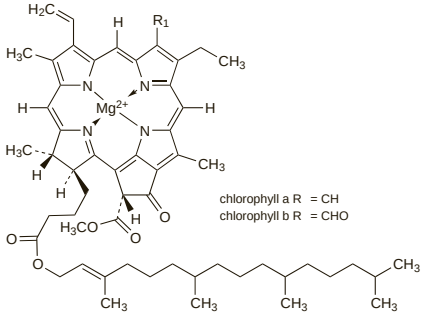
Chlorophyll

CI Natural Green 3; Clorofila; Colour Index No. 75810; E140 (chlorophylls or chlorophyllins).

Хлорофилл

CAS — 479-61-8 (chlorophyll a); 519-62-0 (chlorophyll b).



Chlorophyllin Copper Complex Sodium

Clorofilina cúprica, complejo sódico de.

Медного Комплекса Хлорофиллина Натриевая Соль

Pharmacopoeias. In *US.*

USP 31 (Chlorophyllin Copper Complex Sodium). It contains sodium salts of copper-chelated chlorophyll derivatives, but no artificial colouring. Store in airtight containers. Protect from light.

Profile

Chlorophyll is a green photosynthetic pigment found in plants, algae, and cyanobacteria (blue-green algae). There are four closely related forms of chlorophyll. Chlorophyll a ($C_{55}H_{72}MgN_4O_5$ = 893.5) and chlorophyll b ($C_{55}H_{70}MgN_4O_6$ = 907.5) are found in plants and some types of algae; chlorophyll c, further subdivided into chlorophyll c1 ($C_{35}H_{30}MgN_4O_5$ = 610.9) and chlorophyll c2 ($C_{35}H_{28}MgN_4O_5$ = 608.9), is found in some types of algae; and chlorophyll d ($C_{54}H_{70}MgN_4O_6$ = 895.5) is found in some types of algae and in cyanobacteria.

Oil-soluble chlorophyll derivatives. Replacement of the magnesium atom in the chlorophylls by 2 hydrogen atoms using dilute mineral acids produces olive-green water-insoluble phaeophytins. Copper phaeophytins (sometimes called copper chlorophyll complex; E141) can be formed; these are more stable to acids and to light than the chlorophylls.

Water-soluble chlorophyll derivatives. When the chlorophylls are hydrolysed with alkali, phytyl alcohol and methyl alcohol are split off and green water-soluble chlorophyllins are formed as the potassium or sodium salts. Similar water-soluble compounds can be prepared in which the magnesium is replaced by copper to give copper chlorophyllin complex (E141).

Chlorophylls and chlorophyllins, as well as the copper complexes of these compounds, are used mainly as colouring agents, in foods, medicines, and cosmetics.

Chlorophyll is used clinically, as an external application in the treatment of wounds and ulcers, and as a mouthwash. There is no clear evidence that it accelerates healing but it is considered to have a deodorant action. Chlorophyllin and copper chlorophyllin complex are used similarly. Chlorophyll is also used as a dietary supplement.

Preparations

Proprietary Preparations (details are given in Part 3)

USA: Chloresium; Derifil; Pals.

Multi-ingredient: ***Arg.:*** Fanaletas; Notoxin; Palan†; ***Braz.:*** Broncopinol†; Emoform Clorofila; Eucaliptan†; Mentozil†; Salimetin†; ***Ger.:*** Chlorophyl liquid "Schuh"†; Chlorophyllin Salbe "Schuh"†; Ginseng-Complex "Schuh"†; Stomasal Med†; ***Hong Kong:*** Epilon; ***Indon.:*** Methaphyllin; ***Spain:*** Odontocromil c Sulfamida†; Vitavox Pastillas†; ***Thai.:*** Sanaco†; ***UK:*** Chlorophyll; ***USA:*** AllanEnzyme; AllanfillEnzyme; Fresh-N-Free; Gladase-C; Panafil; Prophyllin; Wound Cleanser; Ziox.

CI Solvent Yellow 18

CI Food Yellow 12; Colour Index No. 12740. 4-[(2,4-Dimethylphenyl)azo]-2,4-dihydro-5-methyl-2-phenyl-3*H*-pyrazol-3-one.

$C_{18}H_{18}N_4O$ = 306.4.

CAS — 6407-78-9.

