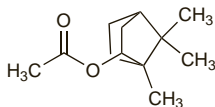


Bornyl Acetate (USAN)

Borneol Acetate; Bornilo, acetato de; Bornylu octan. 1,7,7-Tri-methylbicyclo[2.2.1]heptan-2-ol acetate.

$C_{12}H_{20}O_2 = 196.3$.

CAS — 76-49-3.

**Profile**

Bornyl acetate is a constituent of some essential oils. It has been used in aromatic preparations in the treatment of coughs, other respiratory-tract disorders, and musculoskeletal and joint disorders.

Preparations

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: **Arg.:** Jabonacid; **Chile:** Expanden; **Ger.:** Lindofluid N.

Bromelains (BAN, USAN, rINN)

Bromelaiinit; Bromelaina; Bromelaina; Bromelainer; Bromelainya; Bromelaiones; Bromelins; Plant Protease Concentrate.

Бромелайны

CAS — 9001-00-7.

ATC — B06AA11.

ATC Vet — QB06AA11.

Units

One Rorer unit of protease activity has been defined as that amount of enzyme which hydrolyses a standardised casein substrate at pH 7 and 25° so as to cause an increase in absorbance of 0.00001 per minute at 280 nm. FIP units are also defined in terms of rate of hydrolysis of bromelain activity of a casein preparation under standard conditions.

Activity has also been described in terms of milk-clotting units.

Adverse Effects

Bromelains may cause nausea, vomiting, and diarrhoea. Menorrhagia and menorrhagia have occasionally occurred. Hypersensitivity reactions have been reported and have included skin reactions and asthma.

Effects on the respiratory system. Bronchial asthma was experienced by 2 patients after exposure to bromelains.¹ Of 6 workers sensitised to papain, 5 showed positive skin tests to bromelains and 2 of them also showed immediate asthmatic reactions after bronchial challenge with bromelains.²

- Galleguillos F, Rodriguez JC. Asthma caused by bromelin inhalation. *Clin Allergy* 1978; **8**: 21–4.
- Baur X, Fruhmann G. Allergic reactions, including asthma, to the pineapple protease bromelain following occupational exposure. *Clin Allergy* 1979; **9**: 443–50.

Precautions

Bromelains should be given with care to patients with coagulation disorders or with severe hepatic or renal impairment.

Uses and Administration

Bromelains are a concentrate of proteolytic enzymes derived from the pineapple plant, *Ananas comosus* (*A. sativus*) (Bromeliaceae). They are used as an adjunct in the treatment of soft-tissue inflammation and oedema associated with trauma and surgery. Bromelains have also been given as an aid to digestion, and used in the treatment of partial deep dermal and full thickness burns.

◇ References.

- Kane S, Goldberg MJ. Use of bromelain for mild ulcerative colitis. *Ann Intern Med* 2000; **132**: 680.
- Maurer HR. Bromelain: biochemistry, pharmacology and medical use. *Cell Mol Life Sci* 2001; **58**: 1234–45.

Preparations

Proprietary Preparations (details are given in Part 3)

Chile: Ananase Forte; **Fr.:** Extranase; **Ger.:** dontisanin; Mucozym; Proteozym; Traumanase; **Hong Kong:** Internase; **Ital.:** Ananase; **Port.:** Ananase; **Switz.:** Traumanase; **Venez.:** Ananase.

Multi-ingredient: **Arg.:** Phlogenzym†; **Austral.:** Bio-Disc; Bioglan Disconef; Digestaid; Digestive Aid; Prost-1†; Prozyme†; **Austria:** Arca-Enzym; Phlogenzym; Rutozym; Traumazym; Wobenzym; **Braz.:** Bromelin†; Expectofal†; Monocetin; Nutrizim†; Plasil Enzimatico; Reumat†; Sintozima; **Cz.:** Phlogenzym; Wobenzym; **Ger.:** Enzym-Wied†; Mulsal N†; Phlogenzym; Wobenzym N; **Hung.:** Phlogenzym; **India:** Merckenzyme; **Indon.:** Benozym; Elszaym; **Ital.:** Algorex; Bres†; Flogofort; Flogovis IdroGel; Inflamase; Inflamase IdroGel; Signum; **Jpn:** Kimotab; **Mex.:** Phlogenzym; Plasil Enzimatico; Wobenzym; **Port.:** Bioregime SlimKit†; **Rus.:** Phlogenzym (Флогэнзим); Wobenzym (Вобэнзим); **UK:** BackOsamine; Enzyme Digest; **Venez.:** Enzima de Lechoza†; Nutzizm Compositum; Phlogenzym; Wobenzym N.

