AN ENCYCLOPEDIA OF CHEMICALS AND DRUGS

EIGHTH EDITION

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drugs and chemicals selected for inclusion by the editorial staff, not a listing of Merck products. The data given in the monographs have been taken from the literature, and do not represent specifications for products available commercially from Merck & Co., Inc. or from other manufacturers.

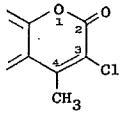
Nonproprietary or trivial names, when known, are preferred as monograph headings. The *Chemical Abstracts* index name is generally given in bold face italics as the first synonym. Other synonyms include trademarks which are indicated by first-letter capitalization. However, absence of such capitalization does not exclude the possibility that the name may be a proprietary name or the subject of proprietary rights. The registration status of the trademarks in the United States Patent Office was verified up to June 7, 1967. Registration is indicated by the symbol ® in the Cross Index of Names, *e.g.*, Mecholyl® Bromide. In the body of the book, registration is indicated only when the trademark happens to be the monograph heading.

Data are generally reported as given in the original sources. Whenever possible, the color of a compound is described, but the absence of color (white, colorless) is generally omitted. Unless otherwise specified, temperatures are given in degrees Celsius (centigrade). The term alcohol generally denotes 95% ethanol by volume; ether denotes ethyl ether. When solubilities are determined at room temperature (about 25°C), the temperature is generally omitted. When optical rotations are measured in water, the solvent is usually not specified. Example: $[\alpha]_D^{25}$ +16° (c = 2) means $[\alpha]_D^{25}$ +16° (2 grams dissolved in 100 ml water).

The Cross Index of Names and the newly added Formula Index provide the key to the monographs.

The Merck Index is not intended as a therapeutic guide. The medical use (MED USE) statement which appears under most drugs gives the reader a thumbnail sketch of the compound. Generally, main pharmacological activity, average single dose (or dose range) and important or common side effects are listed. For details regarding medical use, including a comprehensive statement respecting side effects, the interested scientist should consult appropriate sources such as the product circular.

enfabriken Bayer); Krueger (1959).



ial product may be slightly ater and stable to water; rm, corn oil.
guvon A, *see* under Tri-

furan; cumaran; dihydro- .14. C 79.97%, H 6.71%, Mahmoud Hafez, *J. Chem.* inn, *J. Org. Chem.* **5,** 212 c. **41,** 669 (1919). *Review:* 945).

5°. d_D^{25} 1.058. n_D^{20} 1.5426. rm, carbon bisulfide.

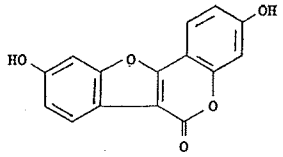
mcarboxylic acid; couma- mol wt 162.14. C 66.66%, m coumarin: Fuson *et al.*, . *Review:* Sethna, Shah,

. mp 192–193°. bp 310– ible in boiling water, in , carbon bisulfide.

cis-o-coumarinic acid lac- ide; tonka bean camphor. 5%, H 4.14%, O 21.90%. odruff (*Asperula* species), ew: Sethna, Shah, *Chem.*

s. Pleasant, fragrant odor urning taste. mp 68–70°. gram dissolves in 400 ml ol in alcohol, chloroform, xide solns.

H 3.01%, O 29.83%. An estrogenic factor occurring naturally in forage crops, especially in ladino clover (*Trifolium repens* L.), strawberry clover (*T. fragiferum* L.) and alfalfa (*Medicago sativo* L., *Leguminosae*). Isoln: Bickoff *et al., J. Agr. Food Chem.* **6,** 536 (1958); Bickoff, Booth, **U.S.** pat. **2,890,116** (1959 to U.S.A.). Structure: Bickoff *et al., J. Am. Chem. Soc.* **80,** 3969 (1958). Synthesis: Emerson, Bickoff, *ibid.* **80,** 4381 (1958); **U.S.** pat. **2,884,427** (1959 to U.S.A.); Jurd, *Tetrahedron Letters* **1963,** 1151. Prepn of ethers: Bickoff, Booth, **U.S.** pat. **2,987,398** (1961 to U.S.A.). Biosynthesis: Grisebach, Barz, *Chemistry & Industry* (*London*) **1963,** 690.

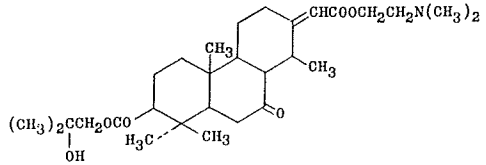


Crystals, mp 385°. Sublimes at 325°; sublimes in high vacuum at about 175°. Absorption max in methanol: 208, 243, 343 mμ. Exhibits bright blue fluorescence in neutral or acid soln, greenish-yellow fluorescence in strong alkali. Practically insol in water at acid and neutral pH; sparingly sol in water at alkaline pH (pH 11–12); practically insol in petr ether; slightly sol in methanol, chloroform, ether; very slightly sol in carbon tetrachloride, benzene.

Diacetate, $C_{19}H_{12}O_7$, crystals from acetic acid, mp 237°.

Dimethyl ether, $C_{17}H_{12}O_5$, crystals from methanol, mp 198°.

Coumingine. $C_{29}H_{47}NO_6$; mol wt 505.67. C 68.88%, H 9.37%, N 2.77%, O 18.98%. Extracted from the bark of *Erythrophleum couminga* Baillon, *Leguminosae*. Isoln: Ruzicka *et al., Helv. Chim. Acta* **24,** 63 (1941). Structure: Ruzicka *et al., ibid.* **24,** 1449 (1941).



Thin shiny needles from ether, mp 142°. $[\alpha]_D^{20}$ −70°. Soluble in methanol, ethanol, acetone, acetic acid, benzene, chloroform; practically insol in water, hexane, ether.

Hydrochloride, $C_{29}H_{47}NO_6.HCl$, crystals from ethanol + ether, mp 195°. Soluble in ethanol, water.

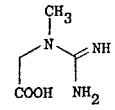
MED USE: Some digitalis-like activity.

Crab Orchard Salt, Artificial. Approximately same composition as the salts obtained by evaporating the water of Crab Orchard Springs, Ky. Consists largely of $MgSO_4$ with some Na_2SO_4, NaCl, K_2SO_4 and a small quantity of iron oxide.

Crandallite. Pseudowavellite. $CaAl_3(PO_4)_2(OH)_5.H_2O$—calcium aluminum phosphate.

Crataegus. Hawthorn; English hawthorn; haws; haw apple; aubépine. Berries, flowers, and leaves of *Crataegus*

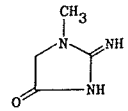
Commercially isolated from meat extracts. Small am occur in the blood, but it is not found in normal urine adults. The greater part of creatine in muscle is com with phosphoric acid as phosphocreatine. Is produc liver and kidneys. *In vitro* synthesis by liver and k tissues: Borsook, Dubnoff, *J. Biol. Chem.* **134,** 635 (*Review and bibliography:* Peters, Van Slyke, *Quant Clinical Chemistry* **vol. I,** *Interpretations*, 2nd ed (Balti 1946). Synthesis by heating cyanamide with sarc Strecker, *Jahresber. Chem.* **1868,** 686; *cf.* Volhard, *Z.* **5,** 318 (1869); Paulmann, *Arch. Pharm.* **232,** 638 (1 Bergmann, Zervas, *Z. physiol. Chem.* **173,** 80 (1928); *J. Chem. Soc.* **1930,** 2374.



Monohydrate, $C_4H_9N_3O_2.H_2O$, monoclinic prisms water. Becomes anhydr at 100°; dec 303°. Neutral rea to litmus. Kb at 20° = 9.6×10^{-12}. Adsorption on va chromatographic agents: Grettie, Williams, *J. Am. C Soc.* **50,** 671 (1928). Absorption spectrum: Abderha Haas, *Z. physiol. Chem.* **164,** 7 (1927). One gram o monohydrate dissolves in 75 ml water, in about 9 l alc Insoluble in ether. In aq soln creatinine is formed, an and alkaline solns contain an equilibrium mixture of cre and creatinine, while in acid solns the formation of creat is complete: Cannan, Shore, *Biochem. J.* **22,** 924 (1 The ratio of the molar concn of creatine to creatinir water and in various buffer solns is given by Edgar and Sh *J. Am. Chem. Soc.* **47,** 1179 (1925).

Picrate, yellow needles from water, mp 218–220°.

Creatinine. *2-Imino-1-methyl-4-imidazolidinone;* 1-me hydantoin-2-imide; 1-methylglycocyamidine. C_4H_7N mol wt 113.12. C 42.47%, H 6.24%, N 37.15%, O 14.1 The end product of creatine catabolism. Normal constit of urine; daily output about 25 mg per kg of body we Also found together with creatine in muscle tissues blood. Occurs in all soils and in grain seeds and o vegetable matter. Has been found in certain fish an crab meat extract. Isoln from urine: Maly, *Ann.* **159,** (1871); Folin, *J. Biol. Chem.* **17,** 463 (1914); Benedict, **18,** 183 (1914). The isoln from urine is tedious, and cr nine is usually prepd from commercial creatine by treatn with HCl: Edgar, Hinegardner, *J. Biol. Chem.* **56,** (1923) or *Org. Syn.* **4,** 15 (1925).



Monoclinic plates. Leaflets from water. Dec about 3 Kb at 40° = 3.57×10^{-11}. Soluble in 12 parts wa slightly sol in alcohol; practically insol in acetone, et chloroform.

Picrate, pale-yellow needles from water, mp 220–221

Creolin®. Creolin-Pearson. A coal-tar disinfecta germicide, antiseptic, deodorant.

Dark brown liq, characteristic odor resembling that