

- Lebwohl M, *et al.* An international, randomized, double-blind, placebo-controlled phase 3 trial of intramuscular alefacept in patients with chronic plaque psoriasis. *Arch Dermatol* 2003; **139**: 719–27.
- Korman NJ, Moul DK. Alefacept for the treatment of psoriasis: a review of the current literature and practical suggestions for everyday clinical use. *Semin Cutan Med Surg* 2005; **24**: 10–18.
- Ortonne JP, *et al.* An open-label study of alefacept plus ultraviolet B light as combination therapy for chronic plaque psoriasis. *J Eur Acad Dermatol Venereol* 2005; **19**: 556–63.
- Mease PJ, *et al.* Alefacept in Psoriatic Arthritis Study Group. Alefacept in combination with methotrexate for the treatment of psoriatic arthritis: results of a randomized, double-blind, placebo-controlled study. *Arthritis Rheum* 2006; **54**: 1638–45.

## Preparations

**Proprietary Preparations** (details are given in Part 3)

**Arg.:** Amevive; **Canad.:** Amevive; **Israel:** Amevive; **Switz.:** Amevive; **USA:** Amevive.

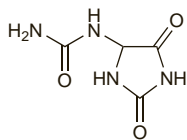
## Allantoin (BAN, USAN)

Allantoin; Alantoína; Alantoinas; Allantoíni; Allantoïne; Allantoinum; Glyoxyldiureide. 5-Ureidohydantoin; 5-Ureidoimidazolidine-2,4-dione; 2,5-Dioxoimidazolidin-4-yliurea.

Аллантоин; Кордианин

C<sub>4</sub>H<sub>6</sub>N<sub>4</sub>O<sub>3</sub> = 158.1.

CAS — 97-59-6.



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

**Ph. Eur. 6.2** (Allantoin). A white or almost white, crystalline powder. Slightly soluble in water; very slightly soluble in alcohol.

**USP 31** (Allantoin). A white crystalline powder. Slightly soluble in water; very slightly soluble in alcohol.

## Profile

Allantoin is an astringent and keratolytic. It is present in multi-ingredient preparations intended for various skin disorders and is also used for its astringent properties in preparations for the treatment of haemorrhoids and other anorectal disorders.

**Psoriasis.** In the USA the FDA decided that allantoin should be removed from lotions indicated for psoriasis as it was considered to be ineffective.<sup>1</sup>

- Anonymous. Nonprescription drug review gains momentum. *WHO Drug Inf* 1991; **5**: 62.

## Preparations

**Proprietary Preparations** (details are given in Part 3)

**Canad.:** Soothex†; **India:** Masse; **Pol.:** Alantan.

**Multi-ingredient:** **Arg.:** Abanta; Afonisan; Atomoderma A-E; Bushi; Contractubex; Crema Para Paspaduras; Cremosor N; Dermaloe†; Esmedent; con Fluor; Euroderm-A; Factor Vit AE; Glossderm†; Lactocrem Bebe; Lochipor Liposomas Vitaminado; Medic†; Mencogrin; Mencogrin AP; Mencogrin†; Pastillas Lorbi; Pastillas Medex; Quem Plus†; **Austral.:** Acne & Pimple Gel†; Alphosyl; Blistex Medicated Lip Ointment; ER Cream†; Hemocane; Macro Natural Vitamin E Cream; Medi Creme; Medi Pulv; Paxyl; SoloSite; Solypol†; VR†; **Austria:** Alphosyl; Contractubex; Rheumex; Ulcunlen; **Braz.:** Contractubex; Lactrex; Senol†; Vitaderme; **Canad.:** Blistex Medicated Lip Ointment; Phenoris; Tanac†; **Chile:** Dermaglos; Dermaglos Plus†; Lactrex†; Nenegloss; Pancri†; Queratopil; Sanoderm; Ureadin 30; Ureadin Rx DB; Ureadin Rx PS; Ureadin Rx RD; **Cz.:** Brand- und Wundgel†; Contractubex; Jox; Panlid; **Fr.:** Alpha 5 DS†; Alphosyl†; Cicatryl; Erygine; Hydracuire; Prebutix; Provictol†; Purif-Ac Emulsion; Purif-Ac Gel; Seborheane; Spirial; Topialyse Fluide; Topialyse Plus; **Ger.:** Brand- und Wund-Gel Eu Rho†; Contractubex; Ellsuxex; Essaven Tri-Complex†; Haemo-Exhirud†; Hydro Cordes; Leukona-Wundsalbe†; Lipo Cordes; Psoriasis-Salbe 5†; Ulcunlen N†; **Hong Kong:** Blistex Lip Ointment†; Burn Cream†; Contractubex; Ego-derm; Ego-soryl TA; Medipulv†; Pyodontyl†; **Hung.:** Contractubex; Jox†; **India:** Contractubex; New Eye Lotion; Shield; **Indon.:** Mederma; Venile; **Israel:** Alphosyl HC†; Alphosyl†; Comfrey Plus; Pitrisan; Procto-zorin-N; Re-kasitin; **Ital.:** Alphosyl†; Angstrom Viso; Balta-Crin Tar†; Centella Complex; Cerostent; Cerox†; Ginoxil Ecoschiuma; Keraflex; Sensigel; Sensiquel†; Tial-Z; Xerial†; **Malaysia:** Ego-derm; Ego-soryl TA; **Mex.:** Antaderm; Dea-lan; Glossderm; Hipoglos; Hipoglos Cremoso; Lactrex; Sebryl Plus; Sebstop†; Unguento de la Madre; **NZ:** Ego-derm; Ego-soryl TA; Medipulv; **Philipp.:** Contractubex; **Pol.:** Alantan-Plus; Alantavit; Cepan; Contractubex; Dermilan; Mucosil; Pupilek; Septalan; Tointex; **Port.:** Hidratoderme†; **Rus.:** Contractubex (Контрактубекс); Hepatrombin B (Гепатромбин-В); Jox (Йокс); **S.Afr.:** Alphosyl; Arola Rosebalm; Blistex; Clearasil Medicated Facial Cleanser; **Singapore:** Ego-derm; Ego-soryl TA; Erase; **Spain:** Alphosyl; Amplidermes; Antigrietun; Cortenema; Egarone†; Hepro; Polaramine Topi-co; **Swed.:** Alphosyl†; **Switz.:** Alaphasia; Alphosyl†; Alumagall†; Carmol Plus†; Contractubex; Gorgonium; Hepathrombine†; Keli-med; Leniderm†; Lyman; Optrex compresses; Sportium; Unatol; Vulnisan; **Thai.:** Opplint†; **UK:** Actina; Alphosyl HC; Anodesyn; Atopiacin; Vesageex Helbalm; **USA:** Alasulf; Ambesol Cold Sore Therapy; Atopiacin; Blistex; Blistex Lip Balm; Deltavac; DIFI-2; Der Dermi-Heal†; Ionax Astringent; Orabase Lip; Tanac; Tanac Dual Core; **Venez.:** Alantamida; Lactrex.

## Aloe Vera

Aloe.

Алоэ Вера; Алоэ Древовидное

## Profile

Aloe vera gel is a mucilaginous preparation obtained from the leaves of *Aloe vera* (*A. barbadensis*). It does not include the sap of *Aloe vera*, which contains anthraquinones, and should not be confused with aloe (p.1705).

◇ Aloe vera is widely used in cosmetics and toiletries for a reported moisturising and revitalising action. There are also claims for the beneficial and even curative properties of aloe vera gel in the treatment of conditions such as acne, psoriasis, burns, wounds, arthritis, diabetes, hyperlipidaemia, peptic ulcer, and genital herpes.<sup>1,2</sup> Evidence to support these claims is lacking. There is also no strong evidence to support the use of aloe vera gel in the prevention or treatment of radiation-induced skin reactions in cancer patients.<sup>3</sup>

- Marshall JM. Aloe vera gel: what is the evidence? *Pharm J* 1990; **244**: 360–2.
- Vogler BK, Ernst E. Aloe vera: a systematic review of its clinical effectiveness. *Br J Gen Pract* 1999; **49**: 823–8.
- Richardson J, *et al.* Aloe vera for preventing radiation-induced skin reactions: a systematic literature review. *Clin Oncol (R Coll Radiol)* 2005; **17**: 478–84.

## Preparations

**Proprietary Preparations** (details are given in Part 3)

**Arg.:** Biorevit Gel†; Capson; Puraloe Post Solar; **Braz.:** Probeks†; Soapelle; **Fr.:** Veraskin; **Ital.:** Epitaloe; **NZ:** Solarcaine Aloe Vera; **Singapore:** Cura-caio.

**Multi-ingredient:** **Arg.:** Abanta; Acuaderm; Aloebe†; Aristaloe; Brunav-era; Controlacne; Crema De Ordene; Dermaloe†; Dermvien†; Eurocolor Post Solar; Europrotec Post Solar†; Galenic Restaurador Capilar; Herbacion Nutriderm†; KW†; Mucobase; Negacne; Odontobiotico†; Olamine; Pedicrem; Puraloe; Puraloe Nutritivo; Refrane P; Refrane Plus; Sadeltan F†; Snella Vag; Solenil Post Solar; Talowin; Yuyo; **Austral.:** Aloe Vera Plus; Lipz Lip Ointment; Percutane; Psor-Assist; Rapaid Rash-Relief; **Braz.:** Actine; Derm'active Solaire†; Malvatricin Natural Soft; **Chile:** Ac-Sal; Fray Romano; Nenegloss; Solarcaine Aloe Vera Gel; Ureadin Rx DB; Ureadin Rx RD; **Cz.:** After Burn†; **Fr.:** Alkagin; Alrai†; Cicatridine; Postopyl†; Rhinodoron; **Ger.:** Rhinodoron; **Hong Kong:** Apaisac; Pregnacare; **India:** Elovera; Elovera-SPF; Solderm; **Indon.:** Jointift; Velostin; **Israel:** Agisten with Aloe Vera; Aphotagone; Apha-X; **Ital.:** Capso; Ektrofil; Ginoxil Ecoschiuma; Ninfagin; Vicks Baby Balsam†; Vulnopur; **Malaysia:** Boots Antenatal Massage Cream†; Elovera; Loralis Feminine Hygiene†; Neo-Healar; **Mex.:** Gel-conordin; Hipoglos Cremoso; **NZ:** Chap Stick; Lamisl Odor Eze; Vicks Baby Balsam; **Philipp.:** Elovera; Intima; **Port.:** Alkagin; Antiacneicos Ac-Sal†; Multi-Mam Compressas†; **Singapore:** Cortaid with Aloe†; Destin Creamy†; **UK:** Antiac; Don't Bug Me; Sinose; Solarcaine†; **USA:** Aloe Grande; Biotene with Calcium; Bodi Kleen; Dermtex HC with Aloe; Entertainer's Secret; Geri-Lav Free; Gold Bond Medicated Triple Action Relief; Hawaiian Tropic Cool Aloe with I.C.E.; Hemorid For Women; Maximum Strength Flexall 454; Nasal-Ease; OraMagiRx; RadiaPlex Rx; Solarcaine Aloe Extra Burn Relief; **Venez.:** Andantol Jalea; Flucirac; Gelsam; Jengimiel; Jengimiel Sabila.

## Aluminium Chloride

Aluminio chloridas heksahidratas; Alumiinikloridihexahydraatti; Aluminii chloridum hexahydricum; Aluminio, cloruro de; Aluminium Chloratum; Aluminium (chlorure d') hexahydraté; Aluminium-klorid-hexahydrit; Aluminiumkloridhexahydrat; Aluminium Chloride; Chlorid hlinitý hexahydrit; Cloreto de Aluminio; Cloruro de Aluminio; Glinu chlorek. Aluminium chloride hexahydrate.

Алюминия Хлорида

AlCl<sub>3</sub>·6H<sub>2</sub>O = 241.4.

CAS — 7446-70-0 (anhydrous aluminium chloride); 7784-13-6 (aluminium chloride hexahydrate).

ATC — D10AX01.

ATC Vet — QD10AX01.

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

**Ph. Eur. 6.2** (Aluminium Chloride Hexahydrate). A deliquescent, white or slightly yellow, crystalline powder or colourless crystals. Very soluble in water; freely soluble in alcohol; soluble in glycerol. Store in airtight containers.

**USP 31** (Aluminium Chloride). Deliquescent, white or yellowish-white, practically odourless, crystalline powder. Its solutions are acid to litmus. Soluble 1 in 0.9 of water and 1 in 4 alcohol; soluble in glycerol. Store in airtight containers.

## Adverse Effects

Aluminium chloride may cause irritation especially if applied to damp skin; this is attributed to the formation of hydrochloric acid.

## Uses and Administration

Aluminium chloride has astringent properties and is used in a 20% alcoholic solution as an antiperspirant in the treatment of hyperhidrosis (p.1580). It is applied to dry skin, usually at bedtime, and is washed off in the

morning before the sweat glands are fully active. Initially, it may be applied each night until sweating improves, then less frequently, as required, to maintain efficacy.

## References

- Scholes KT, *et al.* Axillary hyperhidrosis treated with alcoholic solution of aluminium chloride hexahydrate. *BMJ* 1978; **2**: 84–5.
- Ellis H, Scurr JH. Axillary hyperhidrosis – topical treatment with aluminium chloride hexahydrate. *Postgrad Med J* 1979; **55**: 868–9.

## Preparations

**BP 2008:** Aluminium Chloride Solution.

**Proprietary Preparations** (details are given in Part 3)

**Arg.:** Alumpak; Anhidrot†; Drysol; **Austral.:** Dridor; Odaban†; **Chile:** Drysol; Xerac AC; **Fr.:** Dridor; Etiaxil; **Ger.:** Gargarisma zum Gurgeln; Mal-lebrin Konzentrat; **Hong Kong:** Dridor; **Ir.:** Anhydrol Forte; Dridor; **Israel:** Anhydrol Forte; **Malaysia:** Dridor†; **Mex.:** Drysol; **NZ:** Hidrosol; **Philipp.:** Dridor; **Pol.:** Antidral; **S.Afr.:** Dridor; **Singapore:** Dridor; **Switz.:** Etiaxil; Racemente†; **UK:** Anhydrol Forte; Dridor; Odaban; **USA:** Drysol; Xerac AC.

**Multi-ingredient:** **Arg.:** Carnot Topico; **Chile:** Hidrofulg; Hidrofugal Forte; **Mex.:** Prespir; **Switz.:** Sansilla; **USA:** Stypto-Caine.

## Aluminium Chlorohydrate

Aluminio, clorohidróxido de; Aluminium Chlorhydrate; Aluminium Chloride Hydroxide Hydrate; Aluminium Chlorhydroxide; Aluminium Chloride Hydroxide Hydrate; Aluminium Chlorohydrate (USAN); Aluminium Hydroxychloride; Alüminyum Hidrok-siklorür; Basic Aluminium Chloride.

Алюминия Хлорогидрат

Al<sub>2</sub>(OH)<sub>5</sub>Cl·xH<sub>2</sub>O.

CAS — 1327-41-9 (anhydrous aluminium chlorohydrate).

ATC — D09AA08; M05BX02.

ATC Vet — QD09AA08; QM05BX02.

**Pharmacopoeias.** In *US*.

*US* also includes a range of compounds based on aluminium chlorohydrate. These are:

- aluminium dichlorohydrate and sesquichlorohydrate
- the polyethylene glycol (macrogol) complexes and propylene glycol complexes of aluminium chlorohydrate, aluminium dichlorohydrate, and aluminium sesquichlorohydrate
- the tri-, tetra-, penta-, and octachlorohydrates of aluminium zirconium and their respective glycine derivatives.

**USP 31** (Aluminium Chlorohydrate). A 15% w/w solution in water has a pH of 3.0 to 5.0

## Profile

Aluminium chlorohydrate is used similarly to aluminium chloride in hyperhidrosis (p.1580). Single-ingredient products for hyperhidrosis generally have a concentration in the range of 10 to 25%.

Aluminium chlorohydrate is also included in a variety of dermatological preparations for its astringent and antiperspirant properties.

**Aluminium toxicity.** Bone pain, extreme fatigue, and raised aluminium concentrations in a woman with normal renal function were attributed to the use of an antiperspirant cream containing aluminium chlorohydrate 20%. She had been applying about 1 g of cream to each underarm daily for 4 years. Within 8 months of stopping the antiperspirant, plasma-aluminium concentrations had returned to normal and symptoms had resolved.<sup>1</sup>

- Guillard O, *et al.* Hyperaluminemia in a woman using an aluminium-containing antiperspirant for 4 years. *Am J Med* 2004; **117**: 956–9.

## Preparations

**USP 31:** Aluminium Chlorohydrate Solution; Aluminium Dichlorohydrate Solution; Aluminium Sesquichlorohydrate Solution; Aluminium Zirconium Octachlorohydrate Gly Solution; Aluminium Zirconium Pentachlorohydrate Solution; Aluminium Zirconium Pentachlorohydrate Gly Solution; Aluminium Zirconium Tetrachlorohydrate Solution; Aluminium Zirconium Tetrachlorohydrate Gly Solution; Aluminium Zirconium Trichlorohydrate Solution; Aluminium Zirconium Trichlorohydrate Gly Solution.

**Proprietary Preparations** (details are given in Part 3)

**Arg.:** Bromhistop; Daewoj†; Normoskin†; Sodorant; **Canad.:** Roll-On†; Scholl Dry Antiperspirant Foot Spray†; **Chile:** Hansaplast Footcare; Hidro-fugal; **Fr.:** pM; **Spain:** **Ger.:** Phosphonorm; **Israel:** Aloxa; **Ital.:** Spinal; **Mex.:** Skin Dry; **NZ:** Neat Effect; Neat Feet; Neat One; Neat Touch; **Port.:** Dermagor; Antitranspirante; Lambda; **Switz.:** Alopon†; Gelsica; Phosphonorm; Sansudor; **Turk.:** Kursept; Terkur; **UK:** Chiron Barrier Cream; **USA:** Bromi-Lotion.

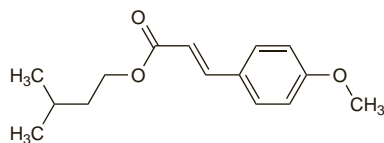
**Multi-ingredient:** **Arg.:** Neobitilol; Sodorant; Ublodid†; **Austral.:** Nappy-Mate†; Neo-Medrol; **Austria:** Sulgan 99; **Canad.:** Medrol Acne Lotion; Neo-Medrol Acne; **Chile:** Hidrofugal; Hidrofugal Forte; Lady Fittig†; Unage Desodorante Tri-Activ†; **Fin.:** Neo-Medrol comp†; **Fr.:** Spinal; **Ger.:** Ansu-dor†; Epipak†; **Hong Kong:** Neo-Medrol Acne; **Indon.:** Betiga; **Israel:** Fungimol; Neo-Medrol; Pedisol; **Ital.:** Medrol Lozione Antiacne†; **S.Afr.:** Neo-Medrol; **Spain:** Hongosan; Modernin Acne†; **USA:** Breeze Mist Foot Powder; Ostiderm.

**Amiloxate** (USAN, rINN)

Amiloxato; Amiloxatum; E-1000; Isoamyl *p*-Methoxycinnamate. Isopentyl *p*-methoxycinnamate; 3-(4-Methoxyphenyl)-2-propenoic acid 3-methylbutyl ester.

АМИЛОКСАТ

$C_{15}H_{20}O_3 = 248.3$ .  
CAS — 71617-10-2.



NOTE. Neo-Heliopan E 1000 is a trade name that has been used for amiloxate.

**Pharmacopoeias.** In *US*.

**USP 31** (Amiloxate). Store in airtight containers.

**Profile**

Amiloxate, 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**

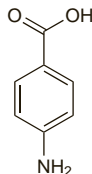
**Proprietary Preparations** some preparations are listed in Part 3.

**Aminobenzoic Acid**

Acide 4-Aminobenzoïque; Acidum 4-aminobenzoicum; Amben; 4-Aminobensoesyra; 4-Aminobentsoehappo; 4-aminobenzo-sav; Aminobenzoico, ácido; 4-Aminobenzoiné rügštis; Kwas 4-aminobenzoowy; Kyselina 4-aminobenzoová; PAB; PABA; Parabacidum; Para-aminobenzoic Acid; Vitamin Bx; Vitamin H'. 4-Aminobenzoic acid.

АМИНОБЕНЗОЙНАЯ КИСЛОТА

$C_7H_7NO_2 = 137.1$ .  
CAS — 150-13-0.  
ATC — D02BA01.  
ATC Vet — QD02BA01.



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

**Ph. Eur. 6.2** (4-Aminobenzoic Acid; Aminobenzoic Acid BP 2008). White or slightly yellow crystalline powder. Slightly soluble in water; freely soluble in alcohol; it dissolves in dilute solutions of alkali hydroxides. Protect from light.

**USP 31** (Aminobenzoic Acid). White or slightly yellow, odourless crystals or crystalline powder. It discolours on exposure to air or light. Slightly soluble in water and in chloroform; freely soluble in alcohol and in solutions of alkali hydroxides or carbonates; sparingly soluble in ether. Store in airtight containers. Protect from light.

**Adverse Effects and Precautions**

Adverse skin reactions such as local irritation and contact dermatitis have been reported after the topical use of aminobenzoate sunscreens. Aminobenzoate sunscreens should not be used by those with a history of photosensitivity or hypersensitivity reactions to structurally related drugs such as sulfonamides, thiazide diuretics, and ester-type local anaesthetics.

Aminobenzoic acid may stain clothing.

◇ Allergic and photoallergic contact dermatitis have been reported after topical use of aminobenzoic acid or its esters.<sup>1</sup> Early reports of such reactions led to the removal of these compounds from sunscreen preparations (many are now described as 'PABA-free'), although padimate O still appears to be widely used.<sup>2</sup> Patients allergic to aminobenzoic acid may also react to structurally related allergens such as para-aminobenzoic acid ester anaesthetics, sulfonamides, and paraphenylenediamine in hair dyes.<sup>1,2</sup>

Skin reactions (vitiligo) have also been reported with oral aminobenzoic acid<sup>3</sup> and the adverse effects associated with the former use of high oral doses for various conditions have been highlighted.<sup>4</sup>

- Scheuer E, Warshaw E. Sunscreen allergy: A review of epidemiology, clinical characteristics, and responsible allergens. *Dermatitis* 2006; **17**: 3–11. Correction. *ibid.*; 162.
- Mackie BS, Mackie LE. The PABA story. *Australas J Dermatol* 1999; **40**: 51–3.

- Hughes CG. Oral PABA and vitiligo. *J Am Acad Dermatol* 1983; **9**: 770.

- Worobec S, LaChine A. Dangers of orally administered para-aminobenzoic acid. *JAMA* 1984; **251**: 2348.

**Pharmacokinetics**

If given orally, aminobenzoic acid is absorbed from the gastrointestinal tract. It is metabolised in the liver and excreted in the urine as unchanged drug and metabolites.

**Uses and Administration**

Aminobenzoic acid is applied topically as a sunscreen (p.1576). Aminobenzoic acid and its derivatives effectively absorb light throughout the UVB range but absorb little or no UVA light (for definitions, see p.1580). Aminobenzoate sunscreens may therefore be used to prevent sunburn, but are unlikely to prevent drug-related or other photosensitivity reactions associated with UVA light; combination with a benzophenone may give some added protection against such photosensitivity.

Aminobenzoic acid has sometimes been included as a member of the vitamin-B group, but deficiency of aminobenzoic acid in man or animals has not been found.

Aminobenzoic acid has been used with bentiromide (p.2264) in the PABA or BTPABA test of pancreatic function.

**Preparations**

**USP 31:** Aminobenzoic Acid Gel; Aminobenzoic Acid Topical Solution.

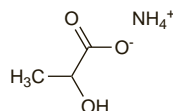
**Proprietary Preparations** some preparations are listed in Part 3.

**Ammonium Lactate** (USAN)

Amonio, lactato de; BMS-186091.

АММОНИЯ ЛАКТАТ

$C_3H_9NO_3 = 107.1$ .  
CAS — 52003-58-4.  
ATC Vet — QA16QA04.

**Profile**

Ammonium lactate is a humectant applied as a cream or lotion containing 12% lactic acid neutralised with ammonium hydroxide. It is used in the treatment of dry scaly conditions of the skin including ichthyosis. Adverse effects of topical ammonium lactate preparations include transient erythema, burning, and stinging. Treated areas may be more sensitive to sunlight and exposure should be minimised.

**Preparations**

**Proprietary Preparations** (details are given in Part 3)

**Arg.:** Lacto-Cev; **Lactrex;** **Braz.:** Lac-Hydrin; **Canad.:** Lac-Hydrin; **Chile:** Kerapil†; Topilact 12†; **Fr.:** Kerapil†; **Malaysia:** Lanate; **Mex.:** Lac-Hydrin; **NZ:** Lac-Hydrin; Lanate; **Singapore:** Lac-Hydrin; Lanate; **USA:** Amilactin; Geri-Hydrolac; Kersal AL; Lac-Hydrin; LAC-Lotion.

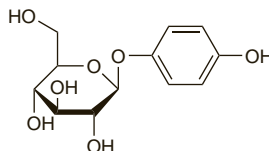
**Multi-ingredient:** **Arg.:** Clobeplus; Globesol LA; Lactiderm; Lactiderm HC†; Lacto-Cev Zn; Urecrem Hidro; **Braz.:** Lactrex; **Chile:** Ichtyosoft†; KPL†; Lactrex†; Queratopil; **Fr.:** I-Soft†; Ichtyosoft†; Keralac Plus†; Zeniac LP Fort†; Zeniac LP†; Zeniac†; **Indon.:** Exfoliac; **Ital.:** Alfa Acid; Ipso Urea; **Mex.:** Lactrex; **Port.:** Lactonico†; **Venez.:** Lactrex.

**Arbutin**

Arbutoside; Arbutyna; Beta-arbutin; Ursin. 4-Hydroxyphenyl-β-D-glucopyranoside.

Арбутин

$C_{12}H_{16}O_7 = 272.3$ .  
CAS — 497-76-7 (beta-arbutin); 84380-01-8 (alpha-arbutin).

**Profile**

Arbutin is a glycosylated derivative of hydroquinone (p.1598) extracted from bearberry (p.2263) and similar plants. It is used topically in concentrations of 1 to 5% as a depigmenting agent for the skin in hyperpigmentation disorders. The higher concentrations may lead to a paradoxical hyperpigmentation.

Alpha-arbutin has been used similarly.

**Preparations**

**Proprietary Preparations** (details are given in Part 3)

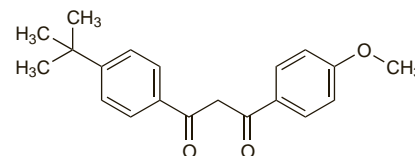
**Multi-ingredient:** **Arg.:** Cellskinlab Phyto Spot; Melasoft†; **Chile:** Phyto Corrective Gel; Phyto Spot; **Port.:** Despigmentante.

**Avobenzene** (USAN, rINN)

Avobenzona; Avobenzonum; Butylmethoxydibenzoylmethane; 4-tert-Butyl-4'-methoxydibenzoylmethane. 1-(*p*-tert-Butylphenyl)-3-(*p*-methoxyphenyl)-1,3-propanedione; 1-[4-(1,1-dimethylethyl)phenyl]-3-(4-methoxyphenyl)-1,3-propanedione.

АВОБЕНЗОН

$C_{20}H_{22}O_3 = 310.4$ .  
CAS — 70356-09-1.



NOTE. Escalol 517, Eusolex 9020, Neo-Heliopan 357, and Parsol 1789 are trade names that have been used for avobenzene.

**Pharmacopoeias.** In *US*.

**USP 31** (Avobenzene). M.p. 81° to 86°. Store in airtight containers. Protect from light.

**Profile**

Avobenzene is a substituted dibenzoylmethane used by topical application as a sunscreen (p.1576). Dibenzoylmethanes absorb light in the UVA range (for definitions, see p.1580) and may therefore be used with other sunscreens that absorb UVB light to prevent sunburn; they will also provide some protection against drug-related or other photosensitivity reactions associated with UVA light.

Contact and photocontact allergic dermatitis has occasionally been reported with the topical use of dibenzoylmethane sunscreens.

**Preparations**

**Proprietary Preparations** numerous preparations are listed in Part 3.

**Azelaic Acid** (USAN, rINN)

Acide azélaïque; Ácido azelaico; Acidum azelaicum; Anchoic acid; Atselaiinipappo; Azelaik Asit; Azelainsyra; Lepargylic acid; ZK-62498. Nonanedioic acid; Heptane-1,7-dicarboxylic acid.

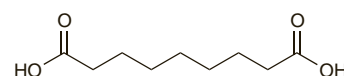
Азелаиновая Кислота

$C_9H_{16}O_4 = 188.2$ .

CAS — 123-99-9.

ATC — D10AX03.

ATC Vet — QD10AX03.

**Adverse Effects and Precautions**

Topical application of azelaic acid may produce a transient skin irritation such as burning, stinging, pruritus, dryness, and scaling. It is usually mild and disappears on continued treatment, but in a few patients the irritation may persist, requiring reduced frequency of application or temporary suspension of treatment. There have been rare reports of hypopigmentation, rash, and photosensitivity. Azelaic acid should not be applied to the eyes, mouth, or other mucous membranes.

**Uses and Administration**

Azelaic acid inhibits the growth of *Propionibacterium* spp. and reduces keratinisation. It is used in the topical treatment of mild to moderate inflammatory acne (p.1577) and for the inflammatory papules and pustules of mild to moderate rosacea (p.1583). It has also been tried in hyperpigmentary skin disorders such as melasma, and in malignant melanoma.

In the treatment of **acne** azelaic acid is applied twice daily for up to 6 months as a 20% cream or 15% gel. Improvement usually occurs within four weeks.

For the treatment of mild to moderate **rosacea**, a 15% gel should be applied to the affected area twice daily