

هيئة التقييس لدول مجلس التعاون لدول الخليج العربية  
G.C.C STANDARDIZATION ORGANIZATION (GSO)



**GSO 23/ 1998**

المواد الملونة المستخدمة في المواد الغذائية  
**COLOURING MATTER USED IN FOODSTUFFS**

**ICS:67.220**

# **COLOURING MATTER USED IN FOODSTUFFS**

**Date of GSO Board of Directors' Approval : 1419(H)-5-24 (1998-9-15)**  
**Issuing Status : Technical Regulation**

**COLOURING MATTER USED IN FOODSTUFFS****1. SCOPE AND FIELD OF APPLICATION**

This standard is concerned with natural, and synthetic colouring matter added to foodstuffs prepared for human consumption.

**2. COMPLEMENTARY REFERENCES**

- 2.1 GSO 9/1995 "Labelling of Prepackaged Foods".
- 2.2 GSO 22/1984 "Methods of Test for Colouring Matter Used in Foodstuffs".

**3. DEFINITIONS**

- 3.1 Natural colouring matter: A material extracted, isolated, or otherwise derived-with or without intermediates-from vegetables, animals, minerals or any other sources, which when added to a foodstuff is capable (alone or through reaction with another substance) of imparting a distinguishing colour thereto.
- 3.2 Synthetic colouring matter: A material produced by synthesis of any similar artificial method and which when added to the foodstuff is capable (alone or through reaction with another substance) of imparting a distinguishing colour thereto.
- 3.3 Lake: A salt prepared by reaction of one of the water soluble pigments with the basic radical aluminium or calcium.

**4. REQUIREMENTS**

The following shall be met in the colouring matter:

- 4.1 It shall be completely free from pork products or their derivatives.
- 4.2 It shall not react with food components or its containers.
- 4.3 It shall be capable of dissolving or dispersing in the foodstuff in case it is used without solvents.
- 4.4 Loss of weight on drying shall not exceed 0.2% in case of Beta-Carotene, Beta-Apo-8-Carotenal, Beta-Apo-8-Carotenoic acid and Canthaxanthin.
- 4.5 Residue on ignition shall not exceed 0.2% in case of Beta-Carotene, Beta-Apo-8-Carotenal, Beta-Apo-8-Carotenoic acid and Canthaxanthin.
- 4.6 The dye content in colouring matter determined spectrophotometrically shall not be less than 96% in case of Beta-Carotene, Beta-Apo-8-Carotenal, Beta-Apo-8-Carotenoic acid and Canthaxanthin when tested according to GSO Standard mentioned in 2.2.
- 4.7 Carrot oil shall contain no more than 25 ppm of hexan.
- 4.8 Lake may be used in colouring foodstuffs products.

4.9 No diluents or solvents shall be used with the colouring matter except the following materials:

Water, glucose, lactose, sucrose, dextrose, starch, sorbitol, glycerol, edible fats and oils, bee wax, citric acid, tartaric acid, lactic acid, pectin, beef gelatine, sodium carbonate, sodium bicarbonate, sodium chloride, sodium sulphate, (sodium, potassium or ammonium) alginate, sodium hydroxide, ammonium hydroxide, potassium hydroxide propylene-glycol, ethyl acetates, acetic acid, and (glyceryl-mono, di, and triacetate) polysorbat 80.

4.10 The toxic mineral elements shall not exceed the following:

Arsenic                    3 ppm

Lead                        10 ppm

Heavy metals            40 ppm

4.11 No colouring matter shall be added to the following food products: Non-processed (meat - birds - fish) processed (meat - birds - fish) (except what's mentioned in Table 3) - fresh fruits and vegetables - mineral water, milk without flavour (pasteurized - powdered - sterilized - fermented) - cream without flavour - olive oil - egg and egg products - flour - starch, bread - sugars - cocoa and row chocolate - coffee - tea - spices - foods for infants and children, honey except the following cases:

4.11.1 Official ink used for stamping the slaughtered animals with distinguishing marks.

4.11.2 Synthetic colouring of the fully ripe citrus fruits.

4.12 No natural or synthetic colouring matter shall be added to food products except those mentioned in Tables 1 and 2 in general, and colouring matter which are mentioned in Table 3 are permitted for use in certain foodstuffs only.

