

# THE MERCK INDEX

AN ENCYCLOPEDIA OF  
CHEMICALS, DRUGS, AND BIOLOGICALS

THIRTEENTH EDITION

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*Published by  
Merck Research Laboratories  
Division of*

**MERCK & CO., INC.**  
Whitehouse Station, NJ

2001

**MERCK & CO., INC.**

Whitehouse Station, NJ

USA

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1st Edition—1889  
2nd Edition—1896  
3rd Edition—1907  
4th Edition—1930  
5th Edition—1940  
6th Edition—1952  
7th Edition—1960  
8th Edition—1968  
9th Edition—1976  
10th Edition—1983  
11th Edition—1989  
12th Edition—1996

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Library of Congress Catalog

Card Number 89-60001

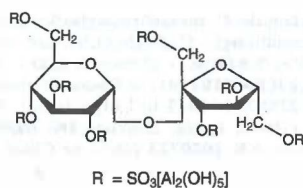
ISBN Number 0911910-13-1

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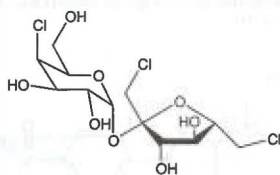
Printed in the USA



White amorphous powder. Sol in dil HCL and NaOH solns. Practically insol in water, ethanol, CHCl<sub>3</sub>. pKa = 0.43 to 1.19. Dissolution of aluminum occurs at pH <3; of sucrose sulfate at pH >4.

Therap Cat: Antulcerative.

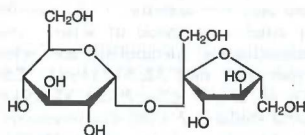
**8965. Sucralose.** [56038-13-2] 1,6-Dichloro-1,6-dideoxy-β-D-fructofuranosyl-4-chloro-4-deoxy-α-D-galactopyranoside; 4,1',6'-trichloro-4,1',6'-trideoxy-galacto-sucrose; 1',4,6'-trichlorogalactosucrose; TGS. C<sub>12</sub>H<sub>19</sub>Cl<sub>3</sub>O<sub>8</sub>; mol wt 397.64. C 36.25%, H 4.82%, Cl 26.75%, O 32.19%. Chlorinated sucrose derivative with enhanced sweetness. Prepn: P. H. Fairclough *et al.*, *Carbohydr. Res.* **40**, 285 (1975). Prepn of crystalline anhydrous and pentahydrate: M. R. Jenner, D. Waite, *EP 30804* (1981 to Tate & Lyle; Talres Dev.); *eidem*, *US 4343934* (1982 to Talres Dev.). Use as non-nutritive sweetener: **BE 850180**; L. Hough *et al.*, *US 4435440* (1977, 1984 both to Tate & Lyle). *In vitro* activity vs cariogenic bacteria: J. Verran, D. B. Drucker, *Arch. Oral Biol.* **27**, 693 (1982). Structure-sweetness relationship: M. Mathlouthi *et al.*, *Carbohydr. Res.* **152**, 47 (1986). Review: L. Hough, R. Khan, *Trends Biochem. Sci.* **3**, 61-63 (1978).



Syrup, [α]<sub>D</sub> +68.2° (c = 1.1 in ethanol). Anhydrous crystalline form: orthorhombic, needlelike crystals, mp 130°. Intensely sweet taste. LD<sub>50</sub> in mice: >16 g/kg (Hough, Khan).

Pentahydrate. mp 36.5°.

**8966. Sucrose.** [57-50-1] β-D-Fructofuranosyl-α-D-glucopyranoside; α-D-glucopyranosyl-β-D-fructofuranoside; sugar; saccharose; cane sugar; beet sugar. C<sub>12</sub>H<sub>22</sub>O<sub>11</sub>; mol wt 342.30. C 42.11%, H 6.48%, O 51.41%. Obtained from sugar cane (*Saccharum officinarum* L., *Gramineae*) and sugar beet (*Beta vulgaris* L., *Chenopodiaceae*). Sugar cane contains from 15-20% and sugar beet from 10-17% sucrose. Structure: Avery *et al.*, *J. Chem. Soc.* **1927**, 2308; Beevers, Cochrane, *Proc. Roy. Soc.* **190A**, 257 (1947). Synthesis: Pictet, Vogel, *Helv. Chim. Acta* **11**, 436 (1928); Lemieux, Huber, *J. Am. Chem. Soc.* **78**, 4117 (1956). Ref. with extensive bibliography: Bates, *Polarimetry, Saccharimetry, and the Sugars*, National Bureau of Standards Circular C440, Washington, 1942; W. Pigman, *The Carbohydrates* (Academic Press, New York, 1957) pp 501-506. Reviews: M. R. Jenner, *Dev. Food Carbohydr.* **2**, 91-143 (1980); R. Khan, *Pure Appl. Chem.* **56**, 833 (1984).



