

Commission Regulation (EU) No 231/2012 of 9 March 2012 laying down specifications for food additives listed in Annexes II and III to Regulation (EC) No 1333/2008 of the European Parliament and of the Council (Text with EEA relevance)

**Changes to legislation:** There are currently no known outstanding effects for the Commission Regulation (EU) No 231/2012, E 141 (ii) COPPER COMPLEXES OF CHLOROPHYLLINS. (See end of Document for details)

## ANNEX

**E 141 (ii) COPPER COMPLEXES OF CHLOROPHYLLINS**

<b>Synonyms</b>	Sodium Copper Chlorophyllin; Potassium Copper Chlorophyllin; CI Natural Green 5	
<b>Definition</b>	The alkali salts of copper chlorophyllins are obtained by the addition of copper to the product obtained by the saponification of a solvent extraction of strains of edible plant material, grass, lucerne, and nettle; the saponification removes the methyl and phytol ester groups and may partially cleave the cyclopentenyl ring. After addition of copper to the purified chlorophyllins, the acid groups are neutralised to form the salts of potassium and/or sodium. Only the following solvents may be used for the extraction: acetone, methyl ethyl ketone, dichloromethane, carbon dioxide methanol, ethanol, propan-2-ol and hexane.	
Colour Index No	75815	
Einecs		
Chemical name	The major colouring principles in their acid forms are 3-(10-Carboxylato-4-ethyl-1,3,5,8-tetramethyl-9-oxo-2-vinylphorbin-7-yl)propionate, copper complex (Copper chlorophyllin a) and 3-(10-Carboxylato-4-ethyl-3-formyl-1,5,8-trimethyl-9-oxo-2-vinylphorbin-7-yl)propionate, copper complex (Copper chlorophyllin b)	
Chemical formula	Copper chlorophyllin a (acid form): $C_{34}H_{32}Cu N_4O_5$ Copper chlorophyllin b (acid form): $C_{34}H_{30}Cu N_4O_6$	
Molecular weight	Copper chlorophyllin a: 640,20 Copper chlorophyllin b: 654,18 Each may be increased by 18 daltons if the cyclopentenyl ring is cleaved.	
Assay	Content of total copper chlorophyllins is not less than 95 % of the sample dried at 100 °C for 1 h. $E_{1\%}^{1cm}$ 565 at ca. 405 nm in aqueous phosphate buffer at pH 7,5 $E_{1\%}^{1cm}$ 145 at ca. 630 nm in aqueous phosphate buffer at pH 7,5	
<b>Description</b>	Dark green to blue/black powder	
Identification		
Spectrometry	Maximum in aqueous phosphate buffer at pH 7,5 at ca. 405 nm and at 630 nm	
Purity		
Solvent residues	Acetone	Not more than 50 mg/kg, singly or in combination
	Methyl ethyl ketone	
	Methanol	

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	Ethanol	
	Propan-2-ol	
	Hexane	
	Dichloromethane:	not more than 10 mg/kg
Arsenic	Not more than 3 mg/kg	
Lead	Not more than 5 mg/kg	
Mercury	Not more than 1 mg/kg	
Cadmium	Not more than 1 mg/kg	
Copper ions	Not more than 200 mg/kg	
Total copper	Not more than 8,0 % of the total copper chlorophyllins	

***Aluminium lakes of this colour may be used.***

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