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THIRTEENTH EDITION

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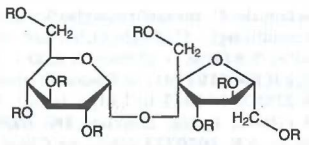
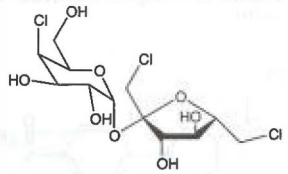


R = $SO_3[Al_2(OH)_5]$

White amorphous powder. Sol in dil HCL and NaOH solns. Practically insol in water, ethanol, $CHCl_3$. pKa = 0.43 to 1.19. Dissolution of aluminum occurs at pH <3; of sucrose sulfate at pH >4.

THERAP CAT: Antiulcerative.

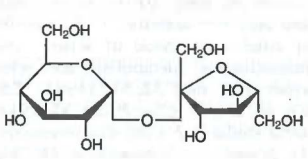
8965. Sucralose. [56038-13-2] 1,6-Dichloro-1,6-dideoxy-β-D-fructofuranosyl-4-chloro-4-deoxy-α-D-galactopyranoside; 4,1′,6′-trichloro-4,1′,6′-trideoxy-*galacto*-sucrose; 1′,4,6′-trichlorogalactosucrose; TGS. $C_{12}H_{19}Cl_3O_8$; mol wt 397.64. C 36.25%, H 4.82%, Cl 26.75%, O 32.19%. Chlorinated sucrose derivative with enhanced sweetness. Prepn: P. H. Fairclough *et al., Carbohyd. 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., Carbohyd. Res.* **152,** 47 (1986). *Review:* L. Hough, R. Khan, *Trends Biochem. Sci.* **3,** 61-63 (1978).



Syrup, $[\alpha]_D$ +68.2° (c = 1.1 in ethanol). Anhydrous crystalline form: orthorhombic, needlelike crystals, mp 130°. Intensely sweet taste. LD_{50} 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. $C_{12}H_{22}O_{11}$; 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 valgaris* 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 Carbohyd.* **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_4^{25} 1.587. Dec 160-186°. Chars and emits characteristic odor of caramel. $[\alpha]_D^{20}$ not less than +65.9° (c = 26); usual value $[\alpha]_D^{25}$ +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_4^{20} 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_D^{20} *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, manuf of ink and of transparent soaps.

8967. Sucrose Octaacetate. [126-14-7] $C_{28}H_{38}O_{19}$; 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).

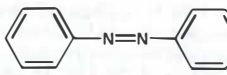
Hygroscopic, intensely bitter needles from alcohol, mp 89°; dec above 285°; bp_1 260°. $[\alpha]_D^{25.4}$ +58.5° (c = 2.56 in abs alcohol). n_D 1.4660. Sol in 1100 parts water, 1.1 parts acetal, 0.7 part glacial acetic acid, 0.3 part acetone, 11 parts alcohol, 0.6 part benzene, 22 parts carbon tetrachloride, 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).

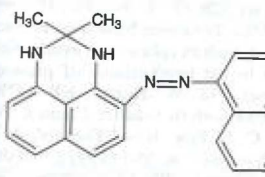
USE: As supplement in dietary foods.

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. $C_{22}H_{16}N_4O$; 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 determn in cosmetics: J. W. Wegener *et al., Chromatographia* **24,** 865 (1987); LC/electrospray-MS determn 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 metall
water or lye. Slightly sol in hot gl
roform; moderately sol ether, acet
atile oils, hot glycerol. Sol in alc
USE: Dye. Biological stain.

8970. Sudan Black B. [419
methyl-6-[[4-(phenylazo)-1-napht
C.I. Solvent Black 3; C.I. 26150;
$C_{29}H_{24}N_6$; mol wt 456.54. C 76
Lipid dye comprised of two maj
SBB-II and at least 12 secondary c
by the chemical name and CAS r
duced: L. Lison, *Comptes. Rend.*
TLC purification and histochemis
tochemie **16,** 68 (1968); and solve
et al., Acta Histochem. Suppl. **24,**
dation: U. Pfüller *et al., Histoche*
ing technique: D. A. Nelson, F.
Staining" in *Hematology,* W. J. Wi
Hill Publishing Co., New York, 1
lipid stain: H. N. Subramaniam,
Biophys. Methods **21,** 9 (1990).



Sudan Black B

Basic compound completely dec
Sudan Black B I. SBB-I; SSB-
4[(4-phenylazo-1-naphthalenyl)-azo
compound, mp 180-186° (dec). S
torr without decompositon.
USE: Biological stain for lipids.

8971. Suet, Prepared. Mutto
abdomen of sheep purified by melti
White, solid fat with slight odor
rancid after long exposure to air.
Sapon no. 192-195. Iodine no. 33-
alcohol; one gram dissolves in 45 m
ml ether.
USE: Preparing ointments.

8972. Sufentanil. [56030-54-
1-[2-(2-thienyl)ethyl]-4-piperidinyl]
[4-(methoxymethyl)-1-[2-(2-thi
propionanilide; sufentanyl; R-3073
386.56. C 68.36%, H 7.82%, N 7
Potent deriv of fentanyl, *q.v.* Prepn
Van Daele, **DE 2610228;** *eidem,* U
Janssen); G. H. P. Van Daele *et al*
1521 (1976). *In vitro* binding prope
J. E. Leysen, W. Gommeren, *Arch*
260, 287 (1982); J. E. Leyson *et al.,*
(1983). Analgesic activity and safety
Bever *et al., Arzneimittel-Forsch.*
Niemegeers *et al., ibid.* 1551. GC d