In ophthalmology, hydroxyamfetamine hydrobromide has been used in a 1% solution as a mydriatic and in the diagnosis of Horner's syndrome.

Preparations

USP 31: Hydroxyamphetamine Hydrobromide Ophthalmic Solution.

Proprietary Preparations (details are given in Part 3)
Cz.: Pedrolon†; ***USA:*** Paredrine†.
Multi-ingredient: ***USA:*** Paremyd.

Hydroxyapatite *(BAN)*

542 (edible bone phosphate); Durapatite *(USAN)*; Hidroxiapatito; Hydroxylapatite; Win-40350. Decacalcium dihydroxide hexakis(orthophosphate).

$3Ca_3(PO_4)_2,Ca(OH)_2$ = 1004.6;
$Ca_5(OH)(PO_4)_3$ = 502.3.
CAS — 1306-06-5.

Profile

Hydroxyapatite is a natural mineral with composition similar to that of the mineral in bone. Hydroxyapatite for therapeutic purposes is prepared from bovine bone and contains, in addition to calcium and phosphate, trace elements, fluoride and other ions, proteins, and glycosaminoglycans. It is given orally to patients requiring both calcium and phosphorus supplementation. Hydroxyapatite with tricalcium phosphate has been used in bone grafts.

Hydroxyapatite derived from marine coral has been used in the construction of orbital implants for use after surgical removal of the eye. A synthetic calcium hydroxyapatite (CaHA) is used for the correction of facial lipoatrophy in patients with HIV infection and as a cosmetic filler for moderate to severe facial wrinkles and folds.

Adverse effects. Reference to problems associated with the use of coral-derived orbital implants[1] and synthetic calcium hydroxyapatite.[2]

1. Shields CL, *et al.* Problems with the hydroxyapatite orbital implant: experience with 250 consecutive cases. *Br J Ophthalmol* 1994; **78:** 702–6.
2. Sankar V, McGuff HS. Foreign body reaction to calcium hydroxylapatite after lip augmentation. *J Am Dent Assoc* 2007; **138:** 1093–96.

Uses. A mixture of calcium phosphates with calcium carbonate could be combined to form a paste which could be injected into acute fractures;[1] under physiological conditions the paste hardened within minutes, due to the formation of dahllite, a carbonated apatite, and held the bones in place as it was progressively replaced by living bone.

1. Constantz BR, *et al.* Skeletal repair by in situ formation of the mineral phase of bone. *Science* 1995; **267:** 1796–9.

Preparations

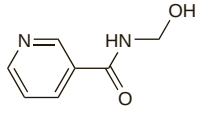
Proprietary Preparations (details are given in Part 3)
Austria: Ossopan; Osteogenon; ***Braz.:*** Ossopan; ***Cz.:*** Osteogenon; ***Fr.:*** Ossopan; ***Ger.:*** Calcibon; Endobon; Ossopan†; ***Hung.:*** Osteogenon; ***India:*** Ossopan; ***Indon.:*** Ossopan; Ossoral; ***Irl.:*** Ossopan; ***Ital.:*** Apagen; ***Mex.:*** Ossopan; ***Pol.:*** Ossopan; Osteogenon; ***Port.:*** Ossopan; ***Rus.:*** Osteogenon (Остеогенон); ***Singapore:*** Ossopan†; ***Spain:*** Ossopan; Osteopor; ***Switz.:*** Ossopan; ***Thai.:*** Ossopan; ***UK:*** Ossopan†; Osteo Support; ***USA:*** Radiesse.

Multi-ingredient: ***Arg.:*** Totalos Plus; ***Ger.:*** Collapat II; ***Malaysia:*** Supa Biocal Vitahealth†.

Hydroxymethylnicotinamide

Hidroximetilnicotinamida; *N*-Hydroxymethylnicotinamide; Nicotinylmethylamide; Nicotinylmethylamidum; Nikotynylometyloamid. *N*-Hydroxymethylpyridine-3-carboxamide.

$C_7H_8N_2O_2$ = 152.2.
CAS — 3569-99-1.
ATC — A05AB01.
ATC Vet — QA05AB01.



Pharmacopoeias. In *Pol.*

Profile

Hydroxymethylnicotinamide is a cholagogue and has been used in the treatment of various disorders of the gallbladder.

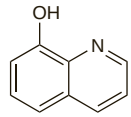
Preparations

Proprietary Preparations (details are given in Part 3)
India: Bilamide.

