



Food and Agriculture
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Residue Monograph prepared by the meeting of the Joint FAO/WHO Expert Committee
on Food Additives (JECFA), 82nd meeting 2016

Allura Red AC

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ALLURA RED AC

Prepared at the 82nd JECFA and published in JECFA Monograph 19 (2016) superseding specifications prepared at the 28th JECFA (1984) and published in FNP 31/1 (1984) and FNP 52 (1992). Metals and arsenic specifications revised at the 59th JECFA (2002). An ADI of 0-7 mg/kg bw was established at the 25th JECFA (1981) and confirmed by the 82nd JECFA (2016).

SYNONYMS

INS No. 129, CI Food Red 17, CI (1975) No.16035, FD&C Red No. 40

DEFINITION

Consists of disodium 6-hydroxy-5-(2-methoxy-5-methyl-4-sulfonato-phenylazo)-2-naphthalenesulfonate and subsidiary colouring matters together with sodium chloride and/or sodium sulfate as the principal uncoloured components. It is manufactured by coupling diazotized 4-amino-5-methoxy-2-methylbenzenesulfonic acid with 6-hydroxy-2-naphthalene sulphonic acid. The resulting dye is purified and isolated as the sodium salt.

May be converted to the corresponding aluminium lake in which case only the *General Specifications for Aluminium Lakes of Colouring Matters* applies.

Chemical names

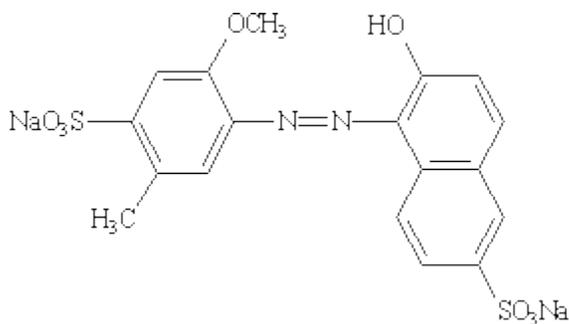
Disodium 6-hydroxy-5-(2-methoxy-5-methyl-4-sulfonatophenylazo)-2-naphthalenesulfonate

C.A.S. number

25956-17-6

Chemical formula

$C_{18}H_{14}N_2Na_2O_8S_2$

Structural formula**Formula weight**

496.43

Assay

Not less than 85% total colouring matters

DESCRIPTION

Dark red powder or granules

FUNCTIONAL USES

Colour

CHARACTERISTICS

IDENTIFICATION

<u>Solubility</u>	Freely soluble in water, insoluble in ethanol
<u>Spectrophotometry</u> (Vol. 4)	Maximum wavelength approximately 501 nm. Determine the UV-visible absorption spectrum of the sample solution dissolved in water.
PURITY	
<u>Loss on drying, chloride and sulfate as sodium salts</u> (Vol. 4)	Not more than 15% as total amount Determine according to chloride as sodium chloride, sulfate as sodium sulfate, and water content (loss on drying at 135 °C) in Volume 4 (under “Specific Methods, Food Colours”).
<u>Water insoluble matter</u> (Vol. 4)	Not more than 0.2%
<u>Subsidiary colouring matters</u>	Not more than 3% See description under TESTS
<u>Organic compounds other than colouring matters</u> (Vol. 4)	Not more than 0.3% of sodium 6-hydroxy-2-naphthalenesulfonate Not more than 0.2% of 4-amino-5-methoxy-2-methylbenzenesulfonic acid Not more than 1.0% of disodium 6,6'-oxybis(2-naphthalenesulfonate) See description under TESTS
<u>Un sulfonated primary aromatic amines</u> (Vol. 4)	Not more than 0.01% calculated as aniline
<u>Ether extractable matter</u> (Vol. 4)	Not more than 0.2%
<u>Lead</u> (Vol. 4)	Not more than 2 mg/kg Determine using a method appropriate to the specified level. The selection of sample size and method of sample preparation may be based on the principles of the method described in Volume 4 (under “General Methods, Metallic Impurities”).

TESTS**PURITY TESTS**

<u>Subsidiary colouring matters</u>	Determine subsidiary colouring matters by reversed-phase HPLC (Vol. 4) using the following conditions: Column: C18 (250 mm x 4.6 mm i.d., 5 µm particle size) Eluent A: 0.05 M ammonium acetate Eluent B: methanol Injection volume: 20 µl Detector: UV-visible/PDA at 500 nm Flow rate: 1 ml/min
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Gradient:

Min	%A	%B
0	95	5
3	95	5
19	25	75
20	0	100
25	0	100

Standards:

Higher sulfonated subsidiary colors:

3-Hydroxy-4-[(2-methoxy-5-methyl-4-sulfophenyl)azo]-2,7-naphthalenedisulfonic acid, trisodium salt – Wako, Cat. No. 037-23311 or equivalent

7-Hydroxy-8-[(2-methoxy-5-methyl-4-sulfophenyl)azo]-1,3-naphthalenedisulfonic acid, trisodium salt – Wako, Cat. No. 034-23321 or equivalent

Lower sulfonated subsidiary color:

4-[(2-Hydroxy-1-naphthalenyl)azo]-5-methoxy-2-methylbenzenesulfonic acid, sodium salt – Wako, Cat. No. 030-23301 or equivalent

Sample preparation: Dissolve 150 mg of sample in 100 ml of 0.05 M ammonium acetate.

Organic compounds
other than colouring
matters (Vol. 4)

Determine sodium 6-hydroxy-2-naphthalenesulfonate, 4-amino-5-methoxy-2-methylbenzenesulfonic acid, and disodium 6,6'-oxybis(2-naphthalenesulfonate) by reversed-phase HPLC (under "Specific Methods, Food Colours") using the following conditions:

Column: C18 (250 mm x 4.6 mm i.d., 5 µm particle size)

Eluent A: 0.05 M ammonium acetate

Eluent B: methanol

Injection volume: 20 µl

Detector: UV-visible/PDA at 235 and 254 nm

Flow rate: 1 ml/min

Gradient:

Min	%A	%B
0	95	5
3	95	5
19	25	75
20	0	100
25	0	100

Note: A general gradient for the separation of organic compounds other than colouring matters in food colours is given in Vol. 4. Analyst may use above gradient for the analytes in Allura Red AC.

Standards:

Sodium 6-hydroxy-2-naphthalenesulfonate – Wako, Cat. No. 010-25141 or equivalent

4-Amino-5-methoxy-2-methylbenzenesulfonic acid – Wako, Cat. No. 196-17301 or equivalent

Disodium 6,6'-oxybis(2-naphthalenesulfonate) – Santa Cruz

Biotechnology, Cat. No. 210553 or equivalent

Sample preparation:

Dissolve 150 mg of sample in 100 ml of 0.05 M ammonium acetate.

METHOD OF ASSAY

Determine total colouring matters content by spectrophotometry using Procedure 1 in Volume 4 (under "Specific Methods, Food Colours") and an appropriate solvent.

Using water as the solvent: absorptivity (a) = 54.0 l/(g·cm) and wavelength of maximum absorbance = 501 nm.