Chile: Celulase Con Neomicina; Cicapost; Dermaglos Plus†; Escar T-Neomicina; Madecassol Neomicina†; Ureadin Rx DB; ***Fr.:*** Calmiphase†; Cicatridine; Fadiamone; Madecassol Neomycine Hydrocortisone†; ***Indon.:*** Lanakeloid-E; Venos; ***Ital.:*** Angiorex Complex; Angioton; Angiovein; Capill; Capill Venogel; Centella Complex; Centeril H; Dermilia Flebozin; Emmenoiasi; Flebo-Si; Flebofort; Flebolider; Gelovis; Levital Plus; Neomyrt Plus; Osmogel; Pik Gel; Varicofit; Venactive; ***Malaysia:*** Total Man†; ***Mex.:*** Madecassol C; Madecassol N; ***Philipp.:*** Memori Plus; Memory DD; Ruflex; ***Port.:*** Antiestrias; ***Spain:*** Blastoestimulina; Cemalyt; Nesfare; ***Venez.:*** Celyth's.

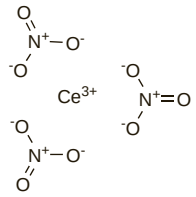
Cerous Nitrate

Cerio, nitrato de; Cerium Nitrate; Ceru(III) azotan.

Церия Нитрат

$Ce(NO_3)_3$ = 326.1.

CAS — 10108-73-3.



Profile

Cerous nitrate has been used topically, mainly with sulfadiazine silver, in the treatment of burns.

◊ References.

1. Garner JP, Heppell PS. Cerium nitrate in the management of burns. *Burns* 2005; **31:** 539–47.

Preparations

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: ***Arg.:*** Sulfatral-Cerio†; ***Belg.:*** Flammacerium; ***Braz.:*** Dermacerium; ***Cz.:*** Flammacerium†; ***Fr.:*** Flammacerium; ***Gr.:*** Flammacerium; ***Neth.:*** Flammacerium; ***Philipp.:*** Flammacerium; ***Pol.:*** Flammacerium; ***UK:*** Flammacerium.

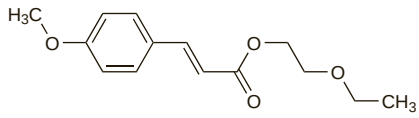
Cinoxate *(USAN, rINN)*

Cinoxato; Cinoxatum. 2-Ethoxyethyl *p*-methoxycinnamate; 3-(4-Methoxyphenyl)-2-propenoic acid 2-ethoxyethyl ester.

Циноксат

$C_{14}H_{18}O_4$ = 250.3.

CAS — 104-28-9.



Profile

Cinoxate, a substituted cinnamate, is a sunscreen (p.1576) with actions similar to those of octinoxate (p.1608). It is effective against UVB light (for definitions, see p.1580).

Preparations

Proprietary Preparations some preparations are listed in Part 3.

Crilanomer *(rINN)*

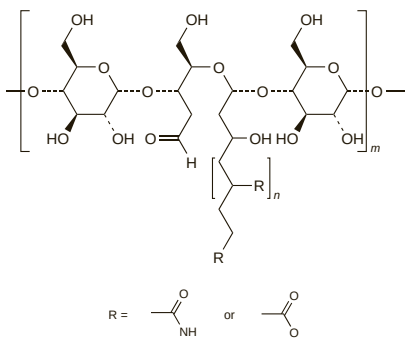
Acrylonitrile-starch Copolymer; Crilanomère; Crilanómero; Crilanomerum; ZK-94006. A starch polymer with acrylonitrile.

Криланомер

CAS — 37291-07-9.

ATC — D03AX09.

ATC Vet — QD03AX09.



Profile

Crilanomer is a starch copolymer used as a hydrogel wound dressing in the management of wounds.

Preparations

Proprietary Preparations (details are given in Part 3)

Austral.: Intrasite; ***S.Afr.:*** Intrasite.

Crotamiton *(BAN, rINN)*

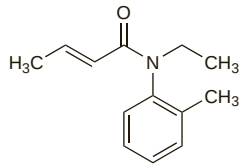
Crotam; Crotamitón; Crotamitonum; Krotamiton; Krotamitonas; Krotamitoni. *N*-Ethyl-*N*-*o*-tolylcrotonamide; *N*-Ethylcrotono-*o*-toluidide; *N*-Ethyl-*N*-(2-methylphenyl)-2-butenamide.

