OIV Codex file reference	
	Grape/Must	Wine		
Physical technics				
Filtration on filter bed	File 2.1.11.1	File 3.2.2.1		
Flotation	File 2.1.14			
Pasteurisation	File 2.2.4	File 3.4.3.1; File 3.4.3.2		
Interruption of alcoholic fermentation by physical procedures	File 2.3.6			
Warm post fermentation maceration of red grapes called warm final maceration	File 2.3.9			
Maceration of raisined grapes or their pomace in wine	File 2.3.10			
Sterilising filtration		File 3.2.2.2		
Cold stabilisation treatment		File 3.3.4		
Topping up		File 3.4.1		
Blending and mixing or preparation of the cuvee		File 3.5.3		
Hot bottling		File 3.5.4		
Fermentation in small capacity wooden containers	File 2.3.8			
Fermenting must or wines in contact with wood		File 3.5.12		
Ageing in small capacity wooden containers		File 3.5.12.1		

Substances		Code of Oenological Practices		OIV Codex file reference	
		Grape/Must	Wine		
Usage of pieces of oak wood in winemaking			File 3.5.12.2		
Physical processes					
Electromenbrane					
	Acidification by electromembrane treatment (Bipolar membrane electrodialysis	File 2.1.3.1.3	File 3.1.1.4		
	De-acidification using an electromembrane process	File 2.1.3.2.4	File 3.1.2.3		
Elimination of sulfur dioxide by physical process		File 2.1.13			
Reverse osmosis					
	Concentration of must by reverse osmosis	File 2.1.12.1			
	Reduction of the sugar content in musts through membrane coupling	File 2.1.25.1			
Cryoconcentration					
	Concentration of must or wine by cold	File 2.1.12.4	File 3.5.11.1		
Microfiltration					
	Reduction of the sugar content in musts through membrane coupling (used with nanofiltration or reverse osmosis)	File 2.1.25.1	File 3.2.2		

Substances		Code of Oenological Practices		OIV Codex file reference	
		Grape/Must	Wine		
Ultrafiltration					
	Reduction of the sugar content in musts through membrane coupling (used with nanofiltration or reverse osmosis)	File 2.1.25.1			
Nanofiltration					
	Reduction of the sugar content in musts through membrane coupling	File 2.1.25.1			
Cations exchangers					
	Acidification by cation exchanger treatment	File 2.1.3.1.4	File 3.1.1.3 File 3.1.1.5		
	Tartrate stabilisation by treatment with cation exchangers		File 3.1.1.3; File 3.3.3		
Filter plates containing zeolites y-faujasite					
	Use of filter plates containing zeolites y-faujasite to adsorb haloanisoles		File 3.2.15		
Electrodialysis					
	Tartrate stabilisation by electrodialysis		File 3.3.2		
Heat exchanger					
	Pasteurisation	File 2.2.4	File 3.4.3.1		

Substances		Code of Oenological Practices		OIV Codex file reference	
		Grape/Must	Wine		
	Biological stabilisation		File 3.4.2		
Partial evaporation under atmospheric pressure					
	to obtain the desired degree of concentration and caramelization of sugar	File 2.1.12.3			
Partial evaporation under vacuum process					
	to concentrate musts	File 2.1.12.2			
	Correction of the alcohol content in wines		File 3.5.13		
	Dealcoholisation of wines		File 3.5.16		
Membrane techniques for alcohol reduction					
	Correction of the alcohol content in wines		File 3.5.13		
	Dealcoholisation of wines		File 3.5.16		
Distillation process					
	Correction of the alcohol content in wines		File 3.5.13		
	Dealcoholisation of wines		File 3.5.16		
Membrane contactor					

Substances		Code of Oenological Practices		OIV Codex file reference	
		Grape/Must	Wine		
	Management of dissolved gas in wine using membrane contactors		File 3.5.17		
Nanofiltration coupled with activated carbon column					
	Treatment of wines using a membrane technology coupled with activated carbon to reduce excess 4-ethylphenol and 4-ethylguaiacol		File 3.5.18		
Ultrasounds					
	Usage of ultrasound for a rapid extraction of grape compounds		File 1.17		
Discontinuous High Pressure Processes					
	Process that consists in the reduction of indigenous organisms in grapes and musts by the use of discontinuous high pressure processes, with pressures higher than 150 MPa (1500 bar)	File 1.18; 2.1.26			
Pulsed electric fields (PEF)					

Substances		Code of Oenological Practices		OIV Codex file reference	
		Grape/Must	Wine		
	A process that consists on the application of sufficiently high pulsed electric fields (PEF) to destemmed and crushed grapes that causes the permeabilization of the cell membranes especially of the grape skins	File 2.1.27			
Treatment by continuous high pressure processes					
	Operation for the elimination of wild microorganisms in musts and wine by high pressure processing (above 200 MPa or 2000 bar) in continuous. In UHPH, the pressure is usually ranging 300-400 MPa	File 1.18	File 2.2.10		
Treatment of musts using adsorbent styrene-divinylbenzene beads					
	Physical process of reduction or elimination of organoleptic deviations characterised as “earthy-musty” by the appropriate and controlled percolation at a high flow rate through adsorbent styrene-divinylbenzene beads	File 2.2.11	File 3.4.22		
Ultrasound Treatments					

Substances		Code of Oenological Practices		OIV Codex file reference	
		Grape/Must	Wine		
	Treatment of crushed grapes with ultrasound to promote the extraction of their compounds	File 1.17			

[1] CODEX STAN 107-1981

[2] Expressed as tartaric acid

[3] When the ascorbic acid has also been used on grape or must, the final concentration, in terms of ascorbic plus dehydroascorbic acid, shall not exceed 300 mg/l.

[4] Skimmed milk is a foodstuff used in enology as a processing aid

[5] According to the national laws of different countries, DMDC is considered as an additive in some countries whereas in other countries it is considered as a processing aid.

[6] According to the national laws of different countries, DMDC is considered as an additive in some countries whereas in other countries it is considered as a processing aid.

[7] 2 mg/L for liqueur wines

[8] Carbon dioxide is considered an additive when it is added to the must. However, to continue with the production phases, after storage, it is eliminated from the must, and therefore it can be considered a processing aid.