4.13 Synthetic colouring matter shall fulfill the characteristics specified in Table 4.

TABLE 1

## Permitted Natural Colours for Use in Foodstuffs in General

Colour	EEC No.	Notes
<u>Red to Yellow Shades</u>		
Carmine	120	Cochineal, carminic acid
Annatto extract	160B	Bixin, Norbixin
Beta-Carotene	160A	Mixed carotene
Lycopene	160D	
Beta-Apo-8-Carotenal	160E	
Beta-Apo-8-Carotenoic Acid	160F	
Lutein	161B	
Carrot oil	-	
Beet root red	162	Betanine
<u>Red to Purple Shade</u>		
Anthocyanine	163	Grape skin extract (Enocianina)
Beet Powder	-	
Paprika	-	
Paprika Oleoresin	160C	
<u>Orange and Yellow Dyes</u>		
Saffron	-	Natural yellow 6
Turmeric Powder	100	
Curcumin	100	
Turmeric Oleoresin	100	
Riboflavin	101(I)	
Riboflavin-5-Phosphate	101(II)	
<u>Green Dyes</u>		
Chlorophyll	140	Chlorophyllins
Chlorophyll copper complex	141	
<u>Brown Dyes</u>		
Plain caramel	150A	
Caustic sulphite caramel	150B	

<b>Colour</b>	<b>EEC No.</b>	<b>Notes</b>
Ammonia caramel Sulphite ammonia caramel	150C 150D	
<u>Black Dyes</u> Activated vegetable carbon	153	
<u>Inorganic Dyes</u> Titanium dioxide Iron oxides	171 172	White dye 6

TABLE 2

## Permitted Synthetic Colours for Use in Foodstuffs in General

Colour	EEC No.	Notes
<u>Red Colours</u> Allura Red (Food Red 17)	129	Red 3 FD C Red 40
<u>Yellow Colours</u> Sunset Yellow FCF	110	Food yellow 3, Orange Yellow S, FD and C yellow No. 6
<u>Brown Colours</u> Chocolate brown HT	155	Food brown 3
<u>Green Colours</u> Fast green FCF	-	FD and C Green No. 3 Food green 3
<u>Blue Colours</u> Indigotine	132	Indigo carmine, FD and C blue No. 2, Food blue 1
Brilliant Blue FCF	133	Food blue 2, FD and C blue No. 1
<u>Black Colours</u> Brilliant Black PN	151	Food black 1, Black PN

**TABLE 3**  
**Colouring Matter Permitted for Use in Certain Foodstuffs\***

Colour	Foodstuffs	Maximum Level
Erythrosine	Cherries and its products	-
Canthaxanthin	Cooked sausages	30 ppm
	Edible ices	100 ppm
Aluminium	External coating of sugar confectionery for the decoration of cakes and pastries	GMP
Silver	External coating of confectionery	GMP
Gold	External coating of confectionery	GMP
Lithotrubine BK	Edible cheese surface	GMP
Orange B	Surfaces of frankfurters and sausages	150 ppm
Citrus Red No. 2	Skins of Orange	2 ppm

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\* has been deleted (E128) Red 2G in the Board of Directors in its meeting No.(10), held on 29/5/1430h (24/5/2009G)



**Table 4**  
**Characteristics for Synthetic Colours**

Property	Purity	Volatile* matter at 135°C	Water Insoluble	Ether Extract	Subsidiary Dyes
	%	%	%	%	%
Colour	(Min.)	(Max.)	(Max.)	(Max.)	(Max.)
Red 2 G	82	18	0.2	0.2	2
Sunset Yellow FCF	85	15	0.2	0.2	4
Chocolate Brown Ht	80	20	-	0.2	15
Fast Green FCF	85	15	0.2	0.2	1
Indigotine	85	15	0.2	0.2	1
Brilliant Blue FCF	85	15	0.2	0.2	3
Brilliant Black PN	84	15	0.2	0.2	4
FD & C Red 40	85	14	0.2	-	-

\* Volatile matter + chlorides and sulphates.