Кротамитон

$C_{13}H_{17}NO$ = 203.3.

CAS — 483-63-6.

ATC Vet — QP53AX04.



Pharmacopoeias. In *Chin.*, *Eur.* (see p.vii), and *US*.

Ph. Eur. 6.2 (Crotamiton). A colourless or pale yellow oily liquid. It solidifies partly or completely at low temperatures. It is mainly the (*E*)-isomer, with not more than 15% of the (*Z*)-isomer. Slightly soluble in water; miscible with alcohol. Protect from light.

USP 31 (Crotamiton). A colourless to slightly yellowish oil with a faint amine-like odour. It is a mixture of *cis*- and *trans*-isomers. Soluble in alcohol and in methyl alcohol. Store in airtight containers. Protect from light.

Adverse Effects and Precautions

Topical use of crotamiton occasionally causes irritation. There have been rare reports of hypersensitivity reactions. Crotamiton should not be used in patients with acute exudative dermatitis. It should not be applied near the eyes, mouth, or other mucous membranes or on excoriated skin.

Ingestion of crotamiton may cause burning and irritation of oral, oesophageal, and gastric mucosa with nausea, vomiting, and abdominal pain.

Overdosage. A 23-year-old woman developed tonic-clonic seizures, requiring treatment with diazepam, after ingestion of a crotamiton emulsion.[1] Other hospital treatment included gastric lavage, activated charcoal, and metoclopramide. Crotamiton was detected in serum at a concentration of 34 micrograms/mL and was also detectable with several metabolites in the urine. Reference was also made to a report of a 2½-month-old child who had developed pallor and cyanosis after excessive dermal application of a crotamiton cream.

1. Meredith TJ, *et al.* Crotamiton overdose. *Hum Exp Toxicol* 1990; **9:** 57.

Uses and Administration

Crotamiton is used as an antipruritic (p.1582), although its value is considered uncertain (see also below). It is applied as a 10% cream or lotion 2 or 3 times daily; children aged less than 3 years may receive one application daily.

Crotamiton has also been used as an acaricide in the treatment of scabies but other more effective drugs are usually preferred (p.2035). The 10% cream or lotion is applied, after first bathing and drying, to the whole of the body-surface below the chin, particular attention being paid to body folds and creases. A second application should be applied 24 hours later but it may need to be used once daily up to a total of 5 days to be effective.

Pruritus. A double-blind study in 31 patients[1] found that 10% crotamiton lotion was no more effective an antipruritic than its vehicle.

1. Smith EB, *et al.* Crotamiton lotion in pruritus. *Int J Dermatol* 1984; **23:** 684–5.

Preparations

BP 2008: Crotamiton Cream; Crotamiton Lotion;
USP 31: Crotamiton Cream.

Proprietary Preparations (details are given in Part 3)

Austral.: Eurax; ***Austria:*** Eurax; ***Belg.:*** Eurax; ***Canad.:*** Eurax; ***Chile:*** Eurax; ***Fr.:*** Eurax; ***Ger.:*** Crotamitex; Eraxil; ***Hong Kong:*** Eurax; Eurosin; Marax; ***India:*** Crotorax; ***Irl.:*** Eurax; ***Israel:*** Eurax; Scabicin; ***Ital.:*** Eurax; ***Malaysia:*** Crotorax; Eurax; Moz-Bite; ***Mex.:*** Eurax; ***Norw.:*** Eurax; ***NZ:*** Eurax; ***Philipp.:*** Congen; Eurax; Scabirax; ***Port.:*** Eurax; Scabicin; ***S.Afr.:*** Eurax; ***Singapore:*** Eurax; Moz-Bite; ***Spain:*** Euraxil; ***Switz.:*** Eurax; ***UK:*** Eurax; ***USA:*** Eurax; ***Venez.:*** Crotanol.

