Profile
Lutein is a naturally occurring carotenoid that has been investigated for its supposed role in a number of conditions including age-related macular degeneration (p.785), cataracts, cardiovascular disease, and cancer.

Lutein is also used as a colouring agent.

◊ References.

1. Mares-Perlman JA, *et al.* The body of evidence to support a protective role for lutein and zeaxanthin in delaying chronic disease: overview. *J Nutr* 2002; **132** (suppl): 518S–524S.
2. Granado F, *et al.* Nutritional and clinical relevance of lutein in human health. *Br J Nutr* 2003; **90:** 487–502.
3. Mozaffarieh M, *et al.* The role of the carotenoids, lutein and zeaxanthin, in protecting against age-related macular degeneration: a review based on controversial evidence. *Nutr J* 2003; **2:** 20.
4. Trumbo PR, Ellwood KC. Lutein and zeaxanthin intakes and risk of age-related macular degeneration and cataracts: an evaluation using the Food and Drug Administration's evidence-based review system for health claims. *Am J Clin Nutr* 2006; **84:** 971–4.
5. Cho E, *et al.* Prospective study of lutein/zeaxanthin intake and risk of age-related macular degeneration. *Am J Clin Nutr* 2008; **87:** 1837–43.

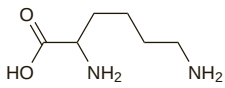
Preparations
Proprietary Preparations (details are given in Part 3)
Fr.: Lutebiol.

Multi-ingredient: ***Indon.:*** Eyevit; Lutevision; Lutevision Extra; Lutevit; Matovit Fifty; Nuvision; Oculex; Optha-LL; Optimax; Reticopen; Retivit; Vita-Vision; ***Israel:*** Opti-safe; Opti-safe AREDS; ***Mex.:*** Snelvit; ***Philipp.:*** Nutrotal.

Lysine *(USAN, rINN)*
K; Lisina; Lys; L-Lysine; Lysinum. L-2,6-Diaminohexanoic acid.

Лизин

$C_6H_{14}N_2O_2$ = 146.2.
CAS — 56-87-1.
ATC — B05XB03.
ATC Vet — QB05XB03.



Pharmacopoeias. In *Ger.* as the monohydrate.

Lysine Acetate *(rINNM)*
Acetato de lisina; Lizino acetatas; Lizyny octan; Lys Acetate; Lysiniasetaatti; Lysinacetat; Lysin-acetát; Lysine, acétate de; L-Lysine Monoacetate; Lysini acetas. L-2,6-Diaminohexanoic acid acetate.

Лизина Ацетат

$C_6H_{14}N_2O_2,C_2H_4O_2$ = 206.2.
CAS — 57282-49-2.

Pharmacopoeias. In *Chin.*, *Eur.* (see p.vii), and *US*.
Ph. Eur. 6.2 (Lysine Acetate). A white or almost white, crystalline powder or colourless crystals. It exhibits polymorphism. Freely soluble in water; very slightly soluble in alcohol. Protect from light.
USP 31 (Lysine Acetate). White, odourless crystals or crystalline powder. Freely soluble in water.

Lysine Hydrochloride *(USAN, rINNM)*
Hidrocloruro de lisina; Lizin-hidroklorid; Lizino hidrochloridas; Lys Hydrochloride; Lysiinihydrokloridi; Lysine, chlorhydrate de; L-Lysine Monohydrochloride; Lysin-hydrochlorid; Lysinhydroklorid; Lysini hydrochloridum. L-2,6-Diaminohexanoic acid hydrochloride.

Лизина Гидрохлорид

$C_6H_{14}N_2O_2$,HCl = 182.6.
CAS — 657-27-2.

Pharmacopoeias. In *Chin.*, *Eur.* (see p.vii), *Jpn*, and *US*.
Ph. Eur. 6.2 (Lysine Hydrochloride). A white or almost white, crystalline powder or colourless crystals. Freely soluble in water; slightly soluble in alcohol. Protect from light.
USP 31 (Lysine Hydrochloride). A white, odourless powder. Freely soluble in water.