Profile

CI Solvent Yellow 18 is a colouring agent used in contact lenses.

CI Vat Orange 1

Colour Index No. 59105. Dibromo-dibenzo (b,def) chrysene-7,14-dione.

CI Кубовый Оранжевый 1

$C_{24}H_{10}Br_2O_2$ = 490.1.

CAS — 1324-11-4.

Profile

CI Vat Orange 1 is a colouring agent used in contact lenses.

Citranaxanthin

Citranaxantina; Elbli.

$C_{33}H_{44}O$ = 456.7.

CAS — 3604-90-8.

Profile

Citranaxanthin is a colouring agent used in animal feeds, to colour the fat of poultry and the egg-yolks of laying hens. It has vitamin A activity.

Citrus Red 2

CI Solvent Red 80; Colour Index No. 12156. 1-(2,5-Dimethoxyphenylazo)-2-naphthol.

Цитрусовый Красный 2

$C_{18}H_{16}N_2O_3$ = 308.3.

CAS — 6358-53-8.

Profile

Citrus Red 2 is a colouring agent used in foods.

Cochineal

CI Natural Red 4; Coccionella; Coccus; Coccus Cacti; Cochinilla; Colour Index No. 75470; E120.

Кошениль

CAS — 1343-78-8.

Pharmacopoeias. In *Br.*

BP 2008 (Cochineal). The dried female insect, *Dactylopius coccus* containing eggs and larvae. It has a characteristic odour. It complies with a test for contamination with *Escherichia coli* and salmonellae.

Profile

Cochineal, which is a source of carmine, is used as a red colouring agent in food, medicines, and cosmetics.

There have been reports of sensitivity reactions including anaphylaxis, after use of products containing cochineal (see Hypersensitivity in Carmine, p.1470).

Homoeopathy. Cochineal has been used in homoeopathic medicines under the following names: Coccus cacti; Dactylopius coccus; Coc. c.

Curcumin

Colour Index No. 75300; Curcumina; E100; Kurkum; Kurkumina; Turmeric Yellow. 1,7-Bis(4-hydroxy-3-methoxyphenyl)hepta-1,6-diene-3,5-dione.

Куркумин

$C_{21}H_{20}O_6$ = 368.4.

CAS — 458-37-7.

Profile

Curcumin is the main colouring component of turmeric (p.1473). It is used as a colouring agent for drugs, foodstuffs, and cosmetics. It is also thought to be responsible for many of the pharmacological properties for which turmeric is under investigation (see p.1473).

Preparations

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: ***India:*** Well-Beeing†; ***Ital.:*** Depatox.

Eosin

CI Acid Red 87; Colour Index No. 45380; D & C Red No. 22; Eosin Y; Eosina; Éosine Disodique. The disodium salt of 2′,4′,5′,7′-tetrabromofluorescein .

Эозин

$C_{20}H_6Br_4Na_2O_5$ = 691.9.

CAS — 548-26-5; 17372-87-1.

ATC — D08AX02.

ATC Vet — QD08AX02.

Pharmacopoeias. In *Fr.*

Profile

Eosin has been incorporated in solution-tablets to give a distinctive colour to solutions prepared from them. It is also used in cosmetics.

Eosin has been used as a topical antiseptic in nappy rash, burns and other skin conditions, although other drugs are usually preferred.

Adverse effects. Contact dermatitis to eosin was seen relatively frequently between the 1920s and 1940s when it was a common colour in lipsticks. Fewer reports of hypersensitivity have occurred since then: changing fashions in cosmetic colours have reduced use of eosin and, if used, a purer grade and lower concentrations are now usually employed. However, cases of dermatitis after topical application of antiseptic preparations containing eosin were noted in the 1980s and 1990s. One report[1] suggested that an impurity might be responsible but another[2] implicated eosin itself after patch tests were performed with various products and pure tetrabromofluorescein.

1. Tomb RR. Allergic contact dermatitis from eosin. *Contact Dermatitis* 1991; **24:** 27–9.
2. Koch P, *et al.* Allergic contact dermatitis from purified eosin. *Contact Dermatitis* 1995; **32:** 92–5.

