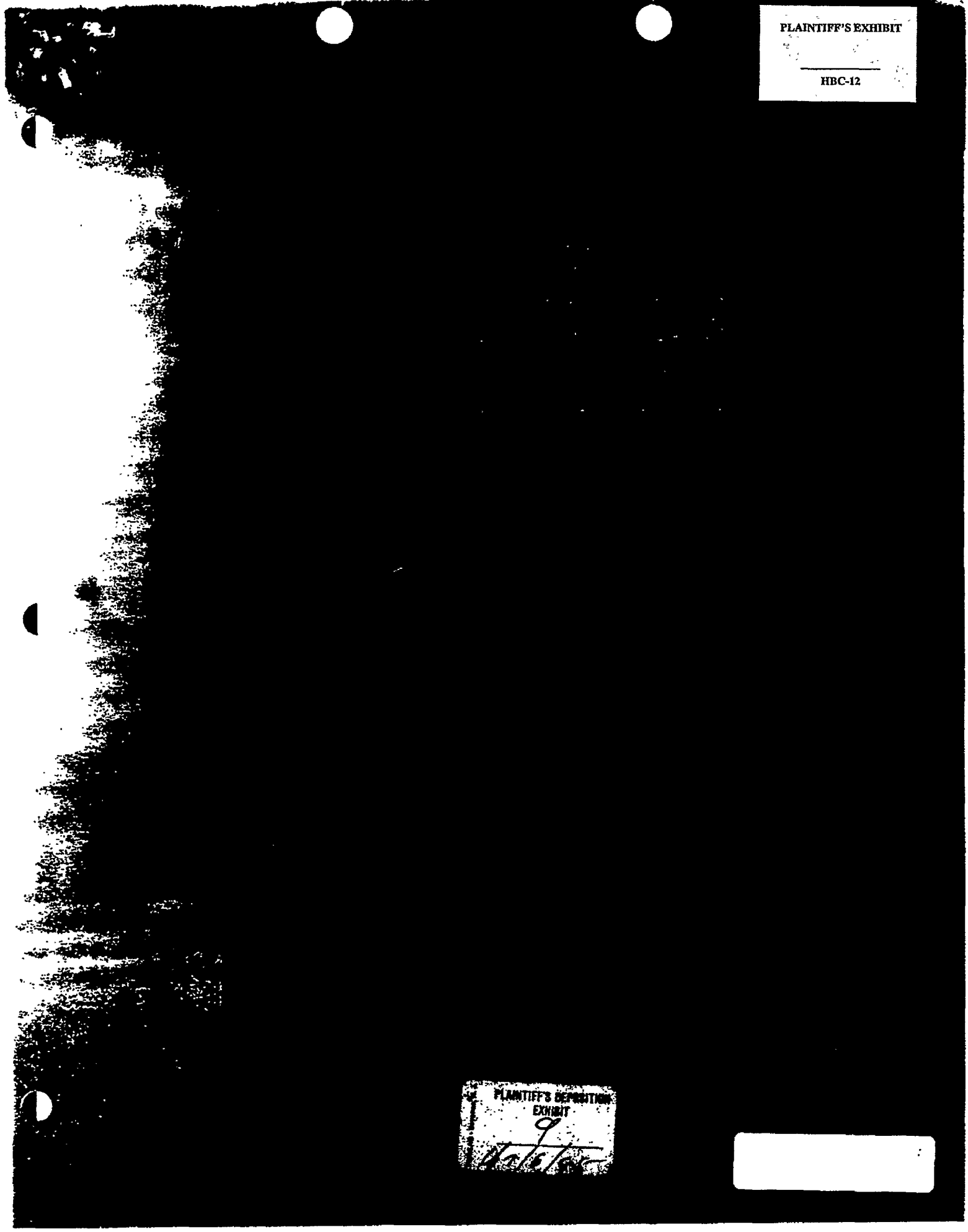
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SIXTH EDITION

THE MERCK INDEX

OF

CHEMICALS AND DRUGS

AN ENCYCLOPEDIA FOR THE CHEMIST, PHARMACIST, PHYSICIAN, AND ALLIED PROFESSIONS



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and advice.

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ıchloride *see* Prisilidene

Diamyl Sodium Sulfosucci-

isobutyl Sodium Sulfosucci-

bis(1-Methylamyl) Sodium

bis(2-Ethylhexyl) Sodium

yl-5-phenylbarbituric Acid.

yl-5-phenylbarbituric Acid.

thyl Salicylate.

leaves of *Alphonsea ventri-*
s, Anonaceae; not yet fully
le in water or alkali hy-

Alphonsea lutea and that
is less toxic.
Lands Plant. 25, 17 (1898).
Inst. Sci. 7, 232 (1924).
J. Sci. 38, 259 (1929).

inyl Peroxide.

bark of *Alstonia spectabilis*

in alcohol, chloroform, dil.