Monoclinic sphenoidal crystals, cryst masses, blocks, or powder. Sweet taste. Stable in air. Finely divided sugar is hygroscopic and absorbs up to 1% moisture which is given up on

heating to 90°. d<sub>4</sub><sup>25</sup> 1.587. Dec 160-186°. Chars and emits characteristic odor of caramel. [α]<sub>D</sub><sup>20</sup> not less than +65.9° (c = 26); usual value [α]<sub>D</sub><sup>25</sup> +66.47 to +66.49°. One gram dissolves in 0.5 ml water; in slightly more than 0.2 ml boiling water, in 170 ml alcohol; in about 100 ml methanol. Moderately sol in glycerol, pyridine. pKa 12.62. d<sub>4</sub><sup>20</sup> of water solns (g/100 g): 2% 1.0060; 6% 1.0219; 10% 1.0381; 20% 1.0810; 30% 1.1270; 40% 1.1764; 50% 1.2296; 60% 1.2865; 70% 1.3471; 76% 1.3854. n<sub>D</sub><sup>20</sup> of 10% soln 1.34783. Sucrose does not reduce Fehling's soln, form an osazone, or show mutarotation. It is hydrolyzed to glucose and fructose by dil acids and by invertase, a yeast enzyme. Upon hydrolysis the optical rotation falls and is negative when the hydrolysis is complete. The mixture of glucose and fructose is known as "invert sugar." Sucrose is fermentable, but resists bacterial decompn when in high concentrations.

**Caution:** Potential symptoms of overexposure are irritation of eyes, skin, upper respiratory system; cough. See *NIOSH Pocket Guide to Chemical Hazards* (DHHS/NIOSH 97-140, 1997) p 288.

**USE:** Sweetening agent and food. Starting material in the fermentative production of ethanol, butanol, glycerol, citric and levulinic acids. Used in pharmaceuticals as a flavor, as a preservative, as an antioxidant (in the form of invert sugar), as a demulcent, as substitute for glycerol, as granulation agent and excipient for tablets, as coating for tablets. In the plastics and cellulose industry, in rigid polyurethane foams, manifold of ink and of transparent soaps.

**8967. Sucrose Octaacetate.** [126-14-7] C<sub>28</sub>H<sub>38</sub>O<sub>19</sub>; mol wt 678.59. C 49.56%, H 5.64%, O 44.80%. Prepn from sucrose: Linstead *et al.*, *J. Am. Chem. Soc.* **62**, 3260 (1940). Synthesis: Lemieux, Huber, *ibid.* **78**, 4117 (1956).

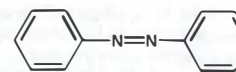
Hygroscopic, intensely bitter needles from alcohol, mp 89°, dec above 285°; bp<sub>1</sub> 260°. [α]<sub>D</sub><sup>25.4</sup> +58.5° (c = 2.56 in abs alcohol). n<sub>D</sub> 1.4660. Sol in 1100 parts water, 1.1 parts acetal, 0.7 part glacial acetic acid, 0.3 part acetone, 11 parts alcohol, 0.6 part benzene, 22 parts carbon tetrachloride, about 0.5 part methyl acetate, 7 parts paraldehyde, about 0.5 part toluene.

**USE:** Adhesive; impregnating and insulating papers; in lacquers and plastics; as a denaturant for alcohol.

**8968. Sucrose Polyester.** Olestra; SPE. Non-absorbable lipid; substitute for fat in foods to reduce cholesterol level. Mixture of hexa-, hepta- and octa-fatty acid esters of sucrose. Analysis by gel permeation chromatography: C. G. Birch, F. E. Crowe, *J. Am. Oil Chem. Soc.* **53**, 581 (1976). Effect on absorption of dietary cholesterol in rats: F. H. Mattson *et al.*, *J. Nutr.* **106**, 747 (1976); L. Aust *et al.*, *Ann. Nutr. Metab.* **25**, 255 (1981). Effects as a dietary agent for lowering plasma cholesterol in man: R. W. Fallat *et al.*, *Am. J. Clin. Nutr.* **29**, 1024 (1976); C. J. Glueck *et al.*, *ibid.* **32**, 1636 (1979). Effects on cholesterol metabolism in man: J. R. Crouse, S. M. Grundy, *Metab., Clin. Exp.* **28**, 994 (1979); R. J. Jandacek *et al.*, *Am. J. Clin. Nutr.* **33**, 251 (1980). Caloric dilution study in obese patients: C. J. Glueck *et al.*, *ibid.* **35**, 1352 (1982).

