

**Pharmacopoeias.** In *Chin.* and *Jpn.*

*Eur.* (see p.vii) includes Saffron for Homeopathic Preparations.

**Ph. Eur. 6.2** (Saffron for Homeopathic Preparations). The dried stigmas of *Crocus sativus* usually joined by the base to a short style. It has a characteristic, aromatic odour. Protect from light.

**Profile**

Saffron consists of the dried stigmas and tops of the styles of *Crocus sativus* (Iridaceae), containing crocines, crocetins, and picrocrocin. Saffron is used to colour medicines, foods, and cosmetics. It is also used as a flavouring agent. Saffron has been included in preparations for teething pain. It is being investigated for the treatment of depression. There have been reports of poisoning with saffron, but in some cases these may have been due to meadow saffron, *Colchicum autumnale*.

**Homeopathy.** Saffron has been used in homeopathic medicines under the following names: Croci stigma; Crocus sativus; Crocus; Croc. s.

**Preparations**

**Proprietary Preparations** (details are given in Part 3)

**Multi-ingredient:** **Cz.:** Dr Theiss Rheuma Creme†; Dr Theiss Schweden Krauter; Dr Theiss Schwedenbitter; **Ger.:** Infi-tract†; **Rus.:** Tentex (Тентекс); **Spain:** Dentol Topico; Dentomicin.

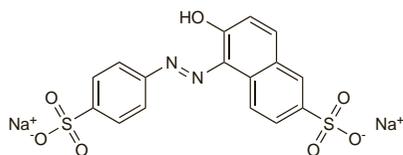
**Sunset Yellow FCF**

Amarillo anaranjado S; Amarillo ocase FCF; CI Food Yellow 3; Colour Index No. 15985; Crelborange S; E110; FD & C Yellow No. 6; Günbatimi Sarisi FCF; Jaune Orangé S; Jaune Soleil; Orange Yellow S. Disodium 6-hydroxy-5-(4-sulphonatophenylazo)naphthalene-2-sulphonate.

Жёлтый Солнечный Закат

$C_{16}H_{10}N_2Na_2O_7S_2 = 452.4$ .

CAS — 2783-94-0.

**Profile**

Sunset yellow FCF is used as a colouring agent in foods, medicines, and cosmetics. Sensitivity reactions have been reported.

**Carcinogenicity.** Although some evidence of carcinogenicity was found in early *animal* studies subsequent work failed to confirm these findings and in the UK sunset yellow FCF is considered suitable for use as a food colour.<sup>1</sup>

- MAFF. Food advisory committee: final report on the review of the colouring matter in food regulations 1973. *FdAC/REP/4*. London: HMSO, 1987.

**Hypersensitivity.** Hypersensitivity reactions including severe abdominal cramps<sup>1</sup> and Quincke's oedema<sup>2</sup> have been recorded in individual patients receiving medication that was coloured with sunset yellow FCF.

- Gross PA, *et al.* Additive allergy: allergic gastroenteritis due to yellow dye #6. *Ann Intern Med* 1989; **111**: 87–8.
- Lévesque H, *et al.* Reporting adverse drug reactions by proprietary name. *Lancet* 1991; **338**: 393.

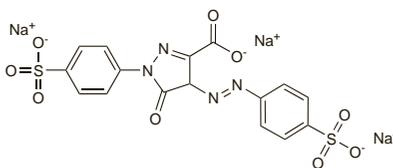
**Tartrazine**

CI Food Yellow 4; Colour Index No. 19140; E102; FD & C Yellow No. 5; Jaune Tartrique; Tartracina; Tartrazin; Tartrazina; Tartrazol Yellow. It consists mainly of trisodium 5-hydroxy-1-(4-sulphonatophenyl)-4-(4-sulphonatophenylazo)pyrazole-3-carboxylate.

Тартразин

$C_{16}H_9N_4Na_3O_9S_2 = 534.4$ .

CAS — 1934-21-0.

**Profile**

Tartrazine is used as a colouring agent in foods, cosmetics, and medicines. Some patients may experience sensitivity reactions.

