

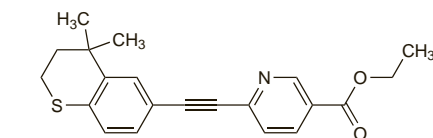
**Austria:** Exorex; **Braz:** Ionil-T Plus†; Tarflex; Theratarg; **Canada:** Balnetar; Doak-Oil; Estar†; Mazon Medicated Soap; Neutrogena T/Gel; Neutrogena T/Gel Therapeutic; Pentrax; Spectro Tar†; Targel; Tarsa-Tar; **Chile:** DHS Tar Gel; Neutrogena Shampoo Neutar; Spongell†; Tarmed; Tigel IRM; **Cz:** Delatar; Teer-Linola-Fett N†; **Denm:** Basotar†; **Fr:** Caditar; **Ger:** Basiter†; Berniter; Hoepkin Bad N†; Lorinden Teersalbe; Tarmed; Teer-Linola-Fett; **Gr:** Exorex; Ionil†; Tarmed; **Hong Kong:** Pinetarol; Zetar; **Irl:** Alphosyl†; Exorex; Pentrax; Psoriderm; **Israel:** Alphosyl 2 in 1; Denorex†; T/Gel; **Ital:** Konor; Shampoo SDE Tar†; Tarmed; **Malaysia:** Pin-Xol; Pinetarol; **Mex:** Ionil-T Plus; Shampoo Tarsa-Tar†; Tarmed; **Neth:** Exorex; **Norw:** Soraderm†; **NZ:** Pinetarol; Spongell†; **Pol:** Delatar; Freederm Tar†; Polytar; **Port:** Neutar; Tarmed; **Rus:** Freederm Tar (Фридерм Деготь); **S.Afr:** Alphosyl; Denorex; Exarex†; Linotar; **Singapore:** Pinetarol; Spongell; Tarmed; Alphosyl; Piroxol; Psoriasisin; Tar Isdin Champu; Tarmed; Tejel; **UK:** Alphosyl 2 in 1; Carbo-Dome; Clinitar; Exorex; Pentrax; Pinetarol; Psoriderm; T/Gel; **USA:** Balnetar; Creamy Tar; DHS Tar; Estar†; Fototar; Ionil-T Plus; MG217 Medicated; Neutrogena T/Gel; Oxipor VHC; PC-Tar; Pentrax; Polytar; Spongell†; Taraphilic; Tegrin; Tera-Gel; Zetar; **Venez:** Alma-Tar.

**Multi-ingredient:** **Arg:** Acnetrol; Adop-Tar†; Aroseb; Champuacid; Cicatrol; Confor-Tar†; Cremsor N; Domitsona†; Eurocoal; Farm-X; Hyaluron; Ingemet; Ionil-T; Laurinol Plus; Medic†; Mencogrin; Mencogrin AP; Oilalfo; Sequals G; Sorsis; Sorsis Beta; **Austral:** Alphosyl; Eczema Cream; Egopsoryl TA; ER Cream†; Fongitar; Hamilton Pine Tar with Menthol; Ionil-T; Neutrogena T/Salt†; Pinetarol; Polytar; Psor-Assist; Sebitar; Tarband†; **Austria:** Alphosyl; Alpicort; Locacorten Tar; **Belg:** Locacortene Tar†; **Braz:** Hebrin; Ionil-T; Polytar; Xarope Sao Joao†; **Canada:** Boil Ease†; Dan-Tar Plus; Denorex Medicated; Mazon Medicated Cream; Mazon Medicated Shampoo; Medi-Dan; Multi-Tar Plus; Oxipor; P & S Plus; Polytar; Polytar AF; Sebcur†; Sebutor†; S; Liminet; Spectro Tar†; Sterex Sterex Plus; Tardan; Targel SA; X-Seb T; X-Seb T Plus; X-Tar; **Chile:** Denorex Herbal†; Ionil-T; Tarytar†; **Cz:** Locacorten Tar†; Polytar; Polytar AF; Suspensio Visnevski cum Pice Liquida Herbacos; **Fr:** Alphosyl†; Cystel Shampooing Antiseborrheique†; Epiphane†; Item Alphacade; Laccoderme a l'huile de cade; Node DS; Node K; Node P; Novophane; Novophane S; Phytolithe†; Psocortene; Squaphane; Squaphane E; Squaphane Masque-Creme; Squaphane P; Squaphane S; **Ger:** Lorinden T†; Psorigerb N†; **Hong Kong:** 2-4-2†; Cocos†; Egopsoryl TA; Fongitar; Ionil-T; Locacorten Tar†; Multi-Tar; Polytar; Polytar Emollient; Sebitar; **Hung:** Aknefug-liquid N†; Polytar; Polytar AF; **India:** Derobin Skin; Ionax T; **Indon:** Polytar; Alphosyl HC†; Capasol; Cocos; Denorex; Gelcotar†; Ionil-T†; Polytar; Polytar Emollient†; Pragmatar; **Israel:** Alphosyl HC†; Alphosyl†; Capasol; CT Ointment†; CT Pomade†; CT Shampoo†; Polytar; Topocorten-Tar; **Ital:** Alphosyl†; Balta-Crin Tar†; Rvescal Tar; **Malaysia:** Cocos†; Egopsoryl TA; Mentar; Polytar; Sebitar; **Mex:** Antaderm; Dariseb; Dealan; Dermoscalp; Ionil-T; Jabon del Tio Nacho; Polytar; Sebryl; Sebryl Plus; Sebstop; Shampoo del Tio Nacho; **Neth:** Denorex; **NZ:** Coco-Scalp; Cocos†; Egopsoryl TA; Fongitar†; Ionil-T; Polytar; Polytar Emollient; Polytar Plus; Sebitar; **Philipp:** Fongitar; Ionil-T; Polytar; **Pol:** Cocos; Polytar AF; Psoriasis; **Port:** Alpha Cade; Banholeum Composto; Betacade†; Edoltar†; Fongitar; Polytar; Sucaderm†; **S.Afr:** Alphosyl; Fongitar; Haarlemensis; Oxipor VHC; Polytar; SB Universal Ointment; **Singapore:** Denorex†; Egopsoryl TA; Fongitar; Ionil-T; Polytar; Sebitar; **Spain:** Alphosyl; Bazalin; Emolytar; Ionil Champu; Ionil†; Polytar; Quinortar†; Tar Isdin Plus†; Zination Plus; **Swed:** Alphosyl†; **Switz:** Alphosyl†; **Thai:** Fongitar; Ionil-T†; Polytar; **Turk:** Kadolin; Wilkinson; **UK:** Alphosyl HC; Capasol; Cocos; Polytar AF; Polytar Emollient; Polytar Liquid; Polytar Plus; Pragmatar†; Psorin; Sebco; Snowlire; Varicose Ointment; **USA:** Boil Ease; Ionil-T; Medotar; Neutrogena T/Salt; Sal-Oil-T; Sebex-T; SLT†; Tarlene; Tarsum; X-Seb T; X-Seb T Plus; **Venez:** Vitart.

## Tazarotene (BAN, USAN, rINN)

AGN-190168; Tatsaroteni; Tazaroten; Tazarotène; Tazaroteno; Tazarotenum. Ethyl 6-[(4,4-dimethylthiochroman-6-yl)ethynyl]nicotinate.

Tazarотен  
C<sub>21</sub>H<sub>21</sub>NO<sub>2</sub>S = 351.5.  
CAS — 118292-40-3.  
ATC — D05AX05.  
ATC Vet — QD05AX05.



## Adverse Effects and Precautions

As for Tretinoin, p.1618.

Systemic absorption from tazarotene applied topically is low, and the most frequent adverse effects are on the skin; the incidence of adverse events appears to be concentration related.

**Animal** studies have indicated that tazarotene is fetotoxic and teratogenic, and licensed product information recommends that tazarotene should not be used during pregnancy or in women planning a pregnancy. Similarly, tazarotene should not be used, or used with caution, during breast feeding, as **animal** data indicate that it may be distributed into breast milk.

**Effects on the skin.** A 57-year-old man with diabetes and recalcitrant psoriasis on the trunk and limbs developed acute dermatitis<sup>1</sup> in the genital area 2 weeks after starting treatment with topical tazarotene 0.1%. The affected areas became ulcerated over the next few days. It was suspected that accidental contact with the tazarotene that had been applied to the truncal

psoriasis was responsible. Pyogenic granuloma has been associated with topical tazarotene and other retinoids given orally or applied topically (see Effects on the Skin, Hair, and Nails, under Isotretinoin, p.1601).

1. Wollina U. Genital ulcers in a psoriasis patient using topical tazarotene. *Br J Dermatol* 1998; **138**: 713–14.

## Uses and Administration

Tazarotene is a retinoid used for the topical treatment of mild to moderate acne and plaque psoriasis, and to treat signs of photoageing. Tazarotene is a prodrug that is de-esterified in the skin to its active form, tazarotenic acid. The mode of action is unknown but it appears to modulate cell proliferation and differentiation.