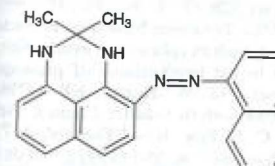
**USE:** As supplement in dietary foods.

**8969. Sudan III.** [85-86-9] 1-[4-(Phenylazo)phenyl]-azo]-2-naphthalenol; 1-(p-phenylazophenylazo)-2-naphthol; tetrazobenzene-β-naphthol; D & C Red No. 17; C.I. Solvent Red 23; C.I. 26100; Sudan Red BK; Tony Red. C<sub>22</sub>H<sub>16</sub>N<sub>4</sub>O; mol wt 352.39. C 74.98%, H 4.58%, N 15.90%, O 4.54%. Weakly acidic azo dye; originally introduced as a fat stain in 1896. Prepn: R. Nietzki, *Ber.* **13**, 1838 (1880); *Colour Index vol. 4* (3rd ed., 1971) p 4227. Description: H. J. Conn's *Biological Stains*, R. D. Lillie, Ed. (Williams & Wilkins, Baltimore, 9th ed., 1977) pp 168-169, 576. HPLC determ in cosmetics: J. W. Wegener *et al.*, *Chromatographia* **24**, 865 (1987); LC/electrospray-MS determ as environmental contaminant: H.-Y. Lin, R. D. Voyksner, *Anal. Chem.* **65**, 451 (1993). Use as biological stain: W. Frisch-Niggemeyer, *J. Virol. Meth.* **5**, 135 (1982); A. Kishida *et al.*, *J. Controlled Release* **13**, 83 (1990). Structure effects on dye adsorption: H. L. Needles *et al.*, *Colourage Annu.* **1995**, 115.



Brown leaves with green metallic luster. Slightly sol in hot glycerol; moderately sol ether, acetone, and in aromatic oils, hot glycerol. Sol in alcohol. **USE:** Dye. Biological stain.

**8970. Sudan Black B.** [419-10-8] methyl-6-[[4-(phenylazo)-1-naphthalenyl]azo]-2-naphthol; C.I. Solvent Black 3; C.I. 26150; C<sub>29</sub>H<sub>24</sub>N<sub>6</sub>; mol wt 456.54. C 76.11%, H 4.84%, N 19.05%. Lipid dye comprised of two major components, SBB-I and SBB-II and at least 12 secondary components. Identification by the chemical name and CAS number: L. Lison, *Comptes. Rend. Acad. Sci. Paris* **287**, 1521 (1978). TLC purification and histochemical staining: *tochimie* **16**, 68 (1968); and solve *et al.*, *Acta Histochem. Suppl.* **24**, 1521 (1978). Synthesis: U. Pfüller *et al.*, *Histochemistry* **16**, 68 (1968); and solve *et al.*, *Acta Histochem. Suppl.* **24**, 1521 (1978). **USE:** Biological stain for lipids.



Sudan Black B

Basic compound completely decolorized by alkalis. **Sudan Black B I.** SBB-I; SBB-I; 4-[[4-(phenylazo)-1-naphthalenyl]azo]-2-naphthol; C.I. Solvent Black 3; C.I. 26150; mol wt 456.54. **USE:** Biological stain for lipids.

**8971. Suet, Prepared.** Mutton tallow; lard; fat of sheep abdomen of sheep purified by melting and filtering. White, solid fat with slight odor of rancid after long exposure to air. mp 52°. Sol in alcohol; one gram dissolves in 45 ml ether. **USE:** Preparing ointments.

**8972. Sufentanil.** [56030-54-1] 1-[2-(2-thienyl)ethyl]-4-piperidinyl]-4-(methoxymethyl)-1-[2-(2-thienyl)ethyl]-1-piperidinyl]proprionamide; sufentanil; R-3073; C<sub>27</sub>H<sub>38</sub>N<sub>2</sub>O<sub>2</sub>S<sub>2</sub>; mol wt 466.66. C 68.36%, H 7.82%, N 7.82%. Potent deriv of fentanyl, q.v. Prepn: Van Daele, *DE 2610228*; *eidem*, U.S. Pat. 4,318,152 (1976). *In vitro* binding properties: J. E. Leysen, W. Gommeren, *Arch. Pharm. Exp. Appl.* **260**, 287 (1982); J. E. Leysen *et al.*, *Arch. Pharm. Exp. Appl.* **260**, 287 (1982). Analgesic activity and safety: Bever *et al.*, *Arzneimittel-Forsch.* **33**, 1521 (1983). *ibid.* 1551. GC d