**Adverse Effects.** There have been numerous reports of reactions to tartrazine including angioedema, asthma, urticaria, and anaphylactic shock. Some of the reports have dealt with cross-sensitivity, especially with aspirin, although the connection with aspirin has been questioned.<sup>1</sup> A suggested incidence<sup>2</sup> of tartrazine sensitivity is 1 in 10 000. The mechanism of the reactions may not necessarily be immunological.<sup>3</sup>

In considering the reports of tartrazine sensitivity or intolerance the Food Advisory Committee in the UK<sup>1</sup> reported that similar evidence of intolerance might well be obtained for a variety of natural food ingredients if as many studies were conducted on them as on tartrazine. The Committee considered that tartrazine posed no more problems than other colours or food ingredients and recommended that the continued use of tartrazine in food was acceptable. However, use of tartrazine in medicines appears to be diminishing.

A systematic review<sup>4</sup> noted that there was no evidence that tartrazine makes asthma worse, nor did avoiding it make asthma any better.

Tartrazine has often been implicated in the aggravation of hyperactive behaviour in children; for a discussion, see Hyperactivity, p.1469.

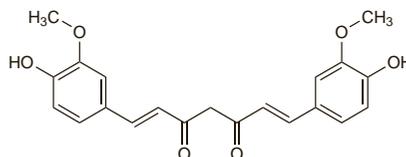
- MAFF. Food advisory committee: final report on the review of the colouring matter in food regulations 1973. *FdAC/REP/4*. London: HMSO, 1987.
- Anonymous. Tartrazine: a yellow hazard. *Drug Ther Bull* 1980; **18**: 53–5.
- Murdoch RD, *et al.* Tartrazine induced histamine release in vivo in normal subjects. *J R Coll Physicians Lond* 1987; **21**: 257–61.
- Ram FS, Arden KD. Tartrazine exclusion for allergic asthma. Available in The Cochrane Database of Systematic Reviews; Issue 4. Chichester: John Wiley, 2001 (accessed 18/04/07).

**Turmeric**

CI Natural Yellow 3; Cúrcuma; Indian Saffron.

Куркума; Турмерик

CAS — 458-37-7.

**Pharmacopoeias.** In *Chin.***Profile**

Turmeric, the dried rhizome of *Curcuma longa* (Zingiberaceae), is used principally as a constituent of curry powders and other condiments. Turmeric and its main ingredient curcumin (p.1471) are used as yellow colouring agents in foods. Turmeric has also been used as an ingredient of preparations indicated for biliary and gastrointestinal disorders and has been promoted as an anti-inflammatory. Turmeric is the source of turmeric oil. Turmeric is a commonly used ayurvedic medicine. Other species of *Curcuma* may be used similarly.

◇ Reviews of the properties of turmeric and curcumin.

- Ammon HP, Wahl MA. Pharmacology of *Curcuma longa*. *Planta Med* 1991; **57**: 1–7.
- Grant KL, Schneider CD. Turmeric. *Am J Health-Syst Pharm* 2000; **57**: 1121–2.
- Ringman JM, *et al.* A potential role of the curry spice curcumin in Alzheimer's disease. *Curr Alzheimer Res* 2005; **2**: 131–6.

- Singh S, Khar A. Biological effects of curcumin and its role in cancer chemoprevention and therapy. *Anticancer Agents Med Chem* 2006; **6**: 259–70.
- Menon VP, Sudheer AR. Antioxidant and anti-inflammatory properties of curcumin. *Adv Exp Med Biol* 2007; **595**: 105–25.
- Sharma RA, *et al.* Pharmacokinetics and pharmacodynamics of curcumin. *Adv Exp Med Biol* 2007; **595**: 453–70.
- Strimpakos AS, Sharma RA. Curcumin: preventive and therapeutic properties in laboratory studies and clinical trials. *Antioxid Redox Signal* 2008; **10**: 511–45.
- Hatcher H, *et al.* Curcumin: from ancient medicine to current clinical trials. *Cell Mol Life Sci* 2008; **65**: 1631–52.

