

THE
MERCK
INDEX
★
THIRTEENTH EDITION

THE MERCK INDEX

AN ENCYCLOPEDIA OF
CHEMICALS, DRUGS, AND BIOLOGICALS

THIRTEENTH EDITION

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Brown crystals from alcohol.

USE: Indicator, used in 0.02% soln: pH 1.2 red, 2.8 yellow, 9.6 blue.

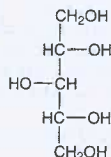
10139. Xylidine. [1300-73-8] *ar,ar*-Dimethylbenzenamine; dimethylaniline; aminodimethylbenzene. $C_8H_{11}N$; mol wt 121.18. C 79.29%, H 9.15%, N 11.56%. $(CH_3)_2C_6H_3NH_2$. There are six isomeric xylidines. Prep'd by reduction of corresponding nitro-compounds: Allchin, US 1867962 (to I.C.I.); physical properties of all six isomers also given: Birch *et al.*, *J. Am. Chem. Soc.* **71**, 1362 (1949); van Loon *et al.*, *Rec. Trav. Chim.* **79**, 977 (1960); Bergmann, Berkovic, *J. Org. Chem.* **26**, 919 (1961).

All except *o*-4-xylidine are liquids above 20°. *d* 0.97-0.99, and bp 213-226°. They are sparingly sol in water, sol in alcohol and form more or less sol salts with the strong mineral acids.

Caution: Potential symptoms of overexposure are anoxia, cyanosis, methemoglobinemia; lung, liver and kidney damage. See *NIOSH Pocket Guide to Chemical Hazards* (DHHS/NIOSH 97-140, 1997) p 336.

USE: Chiefly in the manuf of dyes.

10140. Xylitol. [87-99-0] *xylo*-Pentane-1,2,3,4,5-pentol; xylite; Eutrit; Kannit; Klinit; Xylit; Newtol; Torch; Xyliton. $C_5H_{12}O_5$; mol wt 152.15. C 39.47%, H 7.95%, O 52.58%. Intermediate in metabolism of D-glucose through glucuronate cycle in livers. Prep'd by reduction of xylose: G. Bertrand, *Bull. Soc. Chim. France* [3] **5**, 555 (1891); E. Fischer, R. Stahel, *Ber.* **24**, 538 (1891). Prep'n of metastable crystals: M. L. Wolfrom, E. J. Kohn, *J. Am. Chem. Soc.* **64**, 1739 (1942); of stable form: J. F. Carson *et al.*, *ibid.* **65**, 1777 (1943). Crystal structure: H. S. Kim, G. A. Jeffrey, *Acta Crystallogr.* **25B**, 2607 (1969). Use in prevention of dental caries: E. Grunberg *et al.*, *Int. J. Vit. Nutr. Res.* **43**, 227 (1973); A. Scheinin, K. K. Makinen, *DE 2606533* (1976 to Hoffmann-La Roche), *C.A.* **85**, 149140h (1976). Acute toxicity: S. Salminen *et al.*, *Toxicol. Lett.* **18**, Suppl. 1, 37 (1983). Reviews of toxicity, metabolism and use as dietary additive: *International Symposium on Metabolism, Physiology and Clinical Uses of Pentoses and Pentitols*, B. L. Horecker *et al.*, Eds. (Springer-Verlag, New York, 1969) 408 pp; *Sugars in Nutrition*, H. L. Sipple, K. W. McNutt, Eds. (Academic Press, New York, 1974) *passim*; G. E. Demetrakopoulos, H. Amos, *World Rev. Nutr. Diet* **32**, 96-122 (1978); R. Ylikahri, *Adv. Food Res.* **25**, 159-180 (1979). Book: *Xylitol*, J. N. Counsel, Ed. (Applied Science, London, 1978) 191 pp.

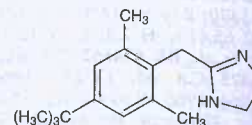


Stable form: orthorhombic needles from THF, prisms from ethanol; mp 93-94.5°; *d* 1.52. Metastable form: colorless, monoclinic, lath-shaped crystals from anhydrous methanol; hygroscopic; mp 61-61.5°. Soly of stable form (g/100 g soln): abs methanol 6.0; abs ethanol 1.2; water 64.2. Relative sweetness equal to sucrose. LD₅₀ orally in mice: approx 22 g/kg (Salminen).

USE: As oral and intravenous nutrient; in anticaries preparations.