## 5. SAMPLING

5.1 A number of containers shall be selected randomly from each lot according to Table 5.

**TABLE 5**  
**Number of Colouring Matter Containers**  
**Selected as Sample**

Lot size	Number of selected containers
2 - 15	2
16 - 40	3
41 - 65	4
66 - 110	7
More than 110	10

5.2 Draw small quantities from different parts of each selected container and mix the portions as a composite sample whose weight shall not be less than 150 g.

- 5.3 Divide the composite sample to three equal parts. One of them for the purchaser, one for the vendor and the third shall be kept to be used arbitration in case of dispute between the purchaser and the vendor.

## **6. METHODS OF TEST**

- 6.1 Tests shall be carried out according to the Gulf Standard mentioned in item 2.2.
- 6.2 Necessary tests shall be carried out on the representative sample taken according to 5.1 to determine its compliance with this standard.

## **7. PACKAGING, TRANSPORTATION AND STORAGE**

The following shall be met on packaging, transportation and storage:

### **7.1 Packaging**

- 7.1.1 Natural colouring matter shall be packed in dark-coloured glass containers or any other suitable, firmly sealed hygienic containers under an inert gas as far as possible so as to avoid its contact with outer atmosphere or contamination.
- 7.1.2 Synthetic colours shall be packed in suitable firmly sealed hygienic containers so as to avoid its contact with outer atmosphere or contamination.
- 7.1.3 The containers shall be filled so that the minimum net content volume shall not be less than 90% from the water capacity of used container.

### **7.2 Transportation**

The containers shall be transported in such a way as to avoid their breakage or damage.

### **7.3 Storage**

The containers shall be stored in cold dry places, far away from sources of direct light and contamination.

## **8. LABELLING**

- 8.1 The following information shall be declared on the labels of food colouring matter containers:
- 8.1.1 The name of the colouring matter or EEC number.
- 8.1.2 Name of solvent or diluent.
- 8.1.3 Dye purity grade.
- 8.1.4 The statement "free from alcohol".
- 8.1.5 The statement "colouring matter for food".
- 8.1.6 The statement "Do not exposure to light" in case of colouring matter affected by light.

8.1.7 Dates of production and expiry.

8.1.8 Batch number.

8.1.9 In case of adding either E 110 or E 129, the following shall be added

-Marked with (\*)

The following statement shall be written with the contents: \*It could cause Hyeractivity for children.

8.2 Without prejudice to what is mentioned in GSO 9/1984 "Labelling of Prepackaged Foods" as well as item No. 8.1.9, The following information shall be declared on labels of the food products containers which contain food colouring matter:

Common name or EEC number.

**ANNEX 1**  
**Permissible Daily Intake of the Colouring**  
**Matter Per Body Weight**

Colour	ADI mg/kg body weight	Colour	ADI mg/kg body weight
Annatto (determine as Bixin)	0.065	Iron oxides	0-0.5
Beta-Carotene	0-5		
Beta-Apo-8-Carotenal	0-5		
Beta-Apo-8-Carotenoic acid	0-5	Red 2G	0-0.1
Beet powder	-		
Brilliant black PN	0-1.0	Riboflavin	0-0.5
Brilliant blue FCF	0-12.5	Sunset yellow FCF	0-2.5
Canthaxanthine	0-25	Titanium Dioxide	-
Caramel	-	FD & C Red 40	0-7.0
Caramel made by ammonium sulphite process	0-100	Aluminium	-
Chlorophyll	-	Anthocyanine	15
Chlorophyll copper complex	0-15	Carrot oil	-
Chocolate brown HT	0-1.5		
Turmeric	0-2.5		
Curcumine	0-0.1		
Fast green FCF	0-12.5		
Gold	-		
Indigotine	0-5		

**Refrances**

CODEX GENERAL STANDARD FOR FOOD ADDITIVES – *CODEX STAN 192-1995*

EC No. 1333/2008 on food additives