**Effects on the thyroid.** There has been some concern about the safety of turmeric oleoresin, an extract of turmeric, after reports of adverse thyroid changes in pigs.<sup>1,2</sup>

- MAFF. Food advisory committee: final report on the review of the colouring matter in food regulations 1973. *FdAC/REP/4*. London: HMSO, 1987.
- FAO/WHO. Evaluation of certain food additives and contaminants: thirty-fifth report of the joint FAO/WHO expert committee on food additives. *WHO Tech Rep Ser* 789 1990. Also available at: [http://libdoc.who.int/trs/WHO\\_TRS\\_789.pdf](http://libdoc.who.int/trs/WHO_TRS_789.pdf) (accessed 30/05/07)

**Preparations**

**Proprietary Preparations** (details are given in Part 3)

**Chile:** Turmenik; **Ger.:** Aristochol CC†; Choldestal†; Sergast†; **Indon.:** Rheumakur; **Pol.:** Solaren.

**Multi-ingredient:** **Austral.:** Arthriforte; Bioglan Joint Mobility; Extralife Arthri-Care; Extralife Liva-Care; Herbal Digestive Formula†; Vitanox; **Austria:** Apozema; Spasmo Claim; **Canada:** Milk Thistle; **Cz.:** Cholagol; **Fr.:** Hepatoum; **Ger.:** Chol-Arbuz NF; Cholagogum F†; Cholagogum N†; Cholossom Phyto N; Digest-Merz†; Gallo Merz N†; Gastrol SF†; Hepaticum-Medice H†; Horvilan N; Opobyl-phyto†; spasmo gallo sanoff†; Ventracid N; **Hong Kong:** Hepatofalk Planta; **Hung.:** Cholagol; **India:** FN-T-Tus; **Indon.:** Aptivium Liver Support; Diapet; Entrodian; Fitodiar; Heparviton; Heparviton NF; Heparisil; Heparin; Lanagogum; Lecur; Procur Plus; Reliv; Tripid; **Ital.:** Cinarapa; Reumafort; **Mex.:** Iluchol; Rodan; **Pol.:** Chelcur; Cholitol; **Rus.:** Cholagol (Холлагол); Doktor Mom (Доктор Мом); Suprima-Broncho (Суприма-бронхо); **S.Afr.:** Lewenssensens; **Singapore:** Art-trex†; **Switz.:** Stago N†; **UK:** Arheumacare; BackOsamine.

**Vegetable Carbon**

Bitkisel Kömür; Carbon Black; Carbón vegetal; E153; Vegetable Black.

Уголь РАСТИТЕЛЬНЫЙ

**NOTE.** The name Carbon Black has also been used as a synonym for Channel Black, a colouring agent not used in food; care should be taken to avoid confusion between the two compounds.

**Profile**

Vegetable carbon, which consists essentially of finely divided carbon, is produced by the carbonisation of vegetable material such as peat or wood. It is used as a colouring agent for medicines, foodstuffs, and cosmetics.

**Preparations**

**Proprietary Preparations** (details are given in Part 3)

**Multi-ingredient:** **Chile:** Kordinol Compuesto†; **Fr.:** Stomargil.

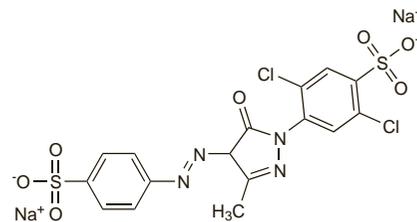
**Yellow 2G**

I07; Acid Light Yellow 2G; Acid Yellow 17; Amarillo 2G; CI Food Yellow 5; Colour Index No. 18965. Disodium 2,5-dichloro-4-[5-hydroxy-3-methyl-4-(4-sulphonatophenylazo)pyrazol-1-yl]benzenesulphonate.

Жёлтый 2G

$C_{16}H_{10}Cl_2N_4Na_2O_7S_2 = 551.3$ .

CAS — 6359-98-4.

**Profile**

Yellow 2G is used as a colouring agent in cosmetics.