Multi-ingredient: ***Arg.:*** Anastim con RTH; Empecid Pie; ***Fr.:*** Acarcid†; Kelual DS; Triazol†; ***India:*** Crotorax-HC; ***Irl.:*** Eurax-Hydrocortisone; ***Israel:*** Duo-Scabil; ***Jpn:*** Una A Gel; ***Malaysia:*** Crotamiton H; ***UK:*** Eurax-Hydrocortisone; ***Venez.:*** Kertyol.

Dextranomer *(BAN, rINN)*

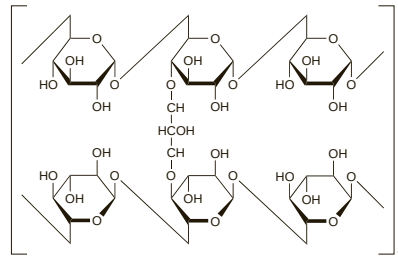
Dekstranomeeri; Dextranomère; Dextranómero; Dextranomerum. Dextran cross-linked with epichlorohydrin (1-chloro-2,3-epoxypropane); Dextran 2,3-dihydroxypropyl 2-hydroxy-1,3-propanediyl ether.

Декстраномер

CAS — 56087-11-7.

ATC — D03AX02.

ATC Vet — QD03AX02.



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

Ph. Eur. 6.2 (Dextranomer). White or almost white, spherical beads. Practically insoluble in water. It swells in water and electrolyte solutions

Adverse Effects and Precautions

Dextranomer can cause pain during dressing changes in some patients, and bleeding, blistering, and erythema have been reported occasionally. It should not be used in deep wounds or cavities from which it cannot be easily removed, nor should it be used on dry wounds. Care should be exercised when paste formulations of dextranomer are used near the eyes.

Spillage may render surfaces very slippery.

Viscous gel implants containing dextranomer, injected submucosally around the urethra, can cause transient urinary retention. Injection site reactions including mass, abscess, and pseudocyst formation have been reported.

Uses and Administration

The action of dextranomer as a wound dressing depends upon its ability to absorb up to 4 times its weight of fluid, including dissolved and suspended material of molecular weight up to about 5000.

Dextranomer is used for the cleansing of exudative and infected burns (p.1578), wounds and ulcers (p.1585), and for preparation for skin grafting.

The wound is cleansed with sterile water or saline and allowed to remain wet; dextranomer in the form of spherical beads is sprinkled on to a depth of at least 3 to 6 mm and covered with a sterile dressing. Occlusive dressings are not recommended as they may lead to maceration around the wound. The dextranomer can be renewed up to 5 times daily (usually once or twice daily) when the layer has become saturated with exudate; the old layer is washed off with a stream of sterile water or saline before renewal. All dextranomer must be removed before skin grafting. Dextranomer may also be applied as a paste (either ready-made or prepared by mixing dextranomer beads with glycerol).

Implants containing dextranomer microspheres in a stabilised hyaluronic acid carrier gel (NASHA/Dx) are available for injection. In female stress urinary incontinence (p.2180), 4 injections each containing 35 mg of dextranomer are injected into the submucosa of the urethra. Connective tissue gradually surrounds the microspheres, and the resulting augmented tissue helps to restore urinary continence. A second implantation may be performed if necessary, but no sooner than 6 weeks after the first. In vesicoureteral reflux in children, up to 50 mg may be injected into the submucosa of the ureter, creating a bulge close to the ureteral orifice. The procedure may be repeated after 3 months if necessary.

◊ References.

1. Stenberg ÅM, *et al.* Urethral injection for stress urinary incontinence: long-term results with dextranomer/hyaluronic acid copolymer. *Int Urogynecol J* 2003; **14:** 335–8.
2. van Kerrebroeck P, *et al.* Efficacy and safety of a novel system (NASHA/Dx copolymer using the Implacer device) for treatment of stress urinary incontinence. *Urology* 2004; **64:** 276–81.
3. Chapple CR, *et al.* An open, multicentre study of NASHA/Dx Gel (Zuidex) for the treatment of stress urinary incontinence. *Eur Urol* 2005; **48:** 488–94.
4. Dean GE, Doumanian LR. The extended use of Deflux (dextranomer/hyaluronic acid) in pediatric urology. *Curr Urol Rep* 2006; **7:** 143–8.
5. Routh JC, *et al.* Single center experience with endoscopic management of vesicoureteral reflux in children. *J Urol (Baltimore)* 2006; **175:** 1889–93.
6. Yu RN, Roth DR. Treatment of vesicoureteral reflux using endoscopic injection of nonanimal stabilized hyaluronic acid/dextranomer gel: initial experience in pediatric patients by a single surgeon. *Pediatrics* 2006; **118:** 698–703.