Bromides

Bromuros.

ATC — N05CM11.

ATC Vet — QN05CM11.

Ammonium Bromide

Ammon. Brom.; Ammonii bromidum; Ammonium Bromatum; Ammonium, bromure d'; Ammoniumbromid; Ammonium-bromid; Ammoniumbromidi; Amonio bromidas; Amonowy bromek; Brometo de Amônio; Bromid amonny.

$NH_4Br = 97.94$.

CAS — 12124-97-9.

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

Ph. Eur. 6.2 (Ammonium Bromide). A white or almost white, hygroscopic crystalline powder or colourless crystals. It becomes yellow when exposed to light or air. Freely soluble in water; sparingly soluble in alcohol. Store in airtight containers. Protect from light.

Potassium Bromide

Brometo de Potássio; Bromid draselny; Bromure de Potassium; Kalii bromidum; Kalio bromidas; Kalium Bromatum; Kaliumbromid; Kálium-bromid; Kaliumbromidi; Pot. Brom.; Potassii Bromidum; Potassium, bromure de; Potasu bromek.

$KBr = 119.0$.

CAS — 7758-02-3.

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

Ph. Eur. 6.2 (Potassium Bromide). A white or almost white, crystalline powder or colourless crystals. Freely soluble in water and in glycerol; slightly soluble in alcohol.

USP 31 (Potassium Bromide). A white crystalline powder or colourless, cubical crystals. Freely soluble in water and in glycerol; slightly soluble in alcohol.

Sodium Bromide

Brometo de Sódio; Bromid sodny; Bromure de Sodium; Natrii bromidum; Natrio bromidas; Natrium Bromatum; Natriumbromid; Nátrium-bromid; Natriumbromidi; Sod. Brom.; Sodii Bromidum; Sodium, bromure de; Sodiu bromek.

$NaBr = 102.9$.

CAS — 7647-15-6.

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

Ph. Eur. 6.2 (Sodium Bromide). A slightly hygroscopic, white or almost white, granular powder, or small, colourless, transparent, or opaque crystals. Freely soluble in water; soluble in alcohol. Store in airtight containers.

USP 31 (Sodium Bromide). A white crystalline powder or colourless, cubical crystals. Freely soluble in water; soluble in alcohol.

Adverse Effects and Precautions

During prolonged exposure bromide accumulation may occur giving rise to bromide intoxication or bromism. Symptoms include nausea and vomiting, anorexia, confusion, behavioural disturbances, slurred speech, memory impairment, drowsiness, irritability, ataxia, tremors, hallucinations, mania, delirium, psychoses, stupor, coma, and other manifestations of CNS depression. Skin rashes of various types may occur and toxic epidermal necrolysis has been reported. Death after acute poisoning appears to be rare as vomiting follows the ingestion of large doses.

There have been reports of neonatal bromide intoxication and growth defects associated with maternal bromide ingestion during pregnancy.

Breast feeding. The American Academy of Pediatrics¹ considers that intake of bromides is usually compatible with breast feeding, although rashes, weakness, and absence of crying have been reported in the infant following maternal intake. Exposure to bromides in photographic laboratories may also result in potential absorption and transfer into breast milk.

- American Academy of Pediatrics. The transfer of drugs and other chemicals into human milk. *Pediatrics* 2001; **108**: 776–89. Correction. *ibid.*; 1029. Also available at: <http://pediatrics.aappublications.org/cgi/content/full/108/3/776> (accessed 22/07/08)

Treatment of Adverse Effects

In acute poisoning, the stomach should be emptied (if emesis has not already occurred), and sodium chloride should be given by intravenous infusion. Glucose may also be used and furosemide may be given to aid diuresis.

In chronic poisoning, bromides are stopped and sodium chloride is given intravenously or orally with adequate amounts of fluid. Ammonium chloride has been given but is no longer recommended as it may precipitate metabolic acidosis. Diuretics are of value. In severe cases of bromide intoxication, or when the usual treatments cannot be used, haemodialysis may be of benefit.

Pharmacokinetics

Bromides are readily absorbed from the gastrointestinal tract. They displace chloride in extracellular body fluids and have a half-life in the body of about 12 days. They may be detected in the milk of nursing mothers and in the fetus.