Profile
Lysine is a basic amino acid that is an essential constituent of the diet. Lysine acetate and lysine hydrochloride are used as dietary supplements.

Lysinuric protein intolerance. For mention of the use of lysine to correct lysine deficiency in lysinuric protein intolerance, see Hyperammonaemia, under Citrulline, p.1935.

Preparations
USP 31: Lysine Hydrochloride Tablets.

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

Multi-ingredient: ***Arg.:*** Latlas; ***Austral.:*** Cold Sore Relief†; Vitaline†; ***Fr.:*** Curasten; Revitalose; ***Hong Kong:*** Digezym; ***India:*** Ferrochelate; Logical; Tonoferon; ***Indon.:*** Champs C with Lysine; ***Ital.:*** Biocarnil†; Calciofix; ***Mex.:*** Corpotasin CL; ***Singapore:*** Champs C with Lysine; ***Spain:*** Euzymina Lisina I; Euzymina Lisina II; Malandil; Pranzo; ***USA:*** Klorvess.

Magnesium Fluoride
Фторид Магния

MgF_2 = 62.30.
CAS — 7783-40-6.

Profile
Magnesium fluoride is used as a fluoride supplement (see Sodium Fluoride, p.1962) for the prevention of dental caries. Magnesium fluoride is also used as a source of magnesium.

Homoeopathy. Magnesium fluoride has been used in homoeopathic medicines under the following names: Magnesia Fluorata; Magnesium Fluoratum; Magnesia Fluoricum.

Preparations
Proprietary Preparations (details are given in Part 3)
Multi-ingredient: ***Spain:*** Magnesium Pyre; Magnogene.

Maize Oil
Aceite de maíz; Corn Oil; Huile de Maïs; Kukoricamagolaj; Kukuřičný olej; Kukurūzų aliejus; Maïs, huile de; Maissiöljy; Majsolja; Maydis oleum; Ol. Mayd.; Olej kukurydziany; Oleum Maydis.

Pharmacopoeias. In *Chin.*, *Eur* (see p.vii), and *Jpn*. Also in *USNF*.
Ph. Eur. 6.2 (Maize Oil, Refined; Maydis Oleum Raffinatum). The refined fatty oil obtained from the seeds of *Zea mays*. A clear, light yellow or yellow oil. Practically insoluble in water and in alcohol; miscible with dichloromethane and with petroleum spirit (b.p.: 40° to 60°). Store at a temperature not exceeding 25°. Protect from light.
USNF 26 (Corn Oil). The refined fixed oil obtained from the embryos of *Zea mays* (Gramineae). A clear, light yellow, oily liquid having a faint characteristic odour. Slightly soluble in alcohol; miscible with chloroform, with ether, with petroleum spirit, and with benzene. Store in airtight containers at a temperature not exceeding 40°. Protect from light.

Profile
Maize oil is a fixed oil with a high content of unsaturated acids, and has been used to replace saturated acids in the diets of patients with familial hypercholesterolaemia. It is also used as an oily vehicle in pharmaceutical formulations.

Preparations
Proprietary Preparations (details are given in Part 3)
Pol.: Gal-Vit†.

Multi-ingredient: ***Fr.:*** Preservation; ***USA:*** Lipomul.

Malt Extract
Extractum Bynes; Malta, extracto de.

Profile
Malt extract contains 50% or more of maltose, with dextrin, glucose, and small amounts of other carbohydrates, and protein. It is prepared from malted grain of barley (*Hordeum distichon*, *H. vulgare*) or a mixture of this with not more than 33% of malted grain of wheat (*Triticum aestivum* or *T. turgidum*).

Malt extract has nutritive properties. It is chiefly used as a vehicle in preparations containing cod-liver oil (p.1935) and halibut-liver oil (p.1948). It is a useful flavouring agent for masking bitter tastes.

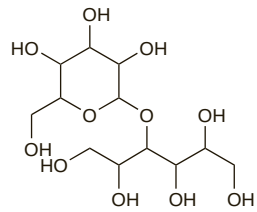
A product known as malt soup extract, obtained from barley grains, and containing 73% maltose with 12% other polymeric carbohydrates as well as small amounts of proteins, electrolytes, and vitamins, is sometimes used as a laxative.