Preparations

Proprietary Preparations (details are given in Part 3)

Belg.: Debrisan†; ***Ger.:*** Debrisorb†; ***Hong Kong:*** Debrisan†; ***Hung.:*** Crupodex†; ***Irl.:*** Debrisan†; ***Ital.:*** Debrisan; ***Mex.:*** Debrisan†; ***Pol.:*** Acudex; ***S.Afr.:*** Debrisan; ***UK:*** Debrisan†; ***USA:*** Debrisan.

Multi-ingredient: ***UK:*** Zuidex; ***USA:*** Deflux.

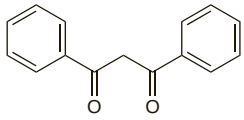
Dibenzoylmethane

Dibenzoilmetano. 1,3-Diphenyl-1,3-propanedione.

Дибензоилметан

$C_{15}H_{12}O_2$ = 224.3.

CAS — 120-46-7.



Profile

Dibenzoylmethane is a sunscreen (p.1576) with actions similar to those of avobenzone (p.1589). It is effective against UVA light (for definitions, see p.1580).

Preparations

Proprietary Preparations some preparations are listed in Part 3.

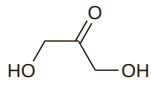
Dihydroxyacetone

DHA; Dihidroxiacetona; Ketotriose. 1,3-Dihydroxypropan-2-one.

Дигидроксиацетон

$C_3H_6O_3$ = 90.08.

CAS — 96-26-4.



NOTE. DHA is also used as a synonym for docosahexaenoic acid (p.1362).

Pharmacopoeias. In *US.*

USP 31 (Dihydroxyacetone). A white to off-white crystalline powder. The monomeric form is freely soluble in water, in alcohol, and in ether; the dimeric form is freely soluble in water, soluble in alcohol, and sparingly soluble in ether. A 5% solution in water has a pH between 4.0 and 6.0. Store at a temperature of 8° to 15° in airtight containers.

Adverse Effects and Precautions

Skin irritation from dihydroxyacetone occurs rarely; rashes and allergic dermatitis have been reported. Contact with eyes, abraded skin, and clothing should be avoided.

Uses and Administration

Application to the skin of preparations containing dihydroxyacetone slowly produces a brown coloration similar to that caused by exposure to the sun, probably due to a reaction with the amino acids of the skin.

A single application may give rise to a patchy appearance; progressive darkening of the skin results from repeated use until a point is reached when the maximum effect is achieved. If the treatment is stopped the colour starts to fade after about 2 days and disappears completely within 8 to 14 days as the external epidermal cells are lost by normal attrition.

Preparations usually contain 5% of dihydroxyacetone and have been used to camouflage vitiligo (see Pigmentation Disorders, p.1582) or to produce an artificial suntan. Some preparations include sunscreens since the pigmentation produced gives no protection against sunburn.

Preparations

Proprietary Preparations (details are given in Part 3)

Arg.: Autohelios†; Eurocolor Sin Sol; Ikx Autobronceante; Leche Autobronceadora†; Lelco sin Sol; ***Austral.:*** Le Tan Fast Extra Dark†; Le Tan Fast Self Tan†; Vitadye; ***Braz.:*** Autohelios; ***Chile:*** Fotoprotectores; Leche Autobronceadora Cara Y Cuerpo; Neutrogena Bronceador; ROC Minesol Bronze; Sans Soleil Skin Ceuticals†; ***Malaysia:*** Vitadye†; ***Mex.:*** Dermacrom; ***USA:*** Chromelin Complexion Blender.

Multi-ingredient: ***Arg.:*** Fotosol Ultra Autobronceante; Polysianes Autobronceante; ***Austral.:*** Le Tan Fast Plus†; ***Braz.:*** Sunmax Autobronzeador; ***UK:*** ViTicolor; ***USA:*** QT.

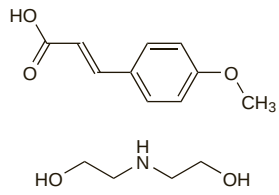
Diolamine Methoxycinnamate

Diolamine *p*-Methoxycinnamate *(pINNM)*; DEA-Methoxycinnamate; Diethanolamine Methoxycinnamate; Diolamina metoxicinnamato; Diolamine Méthoxycinnamate; Diolaminum Metoxicinnamatum. *p*-Methoxycinnamic acid compound with 2,2′-iminodiethanol (1:1).

Диоламин Метоксисинамат

$C_{10}H_{10}O_3.C_4H_{11}NO_2$ = 283.3.

CAS — 56265-46-4.



Profile

Diolamine methoxycinnamate, a compounded substituted cinnamate, is a sunscreen (p.1576) with actions similar to those of octinoxate (p.1608). It is effective against UVB light (for definitions, see p.1580).

Preparations

Proprietary Preparations some preparations are listed in Part 3.

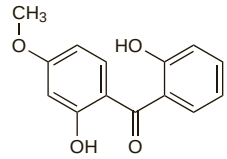
Dioxybenzone *(USAN, rINN)*

Benzofenon-8; Benzophenone-8; Dioxibenzona; Dioxybenzonum; NSC-56769. 2,2′-Dihydroxy-4-methoxybenzophenone.

Диоксибензон

$C_{14}H_{12}O_4$ = 244.2.

CAS — 131-53-3.



Pharmacopoeias. In *US.*

USP 31 (Dioxybenzone). A yellow powder. Practically insoluble in water; freely soluble in alcohol and in toluene. Store in airtight containers. Protect from light.

Profile

Dioxybenzone, a substituted benzophenone, is a sunscreen (p.1576) with actions similar to those of oxybenzone (p.1608). It is effective against UVB and some UVA light (for definitions, see p.1580).

Preparations

USP 31: Dioxybenzone and Oxybenzone Cream.

Proprietary Preparations some preparations are listed in Part 3.

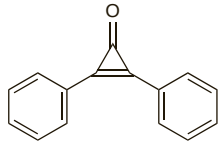
Diphencyprone

Difenciprona. 2,3-Diphenylcyclopropenone-1.

Дифенципрон

$C_{15}H_{10}O$ = 206.2.

CAS — 886-38-4.



Profile

Diphencyprone has been applied as a contact sensitiser for the treatment of alopecia. It has also been tried in warts.

Adverse effects. Diphencyprone is considered to lack serious adverse effects but some patients may not be able to tolerate the induced hypersensitivity reaction. There have been reports of generalised urticaria and dermographism, sometimes severe, following the use of diphencyprone.[1-5] In another case, a severe reaction of urticaria and dermographism, which lasted several months, occurred after the initial sensitisation dose.[6] Allergy to diphencyprone has been reported in medical and nursing staff in spite of taking protective precautions during its application.[7] A patient who received diphencyprone treatment for warts developed a widespread pruritic rash and palpitations due to ventricular extrasystoles.[1] Vitiligo has also been reported in patients treated with diphencyprone[8-10] and it has been suggested that this might be due to unmasking of subclinical vitiligo.[8,9] Erythema multiforme-like eruptions have been associated with the topical application of diphencyprone.[11,12]