Hydroxyquinoline Sulfate

Chinosolum; Hidroxiquinolina, sulfato de; Hydroxyquinoline Sulphate; Oksikinoliinisulfaatti; Oxichinolini Sulfas; Oxikinolinsulfat; Oxine Sulphate; Oxyquinol; Oxyquinoline Sulfate *(USAN)*; Sulfate d'Orthoxyquinoléine. Quinolin-8-ol sulphate; 8-Quinolinol sulphate.

$(C_9H_7NO)_2,H_2SO_4$ = 388.4.
CAS — 148-24-3 (hydroxyquinoline); 134-31-6 (hydroxyquinoline sulfate).
ATC — A01AB07; D08AH03; G01AC30; R02AA14.
ATC Vet — QA01AB07; QD08AH03; QG01AC30; QR02AA14.



(hydroxyquinoline)

Pharmacopoeias. In *Fr.* and *Swiss*. Also in *USNF*.
USNF 26 (Oxyquinoline Sulfate). A yellow powder. Very soluble in water; slightly soluble in alcohol; practically insoluble in acetone and in ether; freely soluble in methyl alcohol.

Potassium Hydroxyquinoline Sulfate

Oxiquinol potásico; Oxyquinol Potassium; Potassii Hydroxyquinolini Sulphas; Potassium Hydroxyquinoline Sulphate; Potassium Oxyquinoline Sulphate.

CAS — 14534-95-3.
ATC — A01AB07; D08AH03; G01AC30; R02AA14.
ATC Vet — QA01AB07; QD08AH03; QG01AC30; QR02AA14.

Pharmacopoeias. In *Br.*, *Fr.*, and *Ger.*
BP 2008 (Potassium Hydroxyquinoline Sulphate). An equimolecular mixture of potassium sulfate and quinolin-8-ol sulfate monohydrate. It contains 50.6 to 52.6% of quinolin-8-ol and 29.5 to 32.5% of potassium sulfate, calculated with reference to the anhydrous substance. A pale yellow, odourless or almost odourless, microcrystalline powder. Freely soluble in water; insoluble in ether. On extraction with hot dehydrated alcohol a residue of potassium sulfate and a solution of quinolin-8-ol sulfate are obtained.

Profile

Hydroxyquinoline sulfate and potassium hydroxyquinoline sulfate have antibacterial, antifungal, and deodorant properties, and have been used similarly in the topical treatment of skin, oropharyngeal, and vaginal disorders. Potassium hydroxyquinoline sulfate is often used with benzoyl peroxide.

Derivatives of hydroxyquinoline including the salicylate, benzoate, borate, hydrofluoride, iodochloride, silicofluoride, and sodium hydroxyquinoline sulfate have been used similarly.

Preparations

BP 2008: Potassium Hydroxyquinoline Sulphate and Benzoyl Peroxide Cream.

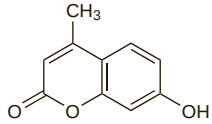
Proprietary Preparations (details are given in Part 3)
Ger.: Leioderm; ***Ital.:*** Aftir Shampoo; ***Neth.:*** Superol.

Multi-ingredient: ***Arg.:*** Curisept†; ***Austral.:*** Aci-Jel†; ***Belg.:*** Aseptosyl†; ***Braz.:*** Andolba; Cerumin; Colpolase; Lacto Vagin†; Leucocida†; Malvatricin Ginecologico; Malvatricin Pastilhas; Malvatricin Pronto; Malvatricin Solucao para diluir; Malvatricin Spray; Pan-Emecort†; Senol†; ***Chile:*** Diproquin; ***Cz.:*** Aviril H†; ***Fr.:*** Chromargon; Dermacide; Nestosyl; ***Ger.:*** Chinosol; Leioderm P; ***Hung.:*** Germicid†; ***Irl.:*** Quinocort†; Quinoderm; Valderma†; ***Ital.:*** Disinfene; Ustiosan; Viderm†; ***NZ:*** Aci-Jel†; ***Philipp.:*** Auralgan; ***Port.:*** Apyrol†; Queimax; ***Rus.:*** Contraceptin T (Контрацептин Т); ***S.Afr.:*** Cuticura†; Oto-Phen Forte; Quinoderm; Universal Earache Drops; ***Switz.:*** Benzocaine PD; Rectoseptal-Neo bismuthe; Rectoseptal-Neo simple; ***UK:*** Quinoderm; Valderma; ***USA:*** Acid Jelly; Auroguard Otic; Fem pH; Medicone Derma†; Oxyzal; Stypto-Caine; Trimo-San; Triv; ***Venez.:*** Borogin; Fluquinol†.

Hymecromone *(BAN, USAN, rINN)*

Himecromona; Himekromon; Himekromonas; Hymechromon; Hyméchromone; Hymecromonum; Hymekromon; Hymekromoni; Imecromone; LM-94. 7-Hydroxy-4-methylcoumarin.

Гимекромон
$C_{10}H_8O_3$ = 176.2.
CAS — 90-33-5.
ATC — A05AX02.
ATC Vet — QA05AX02.



Pharmacopoeias. In *Chin.*, *Eur.* (see p.vii), and *Jpn*.
Ph. Eur. 6.2 (Hymecromone). An almost white crystalline powder. Very slightly soluble in water; slightly soluble in dichloromethane; sparingly soluble in methyl alcohol. It dissolves in dilute solutions of ammonia. Protect from light.

Profile

Hymecromone is a choleretic and biliary antispasmodic. It has been given orally in doses of 400 mg three times daily at mealtimes. It has also been given as the sodium salt by slow intravenous injection as an adjunct to diagnostic procedures. Diarrhoea may occasionally occur.

Preparations

Proprietary Preparations (details are given in Part 3)
Austria: Cholonerton; Unichol; ***Belg.:*** Cantabiline; ***Cz.:*** Cholestil; Isochol; ***Fr.:*** Cantabiline; ***Ger.:*** Chol-Spasmoletten; Cholspasmin; Gallo Merz Spasmo†; ***Gr.:*** Cholirene; ***Ital.:*** Cantabilin; ***Pol.:*** Cholestil; ***Rus.:*** Odeston (Одестон); ***Spain:*** Bilicanta†; ***Turk.:*** Cantabiline.

Hyoscyamus

Banotu; Beleño; Bilsenkraut; Bolmört; Giusquiamo; Henbane; Hullukaali; Hyoscy.; Hyoscyami; Hyoscyami folium (hyoscyamus leaf); Jusquiame; Jusquiame Noire; Jusquiame noire, feuille de (hyoscyamus leaf); Meimendro.

Pharmacopoeias. *Chin.* specifies only the seeds.
Eur. (see p.vii) includes a form for homoeopathic preparations.
Ph. Eur. 6.2 (Hyoscyamus for Homoeopathic Preparations; Hyoscyamus Niger ad Praeparationes Homoeopathicas). The whole, fresh flowering plant of *Hyoscyamus niger*. Protect from light.

Profile

Hyoscyamus contains the alkaloid hyoscyamine with varying amounts of hyoscine and has peripheral and central effects similar to those of atropine (p.1219); its preparations have been used mainly for the relief of visceral spasm. The fresh whole flowering plant (*Hyoscyamus niger*) as well as the dried leaves have been used in herbal and medicine.

Homoeopathy. Hyoscyamus has been used in homoeopathic medicines under the following names: Hyoscyamus leaf; Hyoscyamus niger; Hyos. nig.

Preparations

Proprietary Preparations (details are given in Part 3)
Austria: Kelosoft; ***Switz.:*** Kelosoft; ***Venez.:*** Atroveran.

Multi-ingredient: ***Arg.:*** Hepacur; Trixol†; ***Braz.:*** Dorveran†; Ductoveran; Espasmalgon†; MM Expectorante; Sedatux†; ***Denm.:*** Zink-Calmitol†; ***Fr.:*** Laccoderme a l'huile de cade; ***Ger.:*** Unguentum lymphaticum; ***Switz.:*** Cardiodoron†; Dragees S contre la toux†; Gouttes contre la toux "S"; Kelimed; Sirop pectoral contre la toux S; Sirop S contre la toux et la bronchite; ***UK:*** Onopordon Comp B; ***Venez.:*** Atrobel; Cloverin†; Cratex†; Linfoderm; Neo-Atropan†; Tropifen†.

Hypoglycin A

Hipoglicina A. L-2-Amino-3-(2-methylenecyclopropyl)propionic acid.

$C_7H_{11}NO_2$ = 141.2.
CAS — 156-56-9.

Profile

Hypoglycin A is a toxic substance present in the arillus of unripe ackee (akee), the fruit of *Blighia sapida* (Sapindaceae). It is responsible for Jamaican vomiting sickness, with symptoms of acute and severe vomiting, hypoglycaemia, muscular weakness, CNS depression, convulsions, and coma, frequently fatal. Glycine has been suggested for the management of hypoglycin A toxicity.

Hypophosphorous Acid

Acidum Hypophosphorosum; Hipofosforoso, ácido; Phosphinic Acid.

H_3PO_2 = 66.0.
CAS — 6303-21-5; 14332-09-3.

Pharmacopoeias. In *USNF*.
USNF 26 (Hypophosphorous Acid). It contains 30 to 32% of H_3PO_2. A colourless or slightly yellow, odourless liquid. Store in airtight containers.

Profile

Hypophosphorous acid is used as an antoxidant. Hypophosphates were used in tonics; like the glycerophosphates they are not a suitable source of phosphorus.

Preparations

Proprietary Preparations (details are given in Part 3)
Multi-ingredient: ***UK:*** Dispello.

Hyssop

Herba Hyssopi; Hysope; Hyssop Wort; Ysop.

Pharmacopoeias. In *Fr.*

Profile

Hyssop is the fresh or dried aerial parts of *Hyssopus officinalis* (Lamiaceae). The herb and its preparations are included in herbal preparations mainly for disorders of the gastrointestinal and upper respiratory tracts.

It is the source of hyssop oil which is used in aromatherapy.

Preparations

Proprietary Preparations (details are given in Part 3)
Cz.: Yzop Lekarsky†.

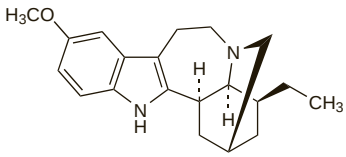
Multi-ingredient: ***Arg.:*** Arceligasol; ***Austria:*** The Chambard-Tee; ***Fr.:*** Item Lentes; Mediflor Tisane Circulation du Sang No 12; Mediflor Tisane Digestive No 3; ***Ital.:*** Tisana Kelemata; ***Pol.:*** Pectosol; ***Port.:*** Solubeol†; ***Rus.:*** Linkus (Линкас); Linkus Lor (Линкас Лор); ***Spain:*** Agua del Carmen; Natusor Asmaten†; ***Switz.:*** Saintbois; ***UK:*** Catarrh Mixture; Tickly Cough & Sore Throat Relief; Vegetable Cough Remover.

Ibogaine

Ibogaina; NIH-10567. 12-Methoxyibogamine.

$C_{20}H_{26}N_2O$ = 310.4.

CAS — 83-74-9.



NOTE. The following terms have been used as 'street names' (see p.vi) or slang names for various forms of ibogaine or preparations containing ibogaine:
Iboga.

Profile

Ibogaine is a hallucinogenic indole alkaloid extracted from the West African shrub *Tabernanthe iboga* (Apocynaceae). It has been investigated as an aid to withdrawal from drug addiction.

◊ References.

1. Popik P, *et al*. 100 years of ibogaine: neurochemical and pharmacological actions of a putative anti-addictive drug. *Pharmacol Rev* 1995; **47:** 235–53.
2. Alper KR, *et al*. Treatment of acute opioid withdrawal with ibogaine. *Am J Addict* 1999; **8:** 234–42.
3. Pace CJ, *et al*. Novel iboga alkaloid congeners block nicotinic receptors and reduce drug self-administration. *Eur J Pharmacol* 2004; **492:** 159–67.
4. Hittner JB, *et al*. Combating substance abuse with ibogaine: pre- and posttreatment recommendations and an example of successive model fitting analyses. *J Psychoactive Drugs* 2004; **36:** 191–9.

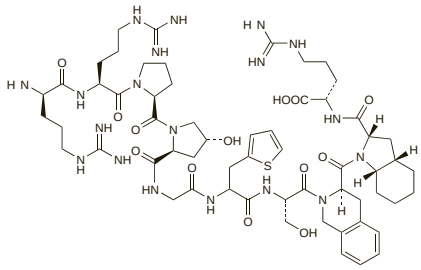
Icatibant Acetate *(USAN, rINNM)*

Hoe-140 (icatibant, icatibant acetate); Icatibant, Acétate d'; Icatibanti Acetas; Icatibanto; JE-049 (icatibant). (*R*)-Arginyl-(*S*)-arginyl-(*S*)-prolyl-(2*S*,4*R*)-(4-hydroxyprolyl)glycyl-(*S*)-[3-(2-thienyl)-alanyl]-(*S*)-seryl-(*R*)-[(1,2,3,4-tetrahydro-3-isoquinolyl)-carbonyl]-(2*S*,3a*S*,7a*S*)-[(hexahydro-2-indolinyl)-carbonyl]-(*S*)-arginine acetate.