Preparations
Proprietary Preparations (details are given in Part 3)
Chile: Maltin; ***USA:*** Maltsupex.

Multi-ingredient: ***Fr.:*** Galactogil; ***S.Afr.:*** Cough Elixir.

Maltitol *(BAN)*
E965; Hydrogenated Maltose; D-Maltitol; Maltitoli; Maltitolis; Maltitolum. α-D-Glucopyranosyl-1,4-D-glucitol.

$C_{12}H_{24}O_{11}$ = 344.3.
CAS — 585-88-6.



Pharmacopoeias. In *Eur.* (see p.vii). Also in *USNF*.
Ph. Eur. 6.2 (Maltitol). A white or almost white, crystalline powder. Very soluble in water; practically insoluble in dehydrated alcohol.
USNF 26 (Maltitol). A white, crystalline powder. Very soluble in water; practically insoluble in dehydrated alcohol.

Maltitol Syrup
E965; Hydrogenated Glucose Syrup; Hydrogenated High Maltose-glucose Syrup; Liquid Maltitol; Maltitol ciekły; Maltitol, flytande; Maltitol, jarabe de; Maltitol liquide; Maltitol roztok; Maltitol Solution; Maltitoli, nestemäinen; Maltitolum liquidum; Maltitszirup; Skystasis maltitolis.

Pharmacopoeias. In *Eur.* (see p.vii). Also in *USNF*.
Ph. Eur. 6.2 (Maltitol, Liquid). An aqueous solution of a hydrogenated, part hydrolysed starch, containing not less than 68.0% w/w and not more than 85.0% w/w of anhydrous substance composed of a mixture of mainly D-maltitol with D-sorbitol and hydrogenated oligo- and polysaccharides. It contains not less than 50.0% w/w of D-maltitol and not more than 8.0% w/w of D-sorbitol, both calculated with reference to the anhydrous substance. A clear, colourless, syrupy liquid. Miscible with water and with glycerol.
USNF 26 (Maltitol Solution). A water solution containing, on the anhydrous basis, not less than 50.0% of D-maltitol (w/w) and not more than 8.0% of D-sorbitol (w/w).

Nomenclature. Hydrogenated glucose syrup is a generic term encompassing products of widely varying composition and it was concluded that such products containing up to 90% of maltitol should more properly be called maltitol syrup.[1] This was subsequently amended to include products containing up to 98% maltitol.[2] Preparations containing a minimum of 98% of maltitol were assigned the title maltitol.

1. FAO/WHO. Evaluation of certain food additives and contaminants: thirty-third report of the joint FAO/WHO expert committee on food additives. *WHO Tech Rep Ser 776* 1989.
2. FAO/WHO. Evaluation of certain food additives and contaminants: forty-first report of the joint FAO/WHO expert committee on food additives. *WHO Tech Rep Ser 837* 1993.

Profile
Maltitol and maltitol syrup are bulk sweeteners used in foods and pharmaceuticals; they are considered to be less cariogenic than sucrose. The ingestion of large quantities may produce flatulence and diarrhoea.

Maltodextrin
Maltodekstriini; Maltodekstrinas; Maltodextrina; Maltodextrine; Maltodextrinum.
CAS — 9050-36-6.

Pharmacopoeias. In *Eur.* (see p.vii). Also in *USNF*.
Ph. Eur. 6.2 (Maltodextrin). A mixture of glucose, disaccharides, and polysaccharides, obtained by the partial hydrolysis of starch. The degree of hydrolysis, expressed as dextrose equivalent (DE) is not more than 20 (nominal value). A white or almost white, slightly hygroscopic powder or granules. Freely soluble in water.
USNF 26 (Maltodextrin). A nonsweet, nutritive saccharide mixture of polymers that consists of D-glucose units with a dextrose equivalent of less than 20. It is prepared by the partial hydrolysis of food grade starch with suitable acids and/or enzymes. White, hygroscopic powder or granules. Freely soluble or readily dispersible in water; slightly soluble to insoluble in dehydrated alcohol. pH of a 20% solution in water is between 4.0 and 7.0. Store in airtight containers at a temperature not exceeding 30° and a relative humidity not exceeding 50%.

