SRI LANKA STANDARD 593:1982
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SPECIFICATION FOR

FOOD ADDITIVES COLOURING MATTER SUNSET YELLOW FCF

BUREAU OF CEYLON STANDARDS

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SLS 593:1982

Gr.5

BUREAU OF CEYLON STANDARDS
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Sri Lanka.

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Sri Lanka Standards are subject to periodical revision in order to accommodate the progress made by industry. Suggestions for improvement will be recorded and brought to the notice of the Committees to which the revisions are entrusted.

This standard does not purport to include all the necessary provisions of a contract.

SRI LANKA STANDARD
SPECIFICATION FOR FOOD ADDITIVES COLOURING MATTER SUNSET YELLOW FCF

FOREWORD

This Sri Lanka Standard was authorized for adoption and publication by the Council of the Bureau of Ceylon Standards on 1982-11-24, after the draft, finalized by the Drafting Committee on Food Additives had been approved by the Agricultural and Food Products Divisional Committee.

This is one of the series of Sri Lanka Standards for food colours.

This specification is subject to Sri Lanka Food Act No. 26 of 1980 and the regulations framed thereunder wherever applicable.

All standard values given in this specification are in SI units.

For the purpose of deciding whether a particular requirement of this specification is complied with, the final value, observed or calculated expressing the result of a test, shall be rounded off in accordance with CS 102. The number of figures to be retained in the rounded off value shall be the same as that of the specified value in this specification.

The assistance gained from publications of the Food and Agriculture Organization (FAO), the British Standards Institution and the Indian Standards Institution in the preparation of this specification is gratefully acknowledged.

1 SCOPE

This specification prescribes the requirements for methods of sampling and test for sunset yellow FCF for use in the colouring of food stuffs.

2 REFERENCES

CS 102 Presentation of numerical values

SLS 394 Analysis of water soluble coal-tar dyes permitted for use in foods

SLS 467 Labelling of prepackaged foods

Part 1 General guidelines

Part 2 Guidelines on claims

SLS 543 Sampling for food colours

3 DESCRIPTION

3.1 Common name : Sunset yellow FCF.

3.2 Synonyms : CI Food Yellow 3, Jaune Orange 5, Jaune Soliei 5, L-orange.

3.3 Colour index number and EEC number : 15985, E110.

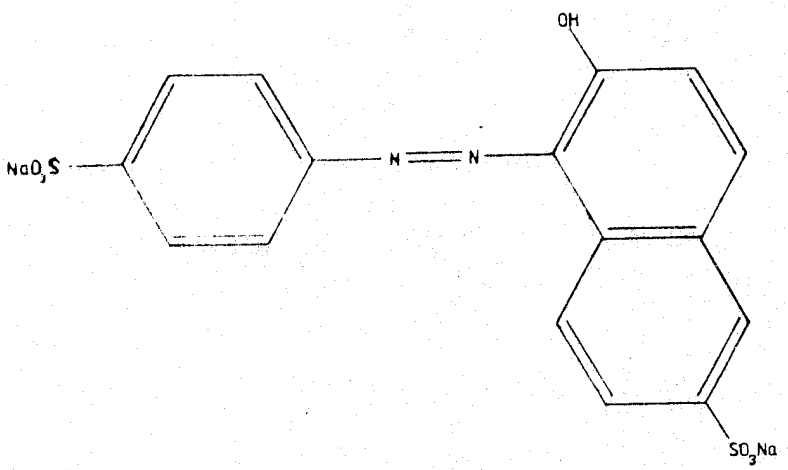
3.4 Class : Monoazo.

3.5 Chemical name : Disodium salt of 1-(4-sulphophenylazo)-2-naphthol-6-sulphonic acid.

3.6 Empirical formula : $C_{16}H_{10}N_2O_7S_2Na_2$.

3.7 Molecular mass : 452.37

3.8 Structural formula :



4 REQUIREMENTS

4.1 Composition

The colouring matter shall consist essentially of disodium salt of 1-(4-sulphophenylazo)-2-naphthol-6-sulphonic acid and shall not contain any extraneous matter injurious to health.

4.2 The colouring matter shall also comply with the limits specified in Table 1 and not exceed the limits for heavy metals given in Table 2.

TABLE 1 - Limits for sunset yellow FCF

Sl. No.	Characteristics	Limit	Methods of test Ref. to	
			Appendix in the standard	Clause Nos. in SLS 394:1976
(1)	(2)	(3)	(4)	(5)
i)	Total dye content, corrected for sample dried at 105 ± 1 °C for 2 h, per cent by mass, min.	85	A	-
ii)	Matter volatile at 135 °C, per cent by mass, max.	10	-	2.1
iii)	Matter insoluble in water, per cent by mass, max.	0.1	-	2.2
iv)	Chlorides and sulphates as sodium salts, total, per cent by mass, max.	5.0	-	2.5 and 2.6
v)	Heavy metals as sulphides	Colour of reference standard	-	2.9

TABLE 2 - Tolerance limits of heavy metals

Sl. No.	Heavy metals	Tolerance limit mg/kg	Methods of test ref. to Clause No. of SLS 394:1976
(1)	(2)	(3)	(4)
i)	Copper (as CU)	10)	
ii)	Arsenic (as As)	1.0)	2.8
iii)	Lead (as Pb)	10)	

5 PACKAGING

Sunset yellow FCF shall be packed in suitable containers which shall in no way affect the nature and composition of the material with in.

The containers should be strong enough to withstand damage in handling.

6 MARKING AND LABELLING

6.1 The following particulars shall be marked legibly and indelibly on the label of the container.

a) The words *Sunset yellow FCF* ;

b) Colour index number - No. 15985 ;

c) Registered trade mark, if any ;

d) Name and address of the manufacturer ;

e) Net mass in grams ; and

f) Batch or code number.