Икатибанта Ацетат

$C_{59}H_{89}N_{19}O_{13}S,xC_2H_4O_2$.

CAS — 130308-48-4 (icatibant); 138614-30-9 (icatibant acetate).



Profile

Icatibant acetate is a selective bradykinin B_2 antagonist under investigation for hereditary angioedema.

Iceland Moss

Islandinių kerpenų gniužulas; Isländisches Moos; Islandslav; Islanninjäkälä; Izlandi zuzmó; Lichen d'Islande; Lichen islandicus; Lišejník islandský; Porost islandzki.

Pharmacopoeias. In *Eur.* (see p.vii).
Ph. Eur. 6.2 (Iceland Moss; Lichen Islandicus). The whole or cut dried thallus of *Cetraria islandica*. Protect from light.

Profile

Iceland moss, *Cetraria islandica* (Parmeliaceae), is a lichen with demulcent and mild antimicrobial activity. It is included in herbal medicines for dry cough, and irritation or inflammation of the oral and pharyngeal mucosa. It is also used as a bitter to stimulate the appetite.

Iceland moss has been used as a foodstuff and a flavouring agent.

Preparations

Proprietary Preparations (details are given in Part 3)
Ger.: Isla-Mint†; Isla-Moos†; ***Hong Kong:*** Isla-Mint†; Isla-Moos†; ***Singapore:*** Isla-Mint Herbal†.

Multi-ingredient: ***Austral.:*** Cough Relief†; ***Braz.:*** Peitoral Angico Pelotense†; ***Ital.:*** Altea (Specie Composta)†; Balta Intimo†; Kevis; Sclerovis H; ***Pol.:*** Pectosol; ***Port.:*** Bioclin Sebo Care†; ***Switz.:*** Kernosan Elixir; Tisane pectorale et antitussive; ***UK:*** Herb and Honey Cough Elixir.

Idanpramine

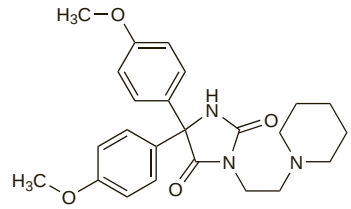
Idampramina. 5,5-Bis(4-methoxyphenyl)-3-[2-(1-piperidinyl)-ethyl]-2,4-imidazolidinedione.

Иданпрамин

$C_{24}H_{29}N_3O_4$ = 423.5 112 25466-44-8.

ATC — A03AX06.

ATC Vet — QA03AX06.



Idanpramine Hydrochloride

Иданпрамина Гидрохлорид

$C_{24}H_{29}N_3O_4$,HCl = 460.0.

CAS — 25466-21-1.

ATC — A03AX06.

ATC Vet — QA03AX06.

Idanpramine Sulfate

Idampramina Sulfato.

Иданпрамина Сульфат

ATC — A03AX06.

ATC Vet — QA03AX06.

Profile

Idanpramine is an antimuscarinic that has been used as the hydrochloride and sulfate salts in the relief of visceral spasms.

Preparations

Proprietary Preparations (details are given in Part 3)
Port.: Gastroidam.

Idursulfase *(BAN, USAN, rINN)*

Iduronate-2-sulfatase; Idursulfasa; Idursulfasum; Idusulfase. α-L-Iduronate sulfate sulfatase.

Идурсульфаз

CAS — 50936-59-9.

ATC — A16AB09.

ATC Vet — QA16AB09.

Profile

Idursulfase is recombinant human iduronate-2-sulfatase used as enzyme replacement therapy in the treatment of mucopolysaccharidosis II (Hunter syndrome), a lysosomal storage disorder that results in the accumulation of glycosaminoglycans in cells with consequent progressive damage. Idursulfase is given by intravenous infusion in a dose of 500 micrograms/kg once a week. Infusion reactions are common and treatment with antihistamines with or without corticosteroids, or a reduction in infusion rate may be necessary. Stopping the infusion should be considered in severe reactions. Anaphylactoid reactions have been reported, in some cases up to 24 hours after the infusion.

Idursulfase should be diluted in 100 mL of sodium chloride 0.9% and infused over 1 to 3 hours. The initial infusion rate should be 8 mL/hour for the first 15 minutes, which may then be increased by 8 mL/hour every 15 minutes if well tolerated, up to a maximum rate of 100 mL/hour. If the infusion rate is decreased because of infusion reactions, the infusion time should not exceed 8 hours because of lack of preservative in the product.

Preparations

Proprietary Preparations (details are given in Part 3)
Cz.: Elaprase; ***Port.:*** Elaprase; ***UK:*** Elaprase; ***USA:*** Elaprase.

Indigo Carmine

Blue X; Ceruleinum; CI Food Blue 1; Colour Index No. 73015; Disodium Indigotin-5,5′-disulphonate; E132; FD & C Blue No. 2; Indicarminum; Indigo Karmin; Indigotina; Indigotindisulfonate Sodium; Indigotine; Indygokarmin; Sodium Indigotindisulphonate. Disodium 3,3′-dioxo-2,2′-bi-indolinylidene-5,5′-disulphonate.

$C_{16}H_8N_2Na_2O_8S_2$ = 466.4.

CAS — 483-20-5 (indigotin-5,5′-disulphonic acid); 860-22-0 (indigo carmine).

ATC — V04CH02.

ATC Vet — QV04CH02.

NOTE. The name Cerulein has been applied to Ceruletide (p.2279).

Pharmacopoeias. In *It.*, *Jpn*, and *US*.
USP 31 (Indigotindisulfonate Sodium). A dusky, purplish-blue powder, or blue granules having a coppery lustre. Soluble 1 in 100 of water; slightly soluble in alcohol; practically insoluble in most other organic solvents. Its solutions have a blue or bluish-purple colour. Store in airtight containers at a temperature of 25°, excursions permitted between 15° and 30°. Protect from light.

Adverse Effects and Precautions

Indigo carmine may cause nausea, vomiting, hypertension, and bradycardia, and occasionally, hypersensitivity reactions such as skin rash, pruritus, and bronchoconstriction. Skin discoloration may occur after large parenteral doses.

Hypersensitivity. Cardiac arrest after a dose of indigo carmine 80 mg intravenously resulted in the deaths of 2 elderly patients.[1] Both had a history of asthmatic bronchitis. A life-threatening anaphylactoid reaction associated with indigo carmine use has also been reported, although the authors commented that such events are rare.[2]

1. Voiry AM, *et al*. Deux accidents mortels lors d'une injection peropératoire de carmin d'indigo. *Ann Med Nancy* 1976; **15:** 413–19.
2. Gousse AE, *et al*. Life-threatening anaphylactoid reaction associated with indigo carmine intravenous injection. *Urology* 2000; **56:** 508.

Uses and Administration

On intravenous injection indigo carmine is rapidly excreted, principally by the kidneys. It has been used in a test of renal function, but has largely been replaced by agents that give more precise results. It is used as a marker dye, particularly in urological procedures, when it is given in a usual dose of 40 mg, preferably by intravenous injection but sometimes intramuscularly. It has also been used as a marker dye in amniocentesis.

Indigo carmine has been used as a blue dye in medicinal preparations but it is relatively unstable. It has also been investigated as a dye-spray in the detection of colorectal adenomas. It is used as a food colour.

Preparations

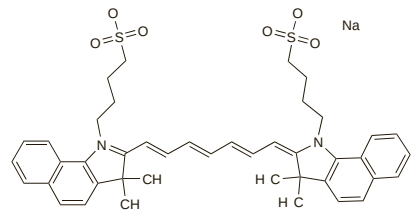
USP 31: Indigotindisulfonate Sodium Injection.

Indocyanine Green

Verde de indocianina. Sodium 2-{7-[1,1-dimethyl-3-(4-sulphobutyl)benz[e]indolin-2-ylidene]hepta-1,3,5-trienyl}-1,1-dimethyl-1*H*-benz[e]indolio-3-(butyl-4-sulphonate).

$C_{43}H_{47}N_2NaO_6S_2$ = 775.0.

CAS — 3599-32-4.



Pharmacopoeias. In *Chin.* and *US*.
USP 31 (Indocyanine Green). An olive-brown, dark green, blue-green, dark blue, or black powder. Is odourless or has a slight odour. It contains not more than 5.0% of sodium iodide, calculated on the dried basis. Soluble in water and in methyl alcohol; practically insoluble in most other organic solvents. Its solutions are deep emerald-green in colour. pH of a 0.5% solution in water is about 6. Its aqueous solutions are stable for about 8 hours. Store at a temperature of 25°, excursions permitted between 15° and 30°.

Adverse Effects and Precautions

Indocyanine green is reported to be well tolerated. Anaphylaxis and urticaria have been reported. Solutions contain a small amount of sodium iodide and should be used with caution in pa-