Profile
Maltodextrin, a glucose polymer (malto-oligosaccharide), is a source of carbohydrate often used in oral dietary supplements and tube feeding. It rapidly releases glucose in the gastrointestinal tract but because of the high average molecular weight of maltodextrin, solutions have a lower osmolarity than isocaloric solutions of glucose. Additionally, preparations based on maltodextrin and intended for dietary supplementation usually have a low electrolyte content and are free of other sugars such as fructose, galactose, lactose, and sucrose. These properties make such preparations suitable for dietary supplementation in a variety of diseases including certain gastrointestinal disorders where mal-

absorption is a problem, in disaccharide intolerance (without isomaltose intolerance), and in acute and chronic hepatic and renal diseases where protein, mineral, and fluid restriction are often necessary.

Maltodextrin is also employed as a pharmaceutical excipient.

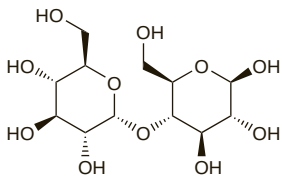
Preparations

Proprietary Preparations (details are given in Part 3)
Arg.: Carbohidrato 100; MC Modulo Calorico; ***Austral.:*** Maxijul; ***Braz.:*** Nidex; Oligossac†; ***Canad.:*** Moducal†; ***Chile:*** Modulo Calorico; ***Cz.:*** Fantomalt†; ***Fin.:*** Fantomalt; ***Hong Kong:*** Fiber Basics; ***Ital.:*** Energen; Fantomalt; Maltovis; Nidex; ***NZ:*** Moducal; ***Port.:*** Fantomalt†; Moducal†; ***USA:*** Moducal; ***Venez.:*** Fantomalt.

Multi-ingredient: ***Chile:*** Nutrasweet†; ***Fr.:*** Gumilk; ***Indon.:*** Fantomalt; ***Ital.:*** Giflorex; ***Pol.:*** Fantomalt; ***Venez.:*** Glutapak; Glutapak-R; Hermesetas Gold; Modulo Calorico; Multidex.

Maltose

D-maltose; Maltobiose; Maltosa. 4-*O*-α-D-Glucopyranosyl-β-D-glucopyranose.
$C_{12}H_{22}O_{11}$ = 342.3.
CAS — 69-79-4 (anhydrous maltose); 6363-53-7 (maltose monohydrate).



(anhydrous maltose)

Pharmacopoeias. *Jpn* includes the monohydrate. *USNF* permits the anhydrous and monohydrate forms.
USNF 26 (Maltose). It contains one molecule of water of hydration or is anhydrous. A white, odourless, crystalline powder that has a sweet taste. Freely soluble in water; very soluble in dehydrated alcohol; practically insoluble in ether; slightly soluble in methyl alcohol. pH of a 10% solution in water is between 3.7 and 4.7 (anhydrous form) and between 4.0 and 5.5 (monohydrate form).

Profile

Maltose, a disaccharide composed of two glucose molecules, is less sweet than sucrose. It is obtained from starch by hydrolysis with amylase. Maltose is often present with other sugars in mixtures used as carbohydrate sources. It is also used as a pharmaceutical excipient.

Adverse effects. Hyponatraemia developed after intravenous infusion of normal immunoglobulin in 10% maltose in a patient with acute renal failure after liver transplantation.[1] The effect, which recurred on each of four successive infusions, resembled that of hyperglycaemia and was thought to be due to accumulation of maltose and other osmotically active metabolites in the extracellular fluid.

1. Palevsky PM, *et al.* Maltose-induced hyponatremia. *Ann Intern Med* 1993; **118:** 526–8.

Precautions. Preparations that contain, or are metabolised to, maltose may interfere with the results from glucose tests (p.2314). Overestimation of glucose results may mask hypoglycaemia, resulting in the inappropriate use of insulin.[1,2] The problem may also occur with icodextrin, which produces maltose as a metabolite (see Dialysis, p.1937).