In the treatment of psoriasis, tazarotene 0.05% cream or gel is used initially and increased to 0.1% if necessary. It is applied once daily in the evening. In the UK tazarotene is licensed for use in patients with psoriasis affecting up to 10% of the body-surface; in the USA, it may be used on psoriasis involving up to 20% of the body-surface.

In the treatment of acne, tazarotene is applied as a 0.1% gel or cream once daily in the evening.

There may be exacerbation of acne during early treatment or of psoriasis at any time during treatment. The treatment period is usually up to 12 weeks, although tazarotene has been used for up to 12 months in the treatment of psoriasis.

A 0.1% cream is used in the topical treatment of certain signs of photoageing (facial fine wrinkling, mottled hypo- and hyperpigmentation, and benign facial lentiginous). It is applied once daily at bedtime to lightly cover the entire face.

## Reviews.

1. Foster RH, *et al.* Tazarotene. *Drugs* 1998; **55**: 705–11.
2. Tang-Liu DD-S, *et al.* Clinical pharmacokinetics and drug metabolism of tazarotene: a novel topical treatment for acne and psoriasis. *Clin Pharmacokinet* 1999; **37**: 273–87.
3. Guenther LC. Optimizing treatment with topical tazarotene. *Am J Clin Dermatol* 2003; **4**: 197–202.

**Malignant neoplasms.** There has been some interest in the use of topical tazarotene in the treatment of neoplasms affecting the skin. Preliminary studies have reported some lesion regression or clearance in basal cell<sup>1</sup> and squamous cell carcinomas<sup>2</sup> (p.673), and mycosis fungoides<sup>3</sup> (p.657).

1. Bianchi L, *et al.* Topical treatment of basal cell carcinoma with tazarotene: a clinicopathological study on a large series of cases. *Br J Dermatol* 2004; **151**: 148–56.
2. Bardazzi F, *et al.* A pilot study on the use of topical tazarotene to treat squamous cell carcinoma in situ. *J Am Acad Dermatol* 2005; **52**: 1102–4.
3. Apisarnthanarax N, *et al.* Tazarotene 0.1% gel for refractory mycosis fungoides lesions: an open-label pilot study. *J Am Acad Dermatol* 2004; **50**: 600–607.

**Skin disorders.** Tazarotene is used for the topical treatment of mild to moderate acne<sup>1,2</sup> (p.1577) and plaque psoriasis<sup>3,4</sup> (p.1583); benefit has also been reported for psoriasis of the nails.<sup>5,6</sup> Improvement has been reported too in keratinisation disorders such as Darier's disease<sup>7,8</sup> (p.1578) and congenital ichthyosis<sup>9–11</sup> (p.1580). Topical tazarotene can also improve some signs of photoageing (p.1581), including fine wrinkling, mottled hyperpigmentation, and lentiginous (liver spots).<sup>12–14</sup>

1. Leyden JJ. Meta-analysis of topical tazarotene in the treatment of mild to moderate acne. *Cutis* 2004; **74** (4 suppl): 9–15.
2. Shalita AR, *et al.* Effects of tazarotene 0.1% cream in the treatment of facial acne vulgaris: pooled results from two multicenter, double-blind, randomized, vehicle-controlled, parallel-group trials. *Clin Ther* 2004; **26**: 1865–73.
3. Weinstein GD, *et al.* Tazarotene cream in the treatment of psoriasis: two multicenter, double-blind, randomized, vehicle-controlled studies of the safety and efficacy of tazarotene creams 0.05% and 0.1% applied once daily for 12 weeks. *J Am Acad Dermatol* 2003; **48**: 760–7.
4. Dando TM, Wellington K. Topical tazarotene: a review of its use in the treatment of plaque psoriasis. *Am J Clin Dermatol* 2005; **6**: 255–72.
5. Scher RK, *et al.* Tazarotene 0.1% gel in the treatment of fingernail psoriasis: a double-blind, randomized, vehicle-controlled study. *Cutis* 2001; **68**: 355–8.
6. Bianchi L, *et al.* Tazarotene 0.1% gel for psoriasis of the fingernails and toenails: an open, prospective study. *Br J Dermatol* 2003; **149**: 207–9.
7. Oster-Schmidt C. The treatment of Darier's disease with topical tazarotene. *Br J Dermatol* 1999; **141**: 603–4.
8. Brazzelli V, *et al.* Linear Darier's disease successfully treated with 0.1% tazarotene gel "short-contact" therapy. *Eur J Dermatol* 2006; **16**: 59–61.
9. Hofmann B, *et al.* Effect of topical tazarotene in the treatment of congenital ichthyosis. *Br J Dermatol* 1999; **141**: 642–6.
10. Marulli GC, *et al.* Type I lamellar ichthyosis improved by tazarotene 0.1% gel. *Clin Exp Dermatol* 2003; **28**: 391–3.
11. Kundu RV, *et al.* Lamellar ichthyosis treated with tazarotene 0.1% gel. *J Am Acad Dermatol* 2006; **55** (suppl 5): S94–S95.

12. Phillips TJ, *et al.* Efficacy of 0.1% tazarotene cream for the treatment of photodamage: a 12-month multicenter, randomized trial. *Arch Dermatol* 2002; **138**: 1486–93.
13. Machtinger LA, *et al.* Histological effects of tazarotene 0.1% cream vs. vehicle on photodamaged skin: a 6-month, multicenter, double-blind, randomized, vehicle-controlled study in patients with photodamaged facial skin. *Br J Dermatol* 2004; **151**: 1245–52.
14. Kang S, *et al.* A multicenter, randomized, double-blind trial of tazarotene 0.1% cream in the treatment of photodamage. *J Am Acad Dermatol* 2005; **52**: 268–74.

## Preparations

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

**Austria:** Zorac; **Belg:** Zorac; **Braz:** Zorac†; **Canada:** Tazorac; **Cz:** Tazorac; **Fin:** Zorac†; **Fr:** Zorac; **Ger:** Zorac; **Gr:** Zorac; **India:** La Tez; Tazret†; **Irl:** Zorac; **Israel:** Zorac; **Ital:** Zorac; **Mex:** Suretin; **Pol:** Zorac; **S.Afr:** Zorac; **Spain:** Zorac; **Swed:** Zorac†; **Switz:** Zorac; **UK:** Zorac; **USA:** Avage; Tazorac.

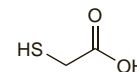
## Thioglycolic Acid

Kwas tioglikolowy; Tioglicólico, ácido. Mercaptoacetate acid.

ТИОГЛИКОЛЕВАЯ КИСЛОТА

C<sub>2</sub>H<sub>3</sub>O<sub>2</sub>S = 92.12.

CAS — 68-11-1.



## Calcium Thioglycollate

Calcium Mercaptoacetate; Tioglicolato cálcico. Calcium mercaptoacetate trihydrate.

ТИОГЛИКОЛЯТ КАЛЬЦИЯ

C<sub>2</sub>H<sub>3</sub>CaO<sub>2</sub>S<sub>2</sub>·3H<sub>2</sub>O = 184.2.

CAS — 814-71-1.

## Profile

Thioglycolic acid is used, usually as the calcium salt, in depilatory preparations. Thioglycollates are also used in hair waving or straightening products with potassium bromate as the neutraliser. There have been reports of skin reactions associated with the use of thioglycollates.

## Tioxolone (BAN, rINN)

OL-110; Thioxolone; Tioksolon; Tioksoloni; Tioxolon; Tioxolona; Tioxolonum. 6-Hydroxy-1,3-benzoxathiol-2-one.

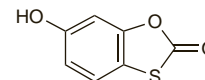
ТИОКСОЛОН

C<sub>7</sub>H<sub>4</sub>O<sub>2</sub>S = 168.2.

CAS — 4991-65-5.

ATC — D10AB03.

ATC Vet — QD10AB03.



## Pharmacopoeias. In Pol.

## Profile

Tioxolone has astringent and keratolytic effects, and has been used topically in the treatment of various skin and scalp disorders.

## Preparations

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

**Multi-ingredient:** **Ger:** Losco†.

## Titanium Dioxide

CI Pigment White 6; Colour Index No. 77891; E171; Oxid titanium; Titanidioksid; Titanioxiid; Titan-dioxid; Titane, dioxyde de; Titanii dioksidum; Titanio, dióxido de; Titanium Oxide; Titano dioksidas; Titanium Dioksid; Tytanu(IV) tlenek.

Двухокись Титана; Диоксид Титана

TiO<sub>2</sub> = 79.87.

CAS — 13463-67-7.

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

**Ph. Eur. 6.2** (Titanium Dioxide). A white or almost white powder. Practically insoluble in water; it does not dissolve in dilute mineral acids but dissolves slowly in hot concentrated sulfuric acid.

**USP 31** (Titanium Dioxide). A white odourless powder. Insoluble in water, in hydrochloric acid, in nitric acid, and in 2N sulfuric acid; dissolves in hot sulfuric acid and in hydrofluoric acid; it is rendered soluble by fusion with potassium bisulfate or with alkali hydroxides or carbonates. A 10% suspension in water is neutral to litmus.