203, 170 (1880).

Dita Bark.

bark of *Alstonia constricta*
ceae.

1°. Insoluble in water;
hl m, ether, acetone,
so. are fluorescent.
205, 360 (1880).

telluride.

cyan from flowers of the
haea rosea. Should not be
ıe.

ms optically levogyrate
er, freely soluble in water,

Martin, *Ann.* 408, 110
r [*Helv. Chim. Acta* 10,
at althaein is a mixture
of delphinin and mal-
ivative of delphinin.

Dried root of *Althaea*
te (marshmallow), de-
y layer. Habit. Europe,
ern Asia, naturalized in
tit. Asparagin, 25–35%
in.

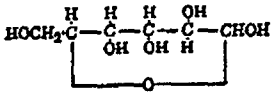
ılcent solns. for sympto-
gh and inflammation of
Grades available: N.F.

Althea Leaves. Dried leaves of marshmallow. Active constituent is a mucilage.

Altheine *see* Asparagine.

D-Altropyranose *see* D-Altrose.

D-Altrose. D-Altropyranose. $C_6H_{12}O_6$; mol. wt. 180.16. C 40%, H 6.71%. Prepd. by the reduction of D-altronic lactone with sodium amalgam: Levene, Jacobs, *Ber.* 43, 3143 (1910).



Prisms from dilute alcohol, m. 103–105°. $[\alpha]_D^{20}$ +32.6° (c = 7.6). Soluble in water; insoluble in alcohol.

Phenylosazone, $C_{18}H_{22}N_4O_4$, m. 178°.

Aludrine *see* α-(Isopropylaminomethyl)protocatechuyl Alcohol.

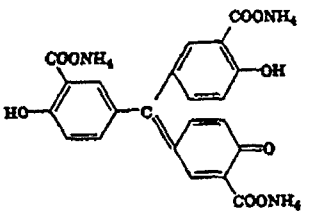
Alum *see* Aluminum Potassium Sulfate.

Alum Flour *see* Aluminum Potassium Sulfate.

Alum-Hematoxylin *see* Hemalum, Dry.

Alumina *see* Aluminum Oxide.

Aluminon. The ammonium salt of aurin tricarboxylic acid. $C_{22}H_{23}N_3O_9$; mol. wt. 473.43. C 55.81%, H 4.89%, N 8.88%. Prepd. by reacting sodium nitrite with salicylic acid and adding formaldehyde, then treating with ammonia: Heisig, Lauer, *Org. Syn.* 9, 8 (1929).



Yellowish-brown, glassy powder. Freely soluble in water.

Use: Forms brilliantly colored lakes with aluminum, chromium, iron, beryllium. Generally used for the detection and colorimetric estimation of aluminum in water, foods, tissues. Cf. Scherrer, Mogerman, *J. Res. Nat. Bur. Stand.* 21, 105 (1938). *Grades available:* Reagent.

Aluminum. Al; at. wt. 26.98; at. no. 13; valence 3. Discovered by Wöhler in 1827. Obtained from cryolite (double sod. and aluminum fluoride) or bauxite (native aluminum hydroxide) by electrolysis in electric furnace.

Tin-white, malleable, ductile metal, with somewhat bluish tint; capable of taking brilliant polish which is retained in dry air. In moist air gradually oxidizes superficially. Available in bars, leaf, powder, sheets or wire. d. 2.70. m. 660°. b. 1800°. Does not vaporize even at high temps., but finely divided aluminum dust is easily ignited, and may cause explosions. Soluble in dil. HCl, H_2SO_4, in soln. KOH and NaOH with evolution of hydrogen; almost insoluble in HNO_3 or acetic acid when hot.

Reduces the cations of many heavy metals to the metallic state. Solns. of the metal in dil. HCl or neutral or slightly acid solns. of most aluminum salts, yield with Na_2S a white ppt. soluble in excess of Na_2S. Dil. neutral soln. of aluminum salts yield white gelatinous ppt. on boiling with sod. acetate.