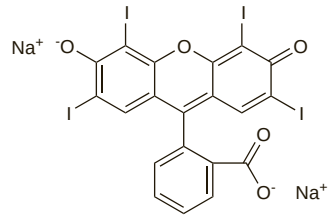
Erythrosine

CI Food Red 14; Colour Index No. 45430; E127; Eritrosin BS; Eritrosina; Erythrosine BS; Erythrosine Sodium; FD & C Red No. 3. The monohydrate of the disodium salt of 2′,4′,5′,7′-tetraiodofluorescein .

Эритрозин

$C_{20}H_6I_4Na_2O_5,H_2O$ = 897.9.

CAS — 568-63-8 (anhydrous erythrosine sodium); 16423-68-0 (anhydrous erythrosine sodium); 49746-10-3 (erythrosine sodium monohydrate).



(anhydrous erythrosine sodium)

Profile

Erythrosine is used as a colouring agent for medicines, foods, and cosmetics. It is also used as a disclosing agent for plaque on teeth.

◊ Although early *animal* studies had indicated that erythrosine might have an adverse effect on the thyroid gland, a review[1] of the evidence and later studies, suggested that erythrosine was not genotoxic or mutagenic and was suitable for use as a food colour. Similarly, no evidence was found to support restricting its use in pharmaceutical products.[2]

1. MAFF. Food advisory committee: final report on the review of the colouring matter in food regulations 1973. *FdAC/REP/4.* London: HMSO, 1987.
2. European Commission. Opinion on toxicological data on colouring agents for medicinal products: erythrosin, adopted by the Scientific Committee on Medicinal Products and Medical Devices on 21 October 1998. Available at: http://ec.europa.eu/health/ph_risk/committees/scmp/docshtml/scmp_out08_en.htm (accessed 04/07/08)

Preparations

Proprietary Preparations (details are given in Part 3)

Arg.: Revelplac; ***Austral.:*** Disclo-Gel; Disclo-Tabs; ***UK:*** Ceplac.

Multi-ingredient: ***Arg.:*** Revelplac 2001.

Ferric Oxide

Demir Oksitler; E172 (iron oxides or hydroxides); Hierro, óxido de.

Оксид Железа

CAS — 51274-00-1; 1309-37-1.

Pharmacopoeias. *Chin.* includes red, black, brown, purple, and yellow ferric oxide. *It.* includes both red and yellow ferric oxide. *USNF* allows the basic colours of red or yellow ferric oxide or mixtures of these.

USNF 26 (Ferric Oxide). A powder exhibiting two basic colours (red and yellow), or other shades produced on blending the basic colours. Insoluble in water and in organic solvents; dissolves in hydrochloric acid upon warming, a small amount of insoluble residue usually remaining.

Profile

Ferric oxide is used for colouring medicines, contact lenses, cosmetics, and foodstuffs.

Preparations

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: ***Port.:*** Filter Oil Free†.

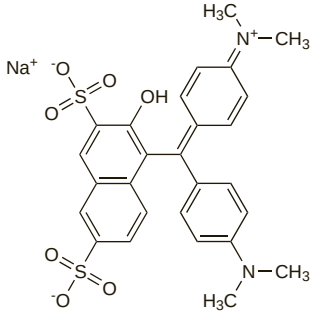
Green S

Acid Brilliant Green BS; Acid Green S; CI Food Green 4; Colour Index No. 44090; E142; Lissamine Green; Verde Brillante BS; Verde Lisamina; Verde S; Wool Green B; Yeşil S. Sodium 1-[4-dimethylamino-α-(4-dimethyliminiocyclohexa-2,5-dienylidene)benzyl]-2-hydroxynaphthalene-3,6-disulphonate.

Зелёный S

$C_{27}H_{25}N_2NaO_7S_2$ = 576.6.

CAS — 3087-16-9.



Profile

Green S is used as a colouring agent in medicines, cosmetics, and foodstuffs.

◊ Studies in *animals* indicated that there is some absorption of green S and caecal enlargement but it was considered that there is a very large margin of safety between the highest estimated human intake of green S of 130 micrograms daily and the level at which changes were seen in *animal* studies (500 mg/kg daily). It was recommended that the use of green S in food is acceptable.[1]

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

Logwood

CI Natural Black 1; Colour Index No. 75290.

Кампешевое Дерево (*Haematoxylon campechianum*)

CAS — 8005-33-2.

Profile

Logwood extract is a colouring agent derived from the logwood tree, *Haematoxylum (Haematoxylon) campechianum*. The logwood extract haematoxylin is used mainly as a histological stain. It is also used for colouring non-absorbable sutures.

Orange B

CI Acid Orange 137; Colour Index No. 19235. The disodium salt of 1-(4-Sulfophenyl)-3-ethylcarboxyl-4-(4-sulfonaphthylazo)-5-hydroxypyrazole.

Оранжевый B

$C_{22}H_{16}N_4Na_2O_9S_2$ = 590.5.

CAS — 15139-76-1.

Profile

Orange B is a colouring agent used in foods.

Pigment Rubine

Brilliant Carmine 6B; Carmine 6B; CI Pigment Red 57; Colour Index No. 15850; E180; FD & C Red No. 7; Lithol Rubine BK; Litholrubine BK; Litholrubintoner BKL; Litolrubina BK; Permanent Rubin L6B; Pigmento rubí; Rubinpigment. Calcium 3-hydroxy-4-(4-methyl-2-sulfonatophenylazo)-2-naphthalene carboxylate.

Рубиновый Литол ВК

$C_{18}H_{12}CaN_2O_6S$ = 424.4.

CAS — 5281-04-9.

Profile

Pigment rubine is used as a colouring agent for foodstuffs and cosmetics.

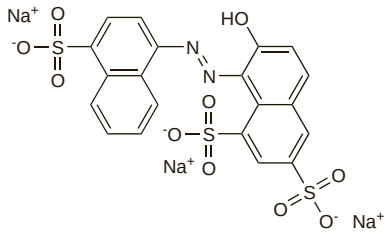
Ponceau 4R

Brilliant Ponceau 4RC; Brilliant Scarlet; CI Food Red 7; Coccine Nouvelle; Cochineal Red A; Colour Index No. 16255; E124; Punzó 4R; Rojo de cochinilla A; Rouge Cochenille A. Trisodium 7-hydroxy-8-(4-sulphonato-1-naphthylazo)naphthalene-1,3-disulphonate.

Понсо 4R; Пунцовый 4R

$C_{20}H_{11}N_2Na_3O_{10}S_3$ = 604.5.

CAS — 2611-82-7.



Profile

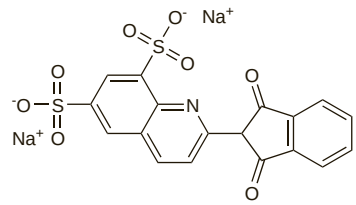
Ponceau 4R is used as a colouring agent in medicines, cosmetics, and foods. Sensitivity reactions have been reported.

Quinoline Yellow

Amarillo de quinoleína; Canary Yellow; CI Acid Yellow 3; CI Food Yellow 13; Colour Index No. 47005; E104; Jaune de Quinoléine; Kinolin Sarisi; Tartrazin. It consists essentially of sodium salts of a mixture of disulfonates (principally), monosulfonates, and trisulfonates of 2-(2-quinolyl)-1,3-indandione or a mixture containing about two-thirds of 2-(2-quinolyl)-1,3-indandione and one-third of 2-[2-(6-methyl-quinolyl)]1,3-indandione.

Жёлтый Хинолиновый

CAS — 8004-92-0 (unmethylated disulfonic acids).



(disulfonate)

NOTE. D & C yellow No. 10 has been used as a synonym for quinoline yellow, but describes a mixture consisting mainly of a monosulfonate.

Profile

Quinoline yellow is used as a colouring agent in medicines, cosmetics, and foodstuffs.

Hypersensitivity. A severe urticarial reaction[1] in a patient has been attributed to quinoline yellow.

1. Bell T. Colourants and drug reactions. *Lancet* 1991; **338:** 55–6.

Raspberry

Framboise; Frambuesa; Fructus Rubi Idaei; Himbeer.

Малина

CAS — 8027-46-1.

Profile

Raspberry, the fresh ripe fruit of *Rubus idaeus* (Rosaceae), is used as a colouring and flavouring agent in medicines and foodstuffs.

Preparations

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: ***Fr.:*** IgeE.

Red Cherry

Cerasus; Cerise Rouge; Rojo cereza; Sour Cherry.

Вишня Кислая

Pharmacopoeias. *USNF* includes cherry juice.

Fr. includes, under the title Griottier, cherry stalks from either the red (sour) cherry, *Prunus cerasus*, or from the sweet cherry, *P. avium*.

USNF 26 (Cherry Juice). The liquid expressed from the fresh ripe fruit of *Prunus cerasus* (Rosaceae). It contains not less than 1.0% of malic acid. pH 3.0 to 4.0. Store in airtight containers. Protect from light.

Profile

Red cherry is used as a colouring and flavouring agent.

Inflammation. A small placebo-controlled crossover study[1] indicated that some symptoms of muscle damage induced by eccentric exercise (pain and strength loss) could be reduced by drinking cherry juice. It was suggested that anthocyanins and flavonoids present in tart cherry juice might have anti-inflammatory properties.

1. Connolly DAJ, *et al*. Efficacy of a tart cherry juice blend in preventing the symptoms of muscle damage. *Br J Sports Med* 2006; **40:** 679–83.

Preparations

USNF 26: Cherry Syrup.

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: ***Arg.:*** Vitamina C-Complex; ***Fr.:*** Evacrine; ***Switz.:*** Drosana Resiston avec vitamine C.

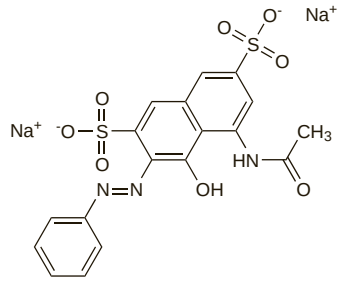
Red 2G

Acid Red 1; Azogeranina; Azogeranine; CI Food Red 10; Colour Index No. 18050; E128; Ext. D & C Red No. 11; Geranine 2G; Rojo 2G. Disodium 5-acetamido-4-hydroxy-3-phenylazonaphthalene-2,7-disulphonate.

Красный 2G

$C_{18}H_{13}N_3Na_2O_8S_2$ = 509.4.

CAS — 3734-67-6.



Profile

Red 2G may be used as a colouring agent in cosmetics. It has also been employed as a food colour but this use was suspended in the EU in 2007 on the basis that its main metabolite, aniline, has both genotoxic and carcinogenic effects in *rodents*.

Red-Poppy Petal

Aguonų birulių žiedai; Coquelicot; Coquelicot, pétales de; Corn Poppy Petal; Klatschrose; Kornvallmo, kronblad; Květ máku vlčího; Papaveris rhoeados flos; Pétalos de amapola; Rhoead. Pet.; Rhoeados Petalum; Unikonkukan terälehdet.

Мака Самосейки Лепестки

Pharmacopoeias. In *Eur.* (see p.vii).

Ph. Eur. 6.2 (Red Poppy Petals). The dried, whole or fragmented petals of *Papaver rhoeas*.

Profile

Red-poppy petal has been used as a colouring agent. It is also included in several herbal preparations.

Preparations

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: ***Fr.:*** Nocvalene†; ***Ital.:*** Altuss; Gastrotuss; ***Switz.:*** Baume†; Pectosan N†; Pommade au Baume; Tisane pectorale et antitussive.

Red-Rose Petal

Fleur de Rose; Flos Rosae; Pétalos de rosa; Red Rose Petals; Ros. Pet.; Rosae Gallicae Petala; Rosae Petalum; Rose Rouge; Rosenblüte.

Лепестки Розы

Pharmacopoeias. In *Fr.*

Profile

Red-rose petal, the petals of the red or Provins rose, *Rosa gallica* (Rosaceae), has been used as a colouring agent and for its mild astringent properties.

Preparations

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: ***Arg.:*** Expectosan Hierbas y Miel; ***Fr.:*** Ophtalmine; ***Spain:*** Natusor Infenol†.

Saffron

Açafrão; Azafrán; CI Natural Yellow 6; Colour Index No. 75100; Croci stigma; Crocus; Estigmas de Azafrán; French Saffron; Keshar; Saffran; Safraan; Safran; Sahrami; Spanish Saffron.

Шафран

NOTE. Do not confuse with the meadow saffron (*Colchicum autumnale*), the source of colchicum (p.558) and colchicine (p.556), or Indian saffron, which is a name sometimes used for Turmeric (p.1473).