6.2 The marking and labelling shall be done in accordance with **SLS 467.**

6.3 The containers may also be marked with the Certification Mark of the Bureau of Ceylon Standards illustrated below on permission being granted for such marking by the Bureau of Ceylon Standards.

NOTE - The use of the Bureau of Ceylon Standards Certification Mark (SLS Mark) is governed by the provisions of the Bureau of Ceylon

Standards Act and the regulations framed thereunder. The SLS mark on products covered by a Sri Lanka Standard is an assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control, which is devised and supervised by the Bureau and operated by the producer. SLS marked products are also continuously checked by the Bureau for conformity to that standard as a further safeguard. Details of conditions under which a permit for the use of the Certification Mark may be granted to manufacturers or processors may be obtained from the Bureau of Ceylon Standards.

7 SAMPLING

7.1 The methods of drawing representative samples shall be as specified in relevant clauses of **SLS 543**.

7.2 Tests for requirements specified in this specification shall be carried out on the composite sample obtained as in **7.1**.

8 METHODS OF TEST

Tests shall be carried out in accordance with **SLS 394** and Appendix A.

9 CONFORMITY TO STANDARD

The lot shall be declared as conforming to the requirements of this specification, if the test results on the composite sample satisfy the relevant requirements.

APPENDIX A

DETERMINATION OF TOTAL DYE CONTENT

A.1 TITANIUM TRICHLORIDE METHOD

A.1.1 Reagents

A.1.1.1 *Sodium citrate.*

A.1.1.2 *Standard potassium dichromate solution,* 0.1 N.

A.1.1.3 *Standard titanium trichloride solution,* 0.1 N, prepared and standardized as in A.1.1.3.1 and A.1.1.3.2.

A.1.1.3.1 Preparation

Prepare a 15 per cent (m/v) solution of titanium trichloride. Take 200 ml of this solution, add 150 ml of concentrated hydrochloric acid (relative density : 1.16) and dilute to 2000 ml. Make the

solution approximately 0.1 N, place in a container provided with an arrangement to maintain it in an atmosphere of hydrogen and allow to stand for two days for absorption of residual oxygen.

A.1.1.3.2 Standardization

Weigh 3 g of ferrous ammonium sulphate $\{FeSO_4.(NH_4)_2SO_4.6H_2O\}$ and transfer to a 500-ml flask. Introduce a stream of carbon dioxide and add 50 ml of freshly boiled water and 25 ml of sulphuric acid (40 per cent m/v). Then, without interrupting the current of carbon dioxide, add rapidly 40 ml of the standard potassium dichromate solution. Add the titanium trichloride solution until the calculated end point is nearly reached. Then add quickly 5 g of ammonium thiocyanate (NH_4CNS) and complete the titration. Determine blank on 3 g of the ferrous ammonium sulphate using same quantities of water, sulphuric acid, ammonium thiocyanate and the current of carbon dioxide.

A.1.2 Procedure

Prepare a 1.0 per cent (m/v) aqueous solution of the material. Take a quantity of solution corresponding to about 20 ml of the standard titanium trichloride solution in a 500-ml Erlenmeyer flask. Add 15 g of sodium citrate and dilute with water to a volume of 150 ml to 200 ml. Heat to boil and titrate with the standard titanium trichloride solution.

A.1.3 Calculation

Calculate the percentage of the pure dye from the following equation:

1 ml of 0.1 N $TiCl_3$ = 0.011 31 g of sunset yellow, FCF.

SLS CERTIFICATION MARK

The Sri Lanka Standards Institution is the owner of the registered certification mark shown below. Beneath the mark, the number of the Sri Lanka Standard relevant to the product is indicated. This mark may be used only by those who have obtained permits under the SLS certification marks scheme. The presence of this mark on or in relation to a product conveys the assurance that they have been produced to comply with the requirements of the relevant Sri Lanka Standard under a well designed system of quality control inspection and testing operated by the manufacturer and supervised by the SLSI *which includes surveillance inspection of the factory, testing of both factory and market samples.*

Further particulars of the terms and conditions of the permit may be obtained from the Sri *Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.*

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SRI LANKA STANDARDS INSTITUTION

The Sri Lanka Standards Institution (SLSI) is the National Standards Organization of Sri Lanka established under the Sri Lanka Standards Institution Act No. 6 of 1984 which repealed and replaced the Bureau of Ceylon Standards Act No. 38 of 1964. The Institution functions under the Ministry of Science & Technology.

The principal objects of the Institution as set out in the Act are to prepare standards and promote their adoption, to provide facilities for examination and testing of products, to operate a Certification Marks Scheme, to certify the quality of products meant for local consumption or exports and to promote standardization and quality control by educational, consultancy and research activity.

The Institution is financed by Government grants, and by the income from the sale of its publications and other services offered for Industry and Business Sector. Financial and administrative control is vested in a Council appointed in accordance with the provisions of the Act.

The development and formulation of National Standards is carried out by Technical Experts and representatives of other interest groups, assisted by the permanent officers of the Institution. These Technical Committees are appointed under the purview of the Sectoral Committees which in turn are appointed by the Council. The Sectoral Committees give the final Technical approval for the Draft National Standards prior to the approval by the Council of the SLSI.

All members of the Technical and Sectoral Committees render their services in an honorary capacity. In this process the Institution endeavours to ensure adequate representation of all view points.

In the International field the Institution represents Sri Lanka in the International Organization for Standardization (ISO), and participates in such fields of standardization as are of special interest to Sri Lanka.

Printed at the Sri Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.