Use: As the pure metal or as alloys (magnalium, aluminum bronze, etc.) for aircraft, utensils, apparatus, electrical conductors; instead of copper in dental alloys. The coarse powder is used in aluminothermics (thermite process); the fine powder as flashlight in photography, in explosives, fireworks and in aluminum paints; for absorbing occluded gases in manuf. of steel. In testing for Au, As, Hg; coagulating colloidal solns. of As or Sb; pptg. Cu; reducer for determining nitrates and nitrites; instead of Zn for generating hydrogen in testing for As. *Grades available:* Reagent, technical.

Med. Use: Inhalation of finely divided aluminum dust proposed as a means of "binding" silica to prevent and reverse lung changes caused by silica dust.

Aluminum Acetate, Basic. Aluminum subacetate; mordant or waterproofing salts, printer's acetate, Lenicet. Approx. $Al_2O(CH_3COO)_4 \cdot 4H_2O$; mol. wt. 378.18. $C_8H_{22}Al_2O_{13}$; C 25.41%, H 5.33%, Al 14.26%, anhydr. salt 80.94%, H_2O 19.06%, Al_2O_3 26.96%, acetic acid 63.52%.

White powder, slightly acetic odor. Gradually loses acetic acid becoming more basic and difficultly soluble in acids. Insoluble in water; soluble in mineral acids and fixed alkali hydroxides.

Use: Mordant in dyeing; as disinfectant by embalmers; waterproofing and fireproofing fabrics; manuf. lakes. *Grades available:* Reagent, technical.

Med. Use: Has been used as a desiccant and deodorant dusting powder in eczema and chronic extern. ulcers.

Aluminum Acetate Solution. Burow's Solution. Contains about 5% neutral aluminum acetate. $Al(C_2H_3O_2)_3$ = 0.68% Al, 4.4% acetic acid, (1.25% Al_2O_3).

Colorless liquid; slight odor of acetic acid. d. about 1.022.

Med. Use: Astringent and antiseptic, used diluted with 5 to 10 parts of water.

Vet. Use: As Med. Use. *Grades available:* U.S.P.

Aluminum Acetotartrate. Consists of approx. 70% basic aluminum acetate and 30% tartaric acid.

Anti-gray-hair Factor *see* p-Aminobenzoic Acid.

Antihemorrhagic Vitamin *see* Vitamin K_1.

Antihist *see* 2-[(2-Dimethylaminoethyl)-(*p*-methoxybenzyl)amino]pyridine.

Antihypo *see* Potassium Percarbonate.

Anti-infective Vitamin *see* Vitamin A.

Antimalarine *see* 8-(3-Diethylaminopropylamino)-6-methoxyquinoline.

Antimonial Glass *see* Antimony Sulfide, Vitreous.

Antimonial Saffron *see* Antimony Pentasulfide.

Antimonic "Acid" *see* Antimony Pentoxide.

Antimonic Chloride *see* Antimony Pentachloride.

Antimonic Oxide *see* Antimony Pentoxide.

Antimonic Sulfide *see* Antimony Pentasulfide.

Antimonous Acid, Anhydrous *see* Antimony Trioxide.

Antimonous Bromide *see* Antimony Tribromide.

Antimonous Chloride *see* Antimony Trichloride.

Antimonous Fluoride *see* Antimony Trifluoride.

Antimonous Iodide *see* Antimony Triiodide.

Antimonous Oxide *see* Antimony Trioxide.

Antimonous Sulfate *see* Antimony Sulfate.

Antimonous Sulfide *see* Antimony Trisulfide—Native.

Antimony. Stibium; regulus of antimony. Sb; at. wt. 121.76; at. no. 51; valence 3, 5. First accurate description by Thölde (Basil Valentine) in 1604. Antimony ore is mined in China, Mexico, and Bolivia. The antimony of commerce is about 99% pure.

Silver-white, lustrous, hard, brittle metal; scale-like cryst. structure; or dark gray, lustrous powder. Is not tarnished in dry air and only slowly in moist air. d. 6.68. m. 631°. b. 1380°. sp. heat 0.049; electrical resistivity 39 micro-ohm-cm. at 0°. The metal is not poisonous, but its salts are poisonous. Not affected by cold dil. acids; attacked by hot concentr. H_2SO_4; readily soluble in aqua regia. Nitric acid, depending on the concentr., converts it to antimonous or antimonic oxide. When finely divided, it dissolves in hot concentr. HCl.

Dissolved in a slight excess of HCl with aid of HNO_3 and soln. poured in large vol. of water, a white ppt. forms which becomes orange-red on addition of H_2S and is soluble in ammonium sulfide.

