

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 140 (i) CHLOROPHYLLS. (See end of Document for details)

ANNEX

E 140 (i) CHLOROPHYLLS

Synonyms	CI Natural Green 3; Magnesium Chlorophyll; Magnesium Phaeophytin
Definition	Chlorophylls are obtained by solvent extraction of strains of edible plant material, grass, lucerne and nettle. During the subsequent removal of solvent, the naturally present coordinated magnesium may be wholly or partly removed from the chlorophylls to give the corresponding phaeophytins. The principal colouring matters are the phaeophytins and magnesium chlorophylls. The extracted product, from which the solvent has been removed, contains other pigments such as carotenoids as well as oils, fats and waxes derived from the source material. 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	75810
Einecs	Chlorophylls: 215-800-7, chlorophyll a: 207-536-6, Chlorophyll b: 208-272-4
Chemical name	The major colouring principles are: Phytyl (13 ² R,17S,18S)-3-(8-ethyl-13 ² -methoxycarbonyl-2,7,12,18-tetramethyl-13'-oxo-3-vinyl-13 ¹ -13 ² -17,18-tetrahydrocyclopenta [at]-porphyrin-17-yl)propionate, (Phaeophytin a), or as the magnesium complex (Chlorophyll a) Phytyl (13 ² R,17S,18S)-3-(8-ethyl-7-formyl-13 ² -methoxycarbonyl-2,12,18-trimethyl-13'-oxo-3-vinyl-13 ¹ -13 ² -17,18-tetrahydrocyclopenta[at]-porphyrin-17-yl)propionate, (Pheophytin b), or as the magnesium complex (Chlorophyll b)
Chemical formula	Chlorophyll a (magnesium complex): C ₅₅ H ₇₂ MgN ₄ O ₅ Chlorophyll a: C ₅₅ H ₇₄ N ₄ O ₅ Chlorophyll b (magnesium complex): C ₅₅ H ₇₀ MgN ₄ O ₆ Chlorophyll b: C ₅₅ H ₇₂ N ₄ O ₆
Molecular weight	Chlorophyll a (magnesium complex): 893,51 Chlorophyll a: 871,22 Chlorophyll b (magnesium complex): 907,49 Chlorophyll b: 885,20
Assay	Content of total combined Chlorophylls and their magnesium complexes is not less than 10 % $E_{1\%}^{1cm}$ 700 at ca. 409 nm in chloroform

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Description	Waxy solid ranging in colour from olive green to dark green depending on the content of coordinated magnesium	
Identification		
Spectrometry	Maximum in chloroform at ca. 409 nm	
Purity		
Solvent residues	Acetone	Not more than 50 mg/kg, singly or in combination
	Methyl Ethyl ketone	
	Methanol	
	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	

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