1. Medicines and Healthcare products Regulatory Agency. Medical device alert: ref MDA/2007/058 issued 19 July 2007. Available at: http://www.mhra.gov.uk/PrintPreview/PublicationSP/CON2031807 (accessed 01/07/08)
2. FDA. Important safety information on interference with blood glucose measurement following use of parenteral maltose/parenteral galactose/oral xylose-containing products (issued November 2005). Available at: http://www.fda.gov/cber/safety/maltose110405.htm (accessed 01/07/08)

Preparations

USNF 26: Liquid Glucose.

Proprietary Preparations (details are given in Part 3)
Indon.: Martos; ***Jpn:*** Martos.

Multi-ingredient: ***Fr.:*** Picot†.

Manganese

Mangan; Manganèse; Manganeso; Manganum.
Mn = 54.938045.
CAS — 7439-96-5.

Manganese Chloride

Manganeso, cloruro de.
$MnCl_2.4H_2O$ = 197.9.
CAS — 7773-01-5 (anhydrous manganese chloride); 13446-34-9 (manganese chloride tetrahydrate).

Pharmacopoeias. In *US.*
USP 31 (Manganese Chloride). Large, irregular, pink, odourless, translucent crystals. Soluble in water and in alcohol; insoluble in ether. Store in airtight containers. pH of a 5% solution in water is between 3.5 and 6.0.

Manganese Gluconate

Manganèse, gluconate de; Manganeso, gluconato de; Mangani gluconas. Bis(D-gluconato-O^1,O^2) manganese; Manganese D-gluconate.
$C_{12}H_{22}MnO_{14}$ = 445.2.

Pharmacopoeias. In *Eur.* (see p.vii), which allows either anhydrous or hydrated forms, and in *US*, which allows either anhydrous or the dihydrate.
Ph. Eur. 6.2 (Manganese Gluconate). A white or pale pink, slightly hygroscopic, crystalline powder. Soluble in water; practically insoluble in anhydrous ethanol; insoluble in dichloromethane. Store in non-metallic, airtight containers.
USP 31 (Manganese Gluconate).

Manganese Sulfate

Mangaanisulfaattimonohydraatti; Manganèse (sulfate de) monohydraté; Manganese Sulphate; Manganeso, sulfato de; Mangani Sulfas; Mangani sulfas monohydricum; Mangán(II)-szulfát-monohidrát; Mangano sulfatas; Mangansulfatmonohydrat; Manganu siarczan; Síran manganatý. Manganese (II) sulphate monohydrate.
$MnSO_4.H_2O$ = 169.0.
CAS — 7785-87-7 (anhydrous manganese sulfate); 10034-96-5 (manganese sulfate monohydrate); 10101-68-5 (manganese sulfate tetrahydrate).

Pharmacopoeias. In *Eur.* (see p.vii) and *US. Br.* and *Fr.* also include the tetrahydrate.
BP 2008 (Manganese Sulphate). The tetrahydrate occurs as pale pink, odourless or almost odourless, crystals or crystalline powder. Freely soluble in water; practically insoluble in alcohol.
Ph. Eur. 6.2 (Manganese Sulphate Monohydrate). It occurs as a pale pink, slightly hygroscopic, crystalline powder. Freely soluble in water; practically insoluble in alcohol.
USP 31 (Manganese Sulfate). The monohydrate occurs as pale red, slightly efflorescent crystals, or as a purple, odourless powder. Soluble in water; insoluble in alcohol. Store in airtight containers at a temperature of 25°, excursions permitted between 15° and 30°.

Adverse Effects and Precautions

Acute poisoning due to ingestion of manganese or manganese salts is rare. The main symptoms of chronic poisoning, either from injection or usually inhalation of manganese dust or fumes in air, include extrapyramidal effects which may be followed by progressive deterioration in the CNS. Parenteral manganese should be used cautiously in patients with reduced biliary excretion, especially in cholestatic liver disease. When the duration of total parenteral nutrition is likely to exceed 1 month, serum-manganese concentration and liver function should be checked before starting treatment and regularly during treatment; additives containing manganese should be stopped if serum-manganese concentrations are raised or cholestasis develops.

Accumulation. There are reports of cholestatic liver disease, and possibly changes in the basal ganglia, associated with hypermanganesaemia in children given long-term parenteral nutrition;[1,2] manganese accumulation may be secondary to impaired biliary excretion.[3] Manganese supplementation in such patients requires re-appraisal and whole blood manganese concentrations should be monitored regularly. A low-dose regimen of not more than 1 microgram/kg (0.018 micromoles/kg) daily has been suggested,[2,3] a dose that was also recommended by the American Society for Parenteral and Enteral Nutrition.[4] Hypermanganesaemia and basal ganglia manganese deposition resolved over time in 2 children when the manganese dose in their parenteral nutrition was reduced.[5] Manganese accumulation in the basal ganglia has been seen in patients with liver cirrhosis,[6,7] and may be associated with parkinsonism[7,8] (for reference to the use of aminosalicylic acid in the treatment of manganese-induced parkinsonism, see p.202). Concern has been expressed[9] at the high levels of manganese contained in infant formulas.

1. Reynolds AP, *et al.* Manganese in long term paediatric parenteral nutrition. *Arch Dis Child* 1994; **71:** 527–8.
2. Fell JME, *et al.* Manganese toxicity in children receiving long-term parenteral nutrition. *Lancet* 1996; **347:** 1218–21.
3. Beath SV, *et al.* Manganese toxicity and parenteral nutrition. *Lancet* 1996; **347:** 1773–4. Correction. *ibid.* **348:** 416.
4. Mirtallo J, *et al.* American Society for Parenteral and Enteral Nutrition. Safe practices for parenteral nutrition. *J Parenter Enteral Nutr* 2004; **28:** S39–S70.
5. Kafritsa Y, *et al.* Long term outcome of brain manganese deposition in patients on home parenteral nutrition. *Arch Dis Child* 1998; **79:** 263–5.
6. Krieger D, *et al.* Manganese and chronic hepatic encephalopathy. *Lancet* 1995; **346:** 270–4.
7. Burkhard PR, *et al.* Chronic parkinsonism associated with cirrhosis. *Arch Neurol* 2003; **60:** 521–8.
8. Zatta P, *et al.* The role of metals in neurodegenerative processes: aluminum, manganese, and zinc. *Brain Res Bull* 2003; **62:** 15–28.
9. Hozyasz KK, Ruszczynska A. High manganese levels in milk-based infant formulas. *Neurotoxicology* 2004; **25:** 733.

Pharmacokinetics

Absorption of manganese from the gastrointestinal tract is variable, ranging from 3 to 50%. There is some evidence that the amount absorbed decreases as intake increases, suggesting a homoeostatic response. In the circulation, manganese is bound to transmanganin, a beta-1-globulin. Manganese is stored in the brain, kidneys, pancreas, and liver. It is excreted in bile, and undergoes enterohepatic circulation.

Uses and Administration

Manganese is an essential trace element and small amounts of a salt such as the chloride or sulfate are sometimes added to solutions for total parenteral nutrition. Suggested doses are 275 micrograms (5 micromoles) elemental manganese daily for adults and children over 40 kg, and 1 microgram/kg (0.0182 micromol/kg) daily for infants and children to a maximum of 15 micrograms (see also Accumulation, above).

Manganese compounds or salts that have been used in therapeutics in addition to those mentioned above include manganese amino acid chelate, manganese dioxide, manganese gluconate, and manganese hydrogen citrate.

Human requirements. In the UK neither a reference nutrient intake (RNI) nor an estimated average requirement (EAR) (see p.1925) has been set for manganese although a safe intake for adults was believed to lie above 1.4 mg (26 micromoles) daily.[1] Similarly, in the USA a recommended dietary allowance has not been published, although an adequate intake has been estimated to be 2.3 mg daily for men and 1.8 mg daily for women.[2] A tolerable upper intake level of 11 mg has also been set.[2] WHO has not proposed a safe range of mean population intakes for manganese since neither intakes resulting in deficiency nor threshold toxicity levels have been established.[3] Diets high in unrefined cereals, nuts, leafy vegetables, and tea will be high in manganese.