Use: In manuf. of alloys, such as Britannia or Babbitt metal, hard lead, white metal, type, bullets and bearing metal; in fireworks; for thermoelectric piles, blackening iron, coating metals, etc. *Commercially available.*

Toxicity: Antimony and its compds. have been reported to cause dermatitis, keratitis, conjunctivitis and nasal septal ulceration by contact, fumes or dust. *Caution:* Avoid conditions in which nascent hydrogen will react with antimony to form stibine (SbH_3) which is extremely toxic (nausea, vomiting, headache, hemolysis, hematuria, abdominal pain and death). Stibine can be liberated from storage batteries when nascent hydrogen reacts, in an acid medium, with antimony present in the battery plates.

Antimony "Arsenate." Obtained by pptg. a soln. of tartar emetic with arsenic acid. Consists of approx. 40% Sb_2O_5, 20% As_2O_5 and H_2O.

Heavy, white powder. *Poisonous!* Insoluble in water, alcohol.

Toxicity: *See* Antimony and Arsenic.

Commercially available.

Antimony "Arsenite." Mixture of equal parts of Sb_2O_3 and As_2O_3.

Fine, white powder. Insoluble in water or dil. acids; slowly soluble in solns. of fixed alkali hydroxides.

Toxicity: *See* Antimony and Arsenic.

Antimony Bloom *see* Antimony Trioxide.

Antimony Chloride Solution *see* Antimony Trichloride Solution.

Antimony Glance *see* Antimony Trisulfide—Native.

Antimonyl Aniline Tartrate *see* Aniline Antimonyl Tartrate.

Antimony (V) Gluconate *see Stibinol.*

Antimony Oxychloride. Basic antimony chloride; powder of Algaroth; Mercurius vitae. SbOCl; mol. wt. 173.22. Sb 70.29%, Cl 20.47%. The article of commerce is of somewhat variable composition.

White, amorphous powder. m. about 170° with decomposition. Insoluble in water, alcohol, ether; soluble in HCl, in alkali tartrate solns.

Toxicity: *See* Antimony.

Antimony Pentachloride. Antimonic chloride; antimony perchloride. $SbCl_5$; mol. wt. 299.05. Sb 40.72%, Cl 59.28%.

Reddish-yellow, oily, hygroscopic, caustic liquid; fumes in moist air; solidifies by absorption of one mol. of water. d. 2.34. m. 3°.

emulsion. The N.F. requires not less than 50% alcohol-soluble extractives.

Use: In India, Iran, etc., as condiment and flavoring for foods. *Grades available:* N.F.

Med. Use: Has been used as a sedative in hysteria and as an antispasmodic.

Vet. Use: Extern. to prevent bandage chewing by dogs. As mild carminative and antispasmodic in flatulent colic.

Asaprol. Abrastol; calcium β-napthhol-α-monosulfonate; Calcinaphthol. $Ca(OH.C_{10}H_4.SO_3)_2.3H_2O$; mol. wt. 540.57. $C_{20}H_{14}CaO_8S_2.3H_2O$; C in anhydr. 49.37%, H 2.90%, Ca 8.24%, S 13.18%, anhydr. salt 90%, H_2O 10%, naphthol 53.4%.

Reddish-white, odorless powder. Decomposes at about 50°. One gram dissolves in 1.5 ml. water, 3 ml. alcohol.

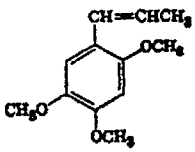
Use: Has been used for plastering wines instead of gypsum.

Med. Use: Has been used as an antipyretic and antirheumatic.

Asarabacca Camphor *see* Asarone.

Asarin *see* Asarone.

Asarone. Asarin; Asarum or Asarabacca camphor; *2,4,5-trimethoxy-1-propenylbenzene.* $C_{12}H_{16}O_3$; mol. wt. 208.25. C 69.21%, H 7.74%. From root of *Asarum europaeum* by distillation with water.



Crystals. m. 67°. b. 296°. n_D^{11} 1.5719. Insoluble in water; soluble in alcohol, ether, glacial acetic acid, carbon tetrachloride, chloroform, petrol. ether. Its picrate melts at 82°.

Asarum. Wild ginger; Canada snakeroot; Indian ginger. Dried rhizome and roots of *Asarum canadense L., Aristolochiaceae.* Habit. Canada to N. Carolina and Kansas. Constit. Acrid resin, aromatic volatile oil, methyl-eugenol.

Med. Use: Has been used as an aromatic.

Asarum Camphor *see* Asarone.

Asbestos. Amianthus; native calcium-magnesium silicate.