Uses and Administration

Bromides depress the CNS. Calcium, potassium, and sodium bromide have been used as sedatives and anticonvulsants, but have generally been replaced by more effective, less toxic drugs. Ammonium and strontium bromide have been used similarly, as have bromoform and dilute hydrobromic acid. Bromides have also been used in multi-ingredient preparations for the treatment of coughs.

Homoeopathy. Hydrobromic acid and various bromides have been used in homoeopathic medicines under the following names:

- Hydrobromic acid: Hydr. ac.
- Ammonium bromide: Ammonium bromatum; Ammonium bromidum; Amm. brom.
- Arsenic bromide: Arsenicum bromatum; Ars. brom.
- Cadmium bromide: Cadmium bromatum; Cad. brom.
- Calcium bromide: Calcarea bromata; Calc. bro.
- Ferrous bromide: Ferrum bromatum; Fer. brom.
- Potassium bromide: Kalium bromatum; Kali bromatum; Kali. br.
- Sodium bromide: Natrum bromatum; Nat. brom.
- Radium bromide: Rad. br.
- Zinc bromide: Zincum bromatum; Zinc. br.

Preparations

Proprietary Preparations (details are given in Part 3)

Ger.: Dibro-Be Mono.

Multi-ingredient: **Braz.:** Alergitrat†; Bromidrastina†; Frenotosse; Gotas Nican†; Naquinto†; Xarope de Caraguata†; Xarope Pectoral de Ameixa Composto†; Xarope Sao Joao†; Xpe 5PC†; **Chile:** Gotas Nican†; Gruben; Ramos†; **Fr.:** Gallrene†; Sedatif Tiber; **Indon.:** Thymcal; **Ital.:** Fertomocidina-U; **Pol.:** Sal Ems Factium†; **S.Afr.:** Bronchicum†; **Spain:** Topico Denticion Vera†.

Bromine

Brom; Bromo; Bromum.

$Br_2 = 159.808$.

CAS — 7726-95-6.

Description. Bromine is a dark reddish-brown, heavy, mobile liquid that gives off intensely irritating brown fumes.

Adverse Effects

Bromine is intensely irritating and corrosive to eyes and mucous membranes; it may cause severe gastro-enteritis if swallowed. Contact with the skin can produce severe burns, and inhalation of the vapour causes violent irritation of the respiratory tract and pulmonary oedema.

Treatment of Adverse Effects

Milk or antacids should be given as soon as possible following ingestion of bromine. Gastric lavage is not recommended. If bromine vapour has been inhaled, oxygen should be administered and assisted ventilation may be necessary. The use of prophylactic corticosteroids for laryngeal and pulmonary oedema is controversial. Splashes on the skin and eyes should be immediately washed off; washing under running water should continue for at least 15 minutes.

Uses and Administration

Bromine is widely used in industry. It was formerly used, in the form of an adduct with a quaternary ammonium compound, in the treatment of plantar warts.

Bryonia

Bryonia; Nueza.

Profile

Bryonia, the root of *Bryonia alba* or *B. dioica* (Cucurbitaceae), is an ingredient of preparations that have been used in respiratory-tract infections and inflammatory disorders. Toxic symptoms and fatalities have been reported after ingestion of the berries.

Homoeopathy. Bryonia has been used in homoeopathic medicines under the following names: Bryonia cretica; Bryonia radice; Bry. cre.; Bryonia alba; Bry. alba.

Preparations

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: **Austral.:** Cough Relief†; Joint & Muscle Cream; **Cz.:** Homeovox; **Fr.:** Homeoplasmine; **Mex.:** Reudol.

Buchu

Barosma; Bucco; Buchú; Buchu Leaves; Diosma; Folia Bucco.

CAS — 68650-46-4 (buchu leaf oil).

Pharmacopoeias. In *Fr.*, which allows the dried leaves of *Agathosma betulina* (short or round buchu), *A. crenulata* (oval buchu), and *A. serratifolia* (long buchu).

Profile

Buchu, the dried leaves of 'short' or 'round' buchu, *Agathosma betulina* (*Barosma betulina*) (Rutaceae), is a weak diuretic and urinary antiseptic that has been used in multi-ingredient preparations for the treatment of urinary-tract disorders. Oval or long buchu, the leaves of *Agathosma crenulata* (*B. crenulata*), has