10141. Xylometazoline. [526-36-3] 2-[[4-(1,1-Dimethyl-ethyl)-2,6-dimethylphenyl]methyl]-4,5-dihydro-1H-imidazole; 2-(4-*tert*-butyl-2,6-dimethylbenzyl)-2-imidazoline. $C_{16}H_{24}N_2$; mol wt 244.37. C 78.64%, H 9.90%, N 11.46%. α -Adrenergic agonist; topical vasoconstrictor. Prep'n: Hüni, US 2868802 (1959 to Ciba). Pharmacology: S. Morimoto, H. Tanaka, *Osaka Shiritsu Daigaku Igaku Zasshi* **18**, 211 (1969), *C.A.* **72**, 20437n (1970). Comprehensive description: Y. Golander, W. J. DeWitte, *Anal. Prof. Drug. Subs.* **14**, 135-156 (1985). GC deternm in plasma and urine: A. Sioufi *et al.*, *J. Chromatog.* **487**, 81 (1989). Clinical trial in allergic rhinitis: M. Fradis *et al.*, *J.*

Laryngol. Otol. **101**, 666 (1987); in nasal surgery: J. P. Campbell *et al.*, *Otolaryng. Head Neck Surg.* **107**, 697 (1992).

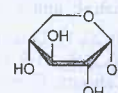


mp 131-133°.

Hydrochloride. [1218-35-5] Neo-Rinoleina; Novoria; Olynth; Otriven; Otrivin; Xymelin. $C_{16}H_{24}N_2 \cdot HCl$; mol wt 280.84. Soly in water: up to 3%; also sol in methanol, ethanol. Practically insol in ether, benzene.

THERAP CAT: Decongestant.

10142. Xylose. [58-86-6] D-Xylose; wood sugar; Xylo-; Xylo-Pfan. $C_5H_{10}O_5$; mol wt 150.13. C 40.00%, H 6.71%, O 53.29%. Widely distributed in plant materials, especially in wood (maple, cherry), in straw, in hulls. Not found in free state, but in form of xylan, a polysaccharide built from D-xylose units and occurring in association with cellulose. Xylose occurs also as part of glycosides. Isola from corn cobs by boiling with 8% H_2SO_4 : Monroe, *J. Am. Chem. Soc.* **41**, 1002 (1919). Peanut shells and cottonseed hulls also are practical sources of xylose: Ling, Nanji, *J. Chem. Soc.* **1923**, 620. Configuration: Hudson, Yanovsky, *J. Am. Chem. Soc.* **39**, 1029 (1917); Haworth, *Nature* **116**, 430 (1925). Review on history, constitution and prep'n: Harding, *Sugar* **24**, 14 (1922).



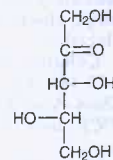
α -D-Xylose

Monoclinic needles or prisms. Very sweet taste. mp 144-145° (Wheeler, Tollens, *Ann.* **254**, 309); mp 153-154° (Hébert, *Compt. Rend.* **110**, 970). d_4^{20} 1.525. Shows mutarotation. $[\alpha]_D^{20} +92^\circ \rightarrow +18.6^\circ$ (16 hrs c = 10). One gram dissolves in 0.8 ml water. Sol in pyridine, hot alcohol. pKa (18°): 12.14. Reduces warm Fehling's soln. Upon heating with water in closed tube to 140° or by boiling with dil H_2SO_4 , furfural is formed.

USE: In tanning, dyeing, and as a diabetic food.

THERAP CAT: Diagnostic aid (intestinal function).

10143. Xylulose. [5962-29-8] *threo*-Pentulose. $C_5H_{10}O_5$; mol wt 150.13. C 40.00%, H 6.71%, O 53.29%. L-Form has been found in the urine of humans with pentosuria. Prep'n of DL-form: Gascoigne, *Chem. & Ind. (London)* **1959**, 402; of D-form: Mendicino, *J. Am. Chem. Soc.* **82**, 4975 (1960); of L-form: Wolfrom, Bennett, *J. Org. Chem.* **30**, 458 (1965). Isola of DL-form from the acid hydrolysate of bagasse hemicellulose: Banerjee *et al.*, *Sci. Cult. (Calcutta)* **27**, 498 (1961), *C.A.* **56**, 11682d (1962). Enzymic prep'n of L-form: Hough, Jones, *Chem. & Ind. (London)* **1952**, 907; *idem*, *J. Chem. Soc.* **1952**, 4047. Formation of L-form in normal humans and guinea pig, and its utilization by guinea-pig liver preps: Touster *et al.*, *J. Am. Chem. Soc.* **76**, 5005 (1954). Reviews: *The Carbohydrates*, W. Pigman, Ed. (Academic Press, New York, 1957) pp 80, 80-87, 759, 795; *Methods in Carbohydrate Chemistry* vol. 1, R. L. Whistler, M. L. Wolfrom, Eds. (Academic Press, New York, 1962) pp 94-101.



L-isomer

β -Isomer.
 p-Isomer *p*-1
 yellow crystals
 +24° (15 min)
 l-Isomer.
 l-Isomer *p*-1
 dil alc. mp 128°
 in ethanol).

10144. 1-Xylylphenylazo]-2-xylylazo]-2-napl & C Red no. 14 78.24%, H 5.84%; xylylazo deriv.
 2-naphthol: J. N. Smyth, G. G. Mc Shism; J. L. Radc

H₃C

Red needles, mp
 benzene.

10145. Xylyl 51.92%, H 4.90%,
 Org. Chem. **17**, 52:
 Soc. **32**, 403 (1955
 Soc. **1960**, 3340.