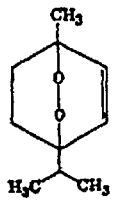
Fine, slender, flaxy fibers; resists fire and most solvents.

Use: Heat-resistant insulators, cements, furnace and hot pipe coverings, inert filter medium (laboratory & commercial), fireproof gloves, clothing, brake linings. *Grades available:* Reagent, technical.

Toxicity: Prolonged exposure to the dust can result in the development of pneumoconiosis and pulmonary fibrosis.

ASC *see* *N*-Acetylsulfanilyl Chloride.

Ascaridole. $C_{10}H_{16}O_2$; mol. wt. 168.23. C 71.39%, H 9.59%. Constitutes 60–80% of oil of chenopodium. It is an organic peroxide.



Liquid; unstable; prone to explode when heated or when treated with organic acids. d_{15}^{15} 1.011. b_{15} 115°, b_5 84°. $[\alpha]_D$ −4°. n_D^{20} 1.4743.

Use: As polymerization initiator in isoprene. *Commercially available.*

Ascarite®. Asbestos coated with sod. hydroxide. Used for absorbing CO_2 in combustion analysis.

Ascharite. $2MgO.B_2O_3.H_2O$—magnesium borate monohydrate.

Asclatine® *see* Butylchloral Hydrate.

Asclepiadin. Asclepin. From herb and root of *Asclepias tuberosa* and several other *Asclepiadaceae.*

Yellow, amorphous, bitter powder. Soluble in water, alcohol; insoluble in ether.

"Asclepin" also was the name for vincetoxin and for an extract from *Asclepias tuberosa.*

Ref. Harnack, *Arch. exptl. Path. Pharmakol.* 2, 303 (1874). Gram, *ibid.* 19, 389 (1885).

Asclepias. Pleurisy root; butterfly weed. Dried root of *Asclepias tuberosa* L., *Asclepiadaceae.* Habit. Ontario to Minnesota. Constit. Asclepiadin, resins, volatile oil.

Med. Use: Has been used as an emetic, cathartic and diaphoretic.

Asclepias syriaca. Milkweed; silkweed; wild cotton. Root of *Asclepias syriaca* L. (*A. cornuti* Decaisne), *Asclepiadaceae.* Habit. Canada to North Carolina and Kansas. Constit. Asclepiadin, asclepion—a bitter principle; tannin, volatile oil.

Asclepin *see* Asclepiadin.

Asclepin Extract. An extract from root of *Asclepias tuberosa* (butterfly weed; pleurisy root).

Med. Use: Has been used as an emetic cathartic and diaphoretic.

Asclepion. $C_{18}H_{34}O_3$; mol. wt. 322.47. C 74.49%, H 10.63%. From milk sap of *Asclepias syriaca* or *Calotropis gigantea* (*Asclepias gigantea*).

Crystals or cryst. mass. m. 104°. Insoluble in water or alcohol; freely soluble in ether.

Ref. List, *Ann.* 69, 125 (1849).

Ascorbic Acid
L-xyloascorbi
(enol form);
tone; antisc
Cebione; As
atine; Cevit
Catavin C; C
Cetemican; C
Davitamon
bu-C; Riben
Laroscorbine.
40.91%, H 4.
plant and ani
citrus fruits, l
commercially
synthesis: On
with D-glucos
by hydrogena
yield L-sorbos
xuboxydans.
duced at C1.
in the form o
resulting diac
then heated w
See also 2-keto

Ref. Ault,
Soc. 1933, 141
Chim. Acta 17,
Oppenauer, *ib*
510 (1934).
Ergeb. Vitamin
Rosenberg, *Ch*
Vitamins, rev.
1945; Seitz, *Da*
Hirzel, Leipzig,
Regna in Kirk-
cal Technology,

Crystals (usu
times needles, n
Pleasant, sharp,
ble to air when
prepns. and in n
ucts the vitami
posure to air ar
m. 190–192° (
$[\alpha]_D^{25}$ +20.5° to
$[\alpha]_D^{22}$ +48° (c =
pH = 3 (5 mg./
mg./ml.); pK_1 =
tion max. 245 m
soln.). Redox p
is $\mathscr{E}_0$ = +0.127v
3 ml. water, 30
alcohol, 100 ml.
ether, chlorofor
fats, fat solvents
reducing power,
solns. are rapidly
is accelerated by
stable metal salts

Use: Aside fr
bic acid or some
palmitate, are e
foodstuffs, to pr
the browning of
Grades available: