Cellaburate *(rINN)*

Celaburát; Celaburato; Celiuliozės acetatas-butiratas; Cellaburatum; Cellulosaacetatbutyrat; Cellulose Acetate Butanoate; Cellulose Acetate Butyrate; Cellulose, acétate butyrate de; Cellulosi acetas butyras; Cellulóz-acetát-butirát; Selluloosa-asetaattibutyraatti.

Целлабурат

CAS — 9004-36-8.

NOTE. Cabufocon A and Cabufocon B are both USAN for cellulose acetate butyrate.

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

Ph. Eur. 6.2 (Cellulose Acetate Butyrate). A partly or completely *O*-acetylated and *O*-butyrated cellulose containing not less than 2.0% and not more than 30.0% of acetyl groups and not less than 16.0% and not more than 53.0% of butyryl groups, calculated with reference to the dried substance. A white, yellowish-white, or greyish-white, slightly hygroscopic, powder or granules. Practically insoluble in water and in alcohol; soluble in acetone, in formic acid, and in a mixture of equal volumes of methyl alcohol and dichloromethane. Store in airtight containers.

Profile

Cellaburate is a pharmaceutical excipient used in drug delivery systems. It has also been used in hydrophobic contact lens materials.

Cellobiose

Glucobiosa. 4-*O*-β-D-Glucopyranosyl-D-glucose.

$C_{12}H_{22}O_{11}$ = 342.3.

CAS — 528-50-7.

Profile

Cellobiose is an indigestible disaccharide that has been used to assess intestinal permeability. It has been used as an alternative to lactulose in the differential sugar absorption test (p.1739).

Cellulase *(USAN)*

Celulasa.

CAS — 9012-54-8.

Profile

Cellulase is a concentrate of cellulose-splitting (cellulolytic) enzymes derived from *Aspergillus niger* or other sources. It is used in food processing and has been given orally with other digestive enzymes for its supposed benefit in minor digestive disorders such as dyspepsia and flatulence. Hemicellulase has been given for similar purposes.

Preparations

Proprietary Preparations (details are given in Part 3)
Fr.: Pancrelase; ***Rus.:*** Festal (Фестал).

Multi-ingredient: ***Arg.:*** Arnol; Biletan Enzimatico; Biluen Enzimatico; Dom-Polienzim; Gastridin-E; Gastron Fuerte†; Pakinase; Pankreon Total; Polienzim; ***Austria:*** Arca-Enzym; Ora-Gallin; ***Belg.:*** Digestomen; ***Braz.:*** Dasc; Digecap-Zimatico; Digeplus; Essen; Sintozima; ***Canad.:*** Digesta; ***Chile:*** Onoton†; ***Hong Kong:*** Topase†; ***India:*** Dipep; Farizym; Ipental†; Panolase†; ***Indon.:*** Cotazym Forte; ***Ital.:*** Digestopan†; Essen Enzimatico†; ***Mex.:*** Dixiflen; Espaven Enzimatico; Ochozim; Onoton; ***Philipp.:*** Spasmo-Canulase; ***Port.:*** Colerin-F; Espasmo Canulase; Fermetone Composto; ***Rus.:*** Ipental (Ипентал); ***S.Afr.:*** Spasmo-Canulase; ***Spain:*** Paidozim; ***Switz.:*** Spasmo-Canulase; Zymoplex†; ***Thai.:*** Sanzyme-5†; ***Turk.:*** Flaton; ***USA:*** Enzyme; ***Venez.:*** Stamyl.

Centaury

Centáurea menor; Centaurée, petite; Centaurii herba; Centaurii Minoris Herba; Ezerjófű; Petite Centaurée; Rohtorantasappi; Širdažolių žolė; Tausendgüldenkraut; Tusengyllenört; Zeměžlučová nať; Ziele centurii.

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

Ph. Eur. 6.2 (Centaury). The whole or fragmented dried flowering aerial parts of *Centaurium erythraea*. It has a bitter taste. Protect from light.

Profile

Centaury is used as a bitter, including for appetite loss and dyspepsia.

Hepatotoxicity. A report[1] of hepatotoxicity possibly associated with the use of *Copaltra*, a herbal preparation marketed as an adjunct in the treatment of diabetes mellitus and containing centaury and *Coutarea latiflora* (copalchi) (Rubiaceae). A further 5 cases had been reported to the French pharmacovigilance network.

1. Wurtz A-S, *et al*. Possible hepatotoxicity from Copaltra, an herbal medicine. *Ann Pharmacother* 2002; **36:** 941–2.

Preparations

Proprietary Preparations (details are given in Part 3)
Cz.: Nat Zemezluce†.

Multi-ingredient: ***Austria:*** China-Eisenwein; Eryval; Magentee St Severin; Mariazeller; ***Braz.:*** Camomila; ***Cz.:*** Naturland Grosser Swedenbitter†; Stomaran; ***Fr.:*** Diacure; Tisane Hepatique de Hoerdt; ***Ger.:*** Amara-Tropfen; Canephron; Leber-Galle-Tropfen 83†; Montana N; Stullmaton†; ***Ital.:*** Assenzio (Specie Composta)†; Centaurea (Specie Composta)†; Genziana (Specie Composta)†; ***Rus.:*** Canephron N (Канефрон Н); Herbion Drops for the Stomach (Гербион Желудочные Капли); Original Grosser Bittner Balsam (Оригинальный Большой Бальзам Биттнера); ***S.Afr.:*** Amara; Clairo; ***Spain:*** Natusor Hepavesical†; Odisor†; ***Switz.:*** Gastrosan; Phytomed Gastro†; Tisane pour l'estomac.

Cereus

Cactus; Night-blooming Cereus.

Profile

Cereus, the flowers and stems of night-blooming cereus (*Selenicereus grandiflorus*; *Cactus grandiflorus*) (Cactaceae), is thought to have cardiac stimulant actions and has been used in various cardiovascular disorders. It has also been used as an anthelmintic and in the treatment of rheumatism.

Homoeopathy. Cereus has been used in homoeopathic medicines under the following names: Cactus; Selenicereus grandiflorus; Cactus grandiflorus.

Preparations

Proprietary Preparations (details are given in Part 3)
Multi-ingredient: ***Ger.:*** Cardibisana†; Oxacant N†; Oxacant-forte N†; Oxacant-Khella N†.

Ceruletide *(BAN, USAN, rINN)*

Caerulein; Cerulein; Ceruletid; Ceruletida; Cérulétide; Ceruletidum; FI-6934; 883-S; Seruletidi.

Церулетид

$C_{58}H_{73}N_{13}O_{21}S_2$ = 1352.4.

CAS — 17650-98-5 (ceruletide); 71247-25-1 (ceruletide diethylamine).

ATC — V04CC04.

ATC Vet — QV04CC04.

NOTE. The name Ceruleinum has been applied to Indigo Carmine (p.2324).

Description. Ceruletide is a decapeptide amide originally isolated from the skin of the Australian frog, *Hyla caerulea*, and other amphibians. Ceruletide may exist as a salt with 1 to 3 moles of diethylamine (ceruletide diethylamine).

Adverse Effects

Ceruletide stimulates gallbladder contraction and gastrointestinal muscle and may give rise to abdominal discomfort. Hypotensive reactions may also occur.

Uses and Administration

Ceruletide is structurally related to pancreozymin (p.2361) and has similar actions. When given parenterally it stimulates gallbladder contraction and relaxes the sphincter of Oddi; it also causes an increase in the secretion of pancreatic enzymes and stimulates intestinal muscle.

As ceruletide diethylamine it is used as an aid to diagnostic radiology and in the management of paralytic ileus. It is also used in tests of pancreatic exocrine function, sometimes with secretin (p.2384); these studies generally require duodenal intubation of the patient and examination of duodenal aspirate and are rarely performed.

For most radiographic procedures of the biliary and digestive tracts ceruletide diethylamine is given by intramuscular injection in a dose equivalent to 300 nanograms/kg of ceruletide. Doses equivalent to 1 to 2 nanograms/kg per minute are given by intravenous infusion in pancreatic function tests and in the treatment of paralytic ileus.

Preparations

Proprietary Preparations (details are given in Part 3)
Ger.: Takus.

Cevimeline Hydrochloride *(USAN, rINNM)*

AF-102; AF-102B; Céviméline, Chlorhydrate de; Cevimelini Hydrochloridum; FKS-508; Hidrocloruro de cevimelina; SND-5008; SNI-2011; SNK-508. (±)-*cis*-2-Methylspiro[1,3-oxathiolane-5,3′-quinuclidine] hydrochloride hemihydrate.

Цевимелина Гидрохлорид

$C_{10}H_{17}NOS,HCl,½H_2O$ = 244.8.

CAS — 107233-08-9 (cevimeline); 153504-70-2 (cevimeline hydrochloride).

Adverse Effects, Treatment, and Precautions

As for Neostigmine, p.631.

Sweating is a common problem with cevimeline; patients who sweat excessively should be advised to drink extra fluids to avoid dehydration. The manufacturer recommends that cevimeline should not be given when miosis is undesirable such as in patients with acute iritis or angle-closure glaucoma. Blurred vision may affect the performance of skilled tasks. In addition cevimeline should be given with care to those with renal calculi or with biliary-tract disorders. It should also be used with caution in patients deficient in the cytochrome P450 isoenzyme CYP2D6 who may be at a higher risk of adverse effects.

Interactions

As for Neostigmine, p.632.

Drugs which inhibit cytochrome P450 isoenzymes CYP2D6, CYP3A3, or CYP3A4 inhibit the metabolism of cevimeline.

Pharmacokinetics

After oral doses cevimeline is absorbed from the gastrointestinal tract; peak concentrations are reached in 1.5 to 2 hours. The rate and extent of absorption are decreased when given with food. Cevimeline is less than 20% bound to plasma proteins. It is metabolised in the liver by cytochrome P450 isoenzymes CYP2D6, CYP3A3, and CYP3A4. Cevimeline is primarily excreted in the urine, mainly as metabolites; about 0.5% of a dose is excreted in the faeces.

Uses and Administration

Cevimeline is a selective muscarinic M_1 agonist used to improve the symptoms of dry mouth (see p.2140) in patients with Sjögren's syndrome. It is given as the hydrochloride by mouth in doses of 30 mg 3 times daily.

Dementia. Muscarinic M_1 agonists such as cevimeline have proved unsuccessful in relieving the symptoms of Alzheimer's disease (see p.362).

Preparations

Proprietary Preparations (details are given in Part 3)
USA: Evoxac.

Chamomile

Camomille romaine, fleur de (chamomile flower, Roman); Chamomillae romanae flos (chamomile flower, Roman); Heřmánkový květ (matricaria flower); Kamillavirágzat (matricaria flower); Kamomillankukka (matricaria flower); Kamomillankukka, roomalainen (chamomile flower, Roman); Kamomillblomma (matricaria flower); Kamomillblomma, romersk (chamomile flower, Roman); Koszyczek rumianku (matricaria flower); Květ heřmánku římského (chamomile flower, Roman); Manzanilla; Matricaire, fleur de (matricaria flower); Matricariae flos (matricaria flower); Ramunėlių žiedai (matricaria flower); Rómaikamillavirág (chamomile flower, Roman); Tauriųjų didramunių žiedai (chamomile flower, Roman).

Description. The name Chamomile is used for the dried flowerheads from 2 species of *Compositae* having similar medicinal properties:

- Chamomile from *Anthemis nobilis* (*Chamaemelum nobile*) is known as Chamomile Flowers, Chamomillae Romanae Flos, Manzanilla Romana, or Roman Chamomile Flower.
- Chamomile from *Matricaria recutita* (*Chamomilla recutita*) is known as Camomile Allemande, Camomilla, Chamomilla, Chamomillae Anthodium, Flos Chamomillae, Flos Chamomillae Vulgaris, German Chamomile, Hungarian Chamomile, Kamillenblüten, Manzanilla Ordinaria, Matricaria Flower, or Matricariae Flos

Pharmacopoeias. *Eur.* (see p.vii) includes chamomile from *Anthemis nobilis* and *Matricaria recutita*. *US* includes chamomile from *Matricaria recutita*.

Eur. also includes Matricaria Oil.

Ph. Eur. 6.2 (Chamomile Flower, Roman; Chamomile Flowers BP 2008). The dried flowerheads obtained from the cultivated double variety of *Anthemis nobilis* (*Chamaemelum nobile*), containing not less than 0.7% v/w of essential oil, calculated with reference to the dried drug. It has a strong characteristic odour. Protect from light.

Ph. Eur. 6.2 (Matricaria Flower; Matricariae Flos; Matricaria Flowers BP 2008). The dried flowerheads obtained from *Matricaria recutita* (*Chamomilla recutita*), containing not less than 0.4% v/w of blue essential oil and 0.25% of apigenin-7-glucoside, calculated with reference to the dried drug. Protect from light.

Ph. Eur. 6.2 (Matricaria Oil; Matricariae Aetheroleum). The blue essential oil obtained by steam distillation from the fresh or dried flower-heads or flowering tops of *Matricaria recutita* (*Chamomilla recutita*). There are 2 types of matricaria oil which are characterised as rich in bisabolol oxides, or rich in levomenol. Store in a well-filled, airtight container at a temperature not exceeding 25°. Protect from light.

USP 31 (Chamomile). The dried flowerheads of *Matricaria recutita* (*Matricaria chamomilla*, *Matricaria chamomilla* var. *courrantiana*, *Chamomilla recutita*) (Asteraceae alt. Compositae). It contains not less than 0.4% of blue volatile oil, not less than 0.3% of apigenin-7-glucoside, and not less than 0.15% of bisabolane derivatives, calculated as levomenol. Protect from light.

Profile

Chamomile has been applied externally as a poultice in the early stages of inflammation, and preparations containing chamomile or extracts of chamomile (including the oil or a constituent, chamazulene), have been used for skin disorders, including the prevention and treatment of cracked nipples and nappy rash. Chamomile German oil and Chamomile Roman oil are used in aromatherapy. 'Chamomile tea' is a domestic remedy for indigestion and has also been reported to have hypnotic properties.

There have been reports of contact sensitivity and anaphylaxis.

Homoeopathy. Chamomile has been used in homoeopathic medicines under the following names: Chamomilla; Cham.

◊ Reviews.

1. Berry M. The chamomiles. *Pharm J* 1995; **254:** 191–3.

Hypersensitivity. References.

1. Van Ketel WG. Allergy to Matricaria chamomilla. *Contact Dermatitis* 1987; **16:** 50–1.
2. McGeorge BC, Steele MC. Allergic contact dermatitis of the nipple from Roman chamomile ointment. *Contact Dermatitis* 1991; **24:** 139–40.
3. Rodriguez-Serna M, *et al.* Allergic and systemic contact dermatitis from Matricaria chamomilla tea. *Contact Dermatitis* 1998; **39:** 192–3.
4. Jensen-Jarolim E, *et al.* Fatal outcome of anaphylaxis to camomile-containing enema during labor: a case study. *J Allergy Clin Immunol* 1998; **102:** 1041–2.
5. Giordano-Labadie F, *et al.* Allergic contact dermatitis from camomile used in phytotherapy. *Contact Dermatitis* 2000; **42:** 247.
6. Foti C, *et al.* Contact urticaria from Matricaria chamomilla. *Contact Dermatitis* 2000; **42:** 360–1.
7. de la Torre Morín F, *et al.* Clinical cross-reactivity between Artemisia vulgaris and Matricaria chamomilla (chamomile). *J Investig Allergol Clin Immunol* 2001; **11:** 118–22.
8. Paulsen E, *et al.* Cosmetics and herbal remedies with Compositae plant extracts — are they tolerated by Compositae-allergic patients? *Contact Dermatitis* 2008; **58:** 15–23.

Preparations

Ph. Eur.: Matricaria Liquid Extract.

Proprietary Preparations (details are given in Part 3)
Austria: Kamillosan; ***Belg.:*** Babygencal; Kamillosan; ***Braz.:*** Ad-Muc; Kamillosan; ***Chile:*** Kamillosan†; ***Cz.:*** APS Balneum†; Hermankovy; Kamillosan; Rumancek Pravy†; ***Fr.:*** Cefamig; ***Ger.:*** Azulon; Chamo S†; Eukamillat†; Galenat Kamill N†; Kamillan supra; Kamille N†; Kamille†; Kamillen-Bad N Ritsert; Kamillen†; Kamillenbad Intradermi; Kamillencreme N†; Kamillenextract†; Kamillin; Kamilloderm†; Kamillopur; Kamillosan; Markalakt†; Matmille; PC 30 N; Soledum med†; ***Hong Kong:*** Camoderm; ***India:*** Kamillosan; ***Indon.:*** Kamillosan; ***Irl.:*** Kamillosan; ***Ital.:*** Ceru Spray; Milla; ***Mex.:*** Balsamo Nordin; Kamillosan; ***NZ:*** Kamillosan†; ***Pol.:*** Azulan; Azuseptol; ***Port.:*** Kamilosan; ***Rus.:*** Romasulan (Ромазулан); ***S.Afr.:*** Ashton & Parsons Infants Powders; ***Singapore:*** Camoderm†; ***Switz.:*** Kamillen-Bad†; Kamillex; Kamillin Medipharm; Kamillofluid; Kamillosan; ***UK:*** Ashton & Parsons Infants Powders; Kamillosan; ***Venez.:*** Kamillen.

Multi-ingredient: numerous preparations are listed in Part 3.

Chaparral

Profile

Chaparral is derived from the creosote bush, *Larrea tridentata* (Zygophyllaceae). It has been included in various herbal preparations but such use has been associated with severe hepatotoxicity. Recommendations that products containing chaparral should not be consumed have been made in several countries.

Masoprocol (p.742) is an antineoplastic isolated from the creosote bush.

Hepatotoxicity. References.

1. Gordon DW, *et al.* Chaparral ingestion: the broadening spectrum of liver injury caused by herbal medications. *JAMA* 1995; **273:** 489–90.
2. Batchelor WB, *et al.* Chaparral-induced hepatic injury. *Am J Gastroenterol* 1995; **90:** 831–3.
3. Sheikh NM, *et al.* Chaparral-associated hepatotoxicity. *Arch Intern Med* 1997; **157:** 913–19.
4. Kauma H, *et al.* Toxic acute hepatitis and hepatic fibrosis after consumption of chaparral tablets. *Scand J Gastroenterol* 2004; **39:** 1168–71.

Preparations

Proprietary Preparations (details are given in Part 3)
Multi-ingredient: ***Austral.:*** Proyeast†.

Chenodeoxycholic Acid *(BAN, rINN)*

Acide chénodésoxycholique; Ácido quenodeoxicólico; Acidum chenodeoxycholicum; CDCA; Chenic Acid; Chenodeoksicholio rūgštis; Chenodiol *(USAN)*; Kenodeoksikolik Asit; Kenodeoksikoolihappo; Kenodeoxicholsyra; Kenodezoxikólsav; Kyselina chenodeoxycholová. 3α,7α-Dihydroxy-5β-cholan-24-oic acid.

Хенодезоксиколевая Кислота

$C_{24}H_{40}O_4$ = 392.6.
CAS — 474-25-9.
ATC — A05AA01.
ATC Vet — QA05AA01.

Pharmacopoeias. In *Eur.* (see p.vii) and *Jpn.*
Ph. Eur. 6.2 (Chenodeoxycholic Acid). A white or almost white powder. Very slightly soluble in water; freely soluble in alcohol; soluble in acetone; slightly soluble in dichloromethane.

Adverse Effects and Precautions

As for Ursodeoxycholic Acid, p.2408. Diarrhoea may occur more frequently than with ursodeoxycholic acid. A transient rise in liver-function test values and hypercholesterolaemia (low-density lipoprotein) have been reported with chenodeoxycholic acid.

Chenodeoxycholic acid is embryotoxic in some *animals*.

Interactions

As for Ursodeoxycholic Acid, p.2408.

Pharmacokinetics

Chenodeoxycholic acid is absorbed from the gastrointestinal tract and undergoes first-pass metabolism and enterohepatic recycling. It is partly conjugated in the liver before being excreted into the bile and, under the influence of intestinal bacteria, the free and conjugated forms undergo 7α-dehydroxylation to lithocholic acid. Some lithocholic acid is excreted directly in the faeces and the rest absorbed, mainly to be conjugated and sulfated by the liver before excretion in the faeces. Chenodeoxycholic acid also undergoes epimerisation to ursodeoxycholic acid.

◊ References.

1. Crosignani A, *et al.* Clinical pharmacokinetics of therapeutic bile acids. *Clin Pharmacokinet* 1996; **30:** 333–58.

Uses and Administration

Chenodeoxycholic acid is a naturally occurring bile acid (p.2266). When given orally it reduces hepatic synthesis of cholesterol and provides additional bile salts to the pool available for solubilisation of cholesterol and lipids. It has been used for the dissolution of cholesterol-rich gallstones (p.2409) in patients with a functioning gallbladder, in usual doses of about 15 mg/kg daily. The daily dose may be divided unequally and the larger dose given before bedtime to counteract the increase in biliary cholesterol concentrations seen overnight. Treatment may need to be given for up to 2 years, depending on the size of the stone. It should be continued for about 3 months after radiological disappearance of the stones. Chenodeoxycholic acid is also used in reduced doses with ursodeoxycholic acid.

Chenodeoxycholic acid has been used as a dietary supplement in neonates and children with inborn errors of bile acid synthesis: it has been used in the treatment of cerebrotendinous xanthomatosis; with cholesterol in the Smith-Lemli-Opitz syndrome; and with cholic acid for bile acid synthesis defects.

Preparations

Proprietary Preparations (details are given in Part 3)

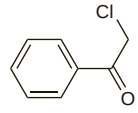
Austria: Chenofalk†; ***Belg.:*** Chenofalk†; ***Ger.:*** Chenofalk; ***Hong Kong:*** Chenofalk†; ***Hung.:*** Chenofalk†; ***Indon.:*** Chenofalk; ***Israel:*** Chenofalk; Soluston†; ***Mex.:*** Chenofalk†; Sulobil; ***Neth.:*** Chenofalk; ***Port.:*** Chebil†; Xeby†; ***Spain:*** Quenobilan; Quenocol†; ***Turk.:*** Chenofalk.

Multi-ingredient: ***Austria:*** Lithofalk†; ***Ger.:*** Lithofalk; Urso Mix†; ***Gr.:*** Lithiofalk†; ***Ital.:*** Bilenor.

Chloroacetophenone

ω-Chloroacetophenone; 1-Chloroacetophenone; Cloroacetofenona; CN; CN Gas; Phenacyl Chloride. 2-Chloroacetophenone.

C_8H_7ClO = 154.6.
CAS — 532-27-4.



NOTE. The name mace is applied to solutions of chloroacetophenone.

Profile

Chloroacetophenone is a lachrymatory which is irritant to the skin and eyes. It has been used in a riot-control gas; it is described as a tear gas.

◊ References.

1. Hu H, *et al.* Tear gas—harassing agent or toxic chemical weapon? *JAMA* 1989; **262:** 660–3.
2. Treudler R, *et al.* Occupational contact dermatitis due to 2-chloracetophenone tear gas. *Br J Dermatol* 1999; **140:** 531–4.
3. Blain PG. Tear gases and irritant incapacitants. 1-chloroacetophenone, 2-chlorobenzylidene malononitrile and dibenz[b,f]-1,4-oxazepine. *Toxicol Rev* 2003; **22:** 103–10.

Chloroplatinic Acid

Cloroplatínico, ácido; Kloroplatinasyra; Kwas chloroplatynowy. Hexachloroplatinic acid hexahydrate.

$H_2PtCl_6,6H_2O$ = 517.9.
CAS — 16941-12-1 (anhydrous chloroplatinic acid); 18497-13-7 (chloroplatinic acid hexahydrate).

Profile

Aqueous solutions of platinic chloride ($PtCl_4$ = 336.9) are used in corneal tattooing solutions.

Chondroitin Sulfate Sodium

Chondroitin 4-Sulfate (chondroitin sulfate A); Chondroitin Sulphate Sodium; Chondroïtine, sulfate sodique de; Chondroitini natrii sulfas; Chondroitin-sulfát sodná sůl; Chondroityny sodu siarczan; CSA (chondroitin sulfate A); Sodium Chondroitin Sulfate; Sodyum Kondroitin Sülfat.

$(C_{14}H_{19}NO_{14}SNa_2)_n$.
CAS — 9007-28-7 (chondroitin sulfate); 9082-07-9 (chondroitin sulfate sodium); 24967-93-9 (chondroitin sulfate A); 39455-18-0 (chondroitin sulfate A sodium); 25322-46-7 (chondroitin sulfate C); 12678-07-8 (chondroitin sulfate C sodium).
ATC — M01AX25.
ATC Vet — QM01AX25.

Pharmacopoeias. In *Eur.* (see p.vii) and *US*.
Ph. Eur. 6.2 (Chondroitin Sulphate Sodium). A natural copolymer based mainly on the two disaccharides obtained from cartilage of both terrestrial and marine origins. Depending on the animal species of origin, it shows different proportions of 4-sulfate and 6-sulfate groups. A white or almost white, hygroscopic powder. Freely soluble in water; practically insoluble in alcohol and in acetone. A 5% solution in water has a pH of 5.5 to 7.5. Store in airtight containers. Protect from light.
USP 31 (Chondroitin Sulfate Sodium). The sodium salt of the sulfated linear glycosaminoglycan obtained from bovine, porcine, or avian cartilages of healthy and domestic animals used for food by humans. It consists mostly of the sodium salt of the sulfate ester of *N*-acetylchondrosamine (2-acetamido-2-deoxy-β-D-galactopyranose) and D-glucuronic acid copolymer. These hexoses are alternately linked β-1,4 and β-1,3 in the polymer. Chondrosamine moieties in the prevalent glycosaminoglycan are monosulfated primarily on position 4 and less so on position 6. Chondroitin sulfate sodium is extremely hygroscopic once dried. Store in airtight containers.

Profile

Chondroitin sulfate is an acid mucopolysaccharide that is a constituent of most cartilaginous tissues. It is used as the sodium salt, chondroitin sodium sulfate. It is given orally in reactive arthritides (see under Spondyloarthropathies, p.13), such as gonococcal arthritis, and is sometimes given with glucosamine (p.2313) for its supposed chondroprotective action in bone, joint, and connective tissue disorders. It is also used for its visco-elastic properties as an adjunct to ocular surgical procedures, including cataract extraction and intra-ocular lens implantation, and has been used for the relief of dry eye. A medium containing chondroitin sulfate A has been used to preserve corneas for transplantation. Chondroitin sulfate sodium has also been used as a means of replacing the glycosaminoglycan layer in the bladder in the treatment of interstitial cystitis (p.2179). Chondroitin sulfate A and C are components of the heparinoid danaparoid (p.1255).

Osteoarthritis. For references to the use of chondroitin in the treatment of osteoarthritis, including doubts about its value, see under Glucosamine, p.2313.

Preparations

USP 31: Chondroitin Sulfate Sodium Tablets; Glucosamine and Chondroitin Sulfate Sodium Tablets; Glucosamine, Chondroitin Sulfate Sodium, and Methylsulfonylmethane Tablets.

Proprietary Preparations (details are given in Part 3)
Arg.: Bioflogil; Condroitina†; Condrosulf†; Dunason; Liquiprin; Lubrictin; Norfisar†; Prof; Structum; ***Austria:*** Condrosulf; ***Belg.:*** Lacrypos; ***Braz.:*** Dunason; ***Canad.:*** Uracyst; ***Chile:*** Condro Sorb†; Condrosulf; ***Cz.:*** Condral; Condrosulf; ***Fr.:*** Chondrosulf; Lacrypos; Structum; ***Ger.:*** Uropol-S; ***Hung.:*** Condrosulf; ***Indon.:*** Viostin S; ***Malaysia:*** Chondril; ***Mex.:*** Condrosulf; Dunason; Maxus; Structum; ***Pol.:*** Condral; Recalcin; ***Port.:*** Condrosulf; Ossin; ***Rus.:*** Chondroitine-Akos (Хондроитин-Акос); Chondrolon (Хондролон)†; Structum (Структум); ***Spain:*** Condro San; Condrodin†; Condrosulf; ***Switz.:*** Condrosulf; Structum.

Multi-ingredient: ***Arg.:*** Artrilase Complex; Artrocaptin; Asotrex; Baliartrin Duo; Cartiflex Forte; Ecosamina; Etinox; Finartrit; Findol Plus; Gluco Arrumalon Duo; Glucotrin VL; Lacrimax; Maxus; Mecanyl Duo; Optilac; Sigmaflex; Vartalon Duo; Viscoat; ***Austral.:*** Duovisc; GenFlex 3; GenFlex Plus; Viscoat; ***Braz.:*** Artrolive; Condroflex; ***Canad.:*** Uracyst Test Kit; ***Chile:*** Artridol Duo; Condrosamina†; Dinaflex Duo; Euroflex; Flexure; Hiperflex; Osteo Bi-Flex; ***Fr.:*** Viscoat; ***Ger.:*** Duovisc; Integra†; Viscoat; ***Hong Kong:*** Arthritil Plus; Duovisc†; Viscoat†; ***Hung.:*** Viscoat†; ***India:*** Cosantin†; Kondro; Osteocip; Osteoflex; ***Indon.:*** Aptivium Optimum Joint Formula; Artriox; Artritin; Bonic; Cartin Plus; Chondro-PA; Fitbon Plus; Flexor; Fripos; Joint Care; Jointfit; Maxitrin; Naturica Artro; Naturica Artro Plus; OA; OA Forte; OA Plus; Osamin; Oste; Ostela; Osteoflam; Osteokom; Osteokom Forte; Osteonic; Osteor; Osteor Plus; Osteor-C; Osvion Plus; Rheumatin; Rheumatin Forte; Triflexor; Triostee; Viopor; Viopor-M; Viostin Com; Viostin Com DS; Vosteon; ***Ital.:*** Cartago; Fitogenase; Joint Support; Reumilase SD; Viscoat; ***Malaysia:*** Duovisc; Viscoat; ***Mex.:*** Actiman; Artiflex; Vartalon Compositum; ***NZ:*** Viscoat; ***Philipp.:*** Flexxbon; Viscoat; ***Rus.:*** Artra (Артра); Chondroitine-Akos (Хондроитин-Акос); Chondroxide (Хондроксид); Theraflex (Терафлекс); ***S.Afr.:*** Duovisc; Viscoat; ***Singapore:*** Artril C; Duovisc; Flexeze†; Glutilage Plus; Seven Seas JointCare; Viscoat; ***Thai.:*** Duovisc; Viscoat; ***Turk.:*** Duovisc; Viscoat; ***UK:*** Flexeze; GlucOsamax; Joint Action; Jointace; ***USA:*** DisCoVisc; Viscoat; ***Venez.:*** Artrosamin; Viscoat†.

Chrome Alum

Chromium Potassium Sulfate; Chromium Potassium Sulphate; Cromo, alumbre de.

$KCr(SO_4)_2,12H_2O$ = 499.4.
CAS — 10141-00-1 (anhydrous chrome alum); 7788-99-0 (chromium potassium sulfate dodecahydrate).