1. DoH. Dietary reference values for food energy and nutrients for the United Kingdom: report of the panel on dietary reference values of the committee on medical aspects of food policy. *Report on health and social subjects 41.* London: HMSO, 1991.
2. Standing Committee on the Scientific Evaluation of Dietary Reference Intakes of the Food and Nutrition Board. *Dietary Reference Intakes for vitamin A, vitamin K, arsenic, boron, chromium, copper, iodine, iron, manganese, molybdenum, nickel, silicon, vanadium, and zinc*. Washington DC: National Academy Press, 2001. Also available at: http://www.nap.edu/openbook.php?isbn=0309072794 (accessed 21/07/08)
3. WHO. Manganese. In: *Trace elements in human nutrition and health*. Geneva: WHO, 1996; 163–7.

Preparations

BPC 1973: Compound Ferrous Sulphate Tablets;
USP 31: Manganese Chloride for Oral Solution; Manganese Chloride Injection; Manganese Sulfate Injection.

Proprietary Preparations (details are given in Part 3)
Fr.: Mangaplexe†; ***Mex.:*** MN-Fusin†.

Multi-ingredient: ***Austral.:*** Bio Magnesium; Bioglan Joint Mobility; ***Braz.:*** Eviprostat†; Xantina B12†; Xantinon B12; ***Fr.:*** Cicaplast; Oligoderm; Oligorhine Manganese; ***Ger.:*** Algosteril Trionic†; ***Indon.:*** Eviprostat; Fitbon; Fitbon Plus; ***Irl.:*** Ferrotab†; ***Ital.:*** Sterimar Mn; ***Mex.:*** Actiman; ***Philipp.:*** Ruflex; ***Rus.:*** Tot'Hema (Тотема); ***S.Afr.:*** Ferrous Sulphate Compound; ***Singapore:*** Arthro-Flex; Eviprostat.

Medium-chain Triglycerides

Keskipitkäketjuiset tyydyttyneet triglyseridit; Triacylglyceroly střední nasycené; Triglicéridai, vidutinės grandinės; Trigliceridek, közepes szénláncú zsírsavaké; Triglicéridos de cadena media; Triglycerida saturata media; Triglycerider, medellångkedjiga; Triglycérides à chaîne moyenne.

Pharmacopoeias. In *Eur.* (see p.vii). Also in *USNF.*
Ph. Eur. 6.2 (Triglycerides, Medium-chain). They are obtained from the oil extracted from the hard, dried fraction of the endosperm of *Cocos nucifera* or from the dried endosperm of *Elaeis guineensis*. They consist of a mixture of triglycerides of saturated fatty acids, mainly of octanoic acid and of capric acid ($C_{10}H_{20}O_2$ = 172.3). They contain not less than 95% of saturated fatty acids with 8 and 10 carbon atoms. A colourless or slightly yellowish, oily liquid. Practically insoluble in water; miscible with alcohol, with dichloromethane, with petroleum spirit, and with fatty oils. Store in well-filled containers. Protect from light.
USNF 26 (Medium-Chain Triglycerides). They are obtained from the oil extracted from the hard, dried fraction of the endosperm of *Cocos nucifera* or from the dried endosperm of *Elaeis guineensis*. They consist of a mixture of triglycerides of saturated fatty acids, mainly of octanoic acid and of capric acid ($C_{10}H_{20}O_2$ = 172.3). They contain not less than 95% of saturated fatty acids with 8 and 10 carbon atoms. A colourless or slightly yellowish, oily liquid. Practically insoluble in water; miscible with alcohol, with dichloromethane, with petroleum spirit, and with fatty oils. Store in airtight containers at a temperature not exceeding 25°. Protect from light.

Profile

Medium-chain triglycerides are used for enteral and parenteral nutrition (p.1923) in conditions associated with malabsorption of fat, such as cystic fibrosis, enteritis, and steatorrhoea, and after intestinal resection. Medium-chain triglycerides are more readily hydrolysed than long-chain triglycerides and are not dependent