1. Lane PR, Hogan DJ. Diphencyprone. *J Am Acad Dermatol* 1988; **19:** 364–5.
2. Tosti A, *et al.* Contact urticaria during topical immunotherapy. *Contact Dermatitis* 1989; **21:** 196–7.
3. Skrebova N, *et al.* Severe dermographism after topical therapy with diphenylcyclopropenone for alopecia universalis. *Contact Dermatitis* 2000; **42:** 212–15.
4. Francomano M, Seidenari S. Urticaria after topical immunotherapy with diphenylcyclopropenone. *Contact Dermatitis* 2002; **47:** 310–11.
5. Short KA, Higgins EM. Urticaria as a side-effect of diphencyprone therapy for resistant viral warts. *Br J Dermatol* 2005; **152:** 583–5.
6. Alam M, *et al.* Severe urticarial reaction to diphenylcyclopropenone therapy for alopecia areata. *J Am Acad Dermatol* 1999; **40:** 110–12.
7. Shah M, *et al.* Hazards in the use of diphencyprone. *Br J Dermatol* 1996; **134:** 1153.
8. Hatzis J, *et al.* Vitiligo as a reaction to topical treatment with diphencyprone. *Dermatologica* 1988; **177:** 146–8.
9. Duhra P, Foulds IS. Persistent vitiligo induced by diphencyprone. *Br J Dermatol* 1990; **123:** 415–16.
10. Henderson CA, Ilchyshyn A. Vitiligo complicating diphencyprone sensitization therapy for alopecia universalis. *Br J Dermatol* 1995; **133:** 496–7.
11. Perret CM, *et al.* Erythema multiforme-like eruptions: a rare side effect of topical immunotherapy with diphenylcyclopropenone. *Dermatologica* 1990; **180:** 5–7.
12. Oh C-W, *et al.* Bullous erythema multiforme following topical diphenylcyclopropenone application. *Contact Dermatitis* 1998; **38:** 220–1.

Alopecia. Diphencyprone has been used as a contact sensitiser in the treatment of various forms of alopecia (p.1577) including areata, totalis, and universalis. Case series reports generally describe treatment of adults, but some groups have also included adolescents and children, and some have reported solely on treatment in children.[1,2]

Initial sensitisation is usually achieved by applying a 2% solution of diphencyprone in acetone to a small area of scalp, which may be repeated if necessary beneath plastic occlusion if adequate sensitisation is not produced. Thereafter, weaker concentrations are applied once weekly and gradually increased in strength to produce erythema and pruritus for 36 to 48 hours post-therapy. Concentrations that have been used vary between reports and the first treatment application may be as dilute as 0.00001%, with further applications gradually increased to up to 2%. Only one side of the scalp is treated until the optimum concentration is found, in order to prevent a widespread adverse reaction. Once hair regrowth has started on the treated side the applications may be extended to the entire scalp.[1-8] As well as erythema and pruritus, patients usually experience transient eczema and regional lymph node swelling.[2,5,7,8]

Hair regrowth may not start for several months,[4,6,8] and the required duration of therapy can vary considerably; at least 8 months of treatment may be required,[3,6] and up to 12 months[1,2] or more[4,6] has been reported. Not all patients will respond to treatment and reported response rates vary, although these have probably been influenced by the different definitions used for complete, partial, and no response. Overall, however, regrowth of hair can occur in up to about 70% of patients, with around half of these having complete regrowth.[1,4,6-8] Some reports have attempted to determine which factors might be associated with clinical response to diphencyprone. There is disagreement between studies but some possible unfavourable prognostic factors include extensive involvement,[4,6,8] younger age at onset,[8] longer disease duration before treatment,[5,7] and a history of atopic eczema.[4,7] The need for high diphencyprone concentrations and prolonged therapy have also been associated with a less favourable outcome.[8]

Despite these rates of response a significant number of patients will relapse, either during or after stopping treatment, and retreatment may be considered.[4,6,7] The time to relapse can be variable. Remission in a small group of complete responders ranged from 1 month to 2 years after stopping therapy.[4] Another group of patients who achieved total regrowth of hair were able to stop treatment with diphencyprone for a mean of 15 months without relapse[9] while a further group maintained satisfactory hair growth for a mean follow-up period of 19.8 months.[5]

1. MacDonald Hull S, *et al.* Alopecia areata in children: response to treatment with diphencyprone. *Br J Dermatol* 1991; **125:** 164–8.
2. Schuttelaar M-L, *et al.* Alopecia areata in children: treatment with diphencyprone. *Br J Dermatol* 1996; **135:** 581–5.
3. MacDonald Hull S, Cunliffe WJ. Successful treatment of alopecia areata using the contact allergen diphencyprone. *Br J Dermatol* 1991; **124:** 212–13.
4. Hoting E, Boehm A. Therapy of alopecia areata with diphencyprone. *Br J Dermatol* 1992; **127:** 625–9.
5. Gordon PM, *et al.* Topical diphencyprone for alopecia areata: evaluation of 48 cases after 30 months' follow-up. *Br J Dermatol* 1996; **134:** 869–71.