DIOLS

As designers of ink know, there is wide latitude in ink chemistries. Despite this fact, there is no single imaging system today that can produce the best possible output on both plain paper and special paper. Image quality is the result of the combination of ink/paper interaction. Moreover, when designing ink for thermal-head printers, ink chemist are limited to materials that can be heated. Inks used in piezo-head printers do not have such a constraint.

The unique surface interface properties of Diols makes them valuable rheological agents and they have found broad application, especially in ink jet inks.

As flow modifiers in coatings, for example, they act to enhance film properties and reduce or eliminate surface imperfections.[1]

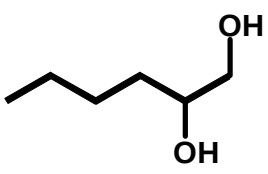
In ink formulations they (1) aid in pigment dispersion, improve substrate wetting, promote flow and leveling and facilitate air release in addition to controlling or eliminating craters, “fisheyes”, “orange peel” and pinholes; (2) increase the gloss of phase-change inks; and (3) reduce bleed between black (pigment-containing) inks and color (water-soluble dye-based) inks formulated from self-dispersing pigments.[2a] 1,2-Hexanediol is a critical ingredient in inks that require high wetting-agent levels. [2b]

Because of their unique surface interface properties, 1,2-Diols are important components in several cleaning and fabric-softening formulations where, as non-ionic surfactants, they impart enhanced emulsifying properties that aid in the removal of oil and greasy soil. [3]

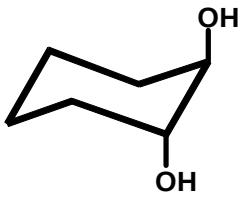
Additionally, alkane-1,2-diols are valued in cosmetic formulations for their ability to inactivate skin microorganisms: topical application of alkane-1,2-diols, particularly **1,2-Octanediol**, has been shown to be effective against the germs that cause acne and dandruff, as well as those that cause mastitis in dairy animals. [4]

Long-chain alkane-1,2-diols are also effective chemical reducing agents and have been used as such in the production of self-organized nanoparticles so important in the manufacturer of magnetic alloy thin films that form the basis of commercial magnetic recording media. [5]

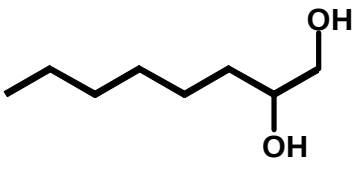
We offer commercial quantities of four rheologically critical Diols: **1,2-Hexanediol** (*puriss* and technical grades), **1,2-Octanediol**, ***trans*-1,2-Cyclohexanediol, 1,4-Cyclohexanediol, 2,5-Dimethyl-2,5-Hexanediol** and **9,10-Dihydroxystearic Acid / Esters** (*puriss* and technical grades)**.** In addition, developmental quantities of other Diols are available upon request.



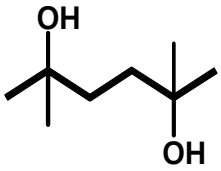
1,2-Hexanediol



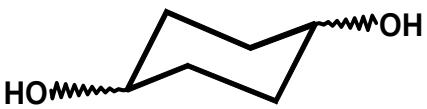
***trans*-1,2-Cyclohexanediol**



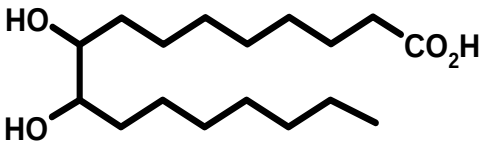
1,2-Octanediol



2,5-Dimethyl-2,5-hexanediol



1,4-Cyclohexanediol

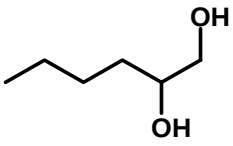


DL-9,10-Dihydroxystearic Acid

References

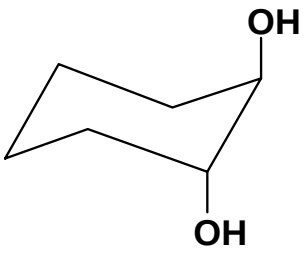
1. M. A. Grolitzer, D. Erickson, "Recent Advances in Additives and Modifiers for Coatings," NY Society of Coating Technology Symposium, April 30-May 1, 1997.
2. (a) US 6,225,370 B1; US 6,177,498 B1; US 6,187,086 B1; US 5,169,438. (b) US 6,398,357 B1.
3. US 5,968,204; US 6,242,401 B1; US 6,323,172 B1.
4. US 6,123,953
5. US 6,254,662 B1; US 6,229,129 B1; US 2001/0009119 A1

Product Specifications

Product Name	**1,2-Hexanediol** **Two grades: > 99% (*puriss*); > 92% (technical)**
CAS No.	6920-22-5
Empirical Formula	**$C_6H_{14}O_2$**
Mol. Weight	118.18
Structure	

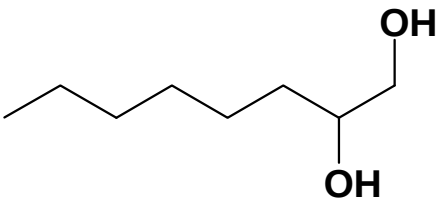
Test	***Specification***
Appearance	Clear, colorless liquid
Bp	223 - 224^{0}C / 760 mm Hg
Density	0.951
Assay (glpc)	**≥ 99%** (*puriss*); **≥ 92%** (technical)
Density	0.951
Fp	235 ^{0}F
Water Content (K-F)	0.5 %
Refractive Index, η_D^{20}	1.442 ± 0.008

Product Specifications

Product Name	***trans*-1,2-Cyclohexanediol**
CAS No.	1460-57-7
Empirical Formula	$C_6H_{12}O_2$
Mol. Weight	116.16
Structure	

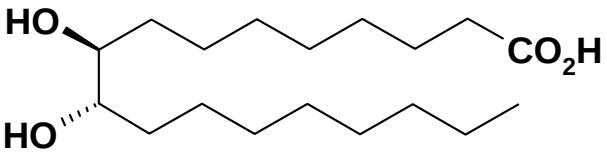
Test	***Specification***
Appearance	Tacky white solid
Bp	120 - 124^{0}C / 20 mm Hg
Mp	101 - 104^{0}C
Assay	$\geq$ 99 %
Moisture (K-F)	< 0.5%

Product Specifications

Product Name	**1,2-Octanediol**
CAS No.	1117-86-8
Empirical Formula	**$C_8H_{18}O_2$**
Mol. Weight	146.23
Structure	

Test	*Specification*
Appearance	Soft, white (cast) solid
Bp	131 - 132 ^{0}C / 10 mm Hg
Mp	36 - 38 ^{0}C
Assay	$\geq$ 99%
Moisture (K-F)	< 0.5%

Product Specifications

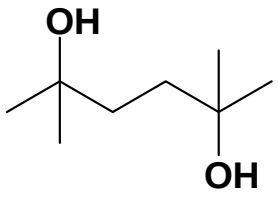
Product Name	**DL-*trans*-9,10-Dihydroxystearic Acid** **two grades: > 98% (*puriss*); > 80% (technical)**
Syn:	9(*R,S*),10(*S,R*)-Dihydroxoctadecanoic Acid DL-*threo*-9,10-Dihydroxyoctadecanoic Acid; 9,10-Dihydroxyoctadecanoic Acid; 9,10-Dihydroxystearic Acid
CAS No.	**120-87-6**
Structure	 (only a single diastereomer is shown)
Empirical Formula	**$C_{18}H_{36}O_4$**
Mol. Weight	316.48

Test	*Specification*
Identity	FT-IR
Appearance	Waxy, off-white solid
Mp	92-94 ^{0}C (Lit.[1])
Specific Rotation, $[\alpha]_D$	$\pm$ 0.1 ^{0} (*c* = 1.0; $CHCl_3$)
Assay (hplc)	$\geq$ 98%
Heavy Metals (As, Pb)	< 20 ppm
LOD	< 1%
Residue on Ignition	< 0.5**%**

References

1. Julietti, F.J. *et al*., *J.Chem.Soc*., <1960>, 4514-4521; Swern *et al*., *J.Am.Oil Chem.Soc*., ***32***, <1955>, 539; Gunstone, F.D.; Sealy, A.J., *J.Chem.Soc*., <1963>, 5772-5778; Mikolajczak, K.L., *et al*., *J.Org.Chem*., ***29***, <1964>, 318-322; Smith,C.R. *et al*., *J.Org.Chem*., ***25***, <1960>, 218-222; Ames, D.E.; Covell, A.N., *J.Chem.Soc*., <1963>, 775-778; Cramp, W.A., *et al.*, *J.Chem.Soc*., <1960>, 4257-4263; Golding, B.T. *et al*., *J.Chem.Soc.Perkin Trans*. *1*, <1973>, 1214-1220; Tulloch, A.P., *Can.J.Chem*., ***43***, <1965>, 415-420; Knothe, G., *et al* , *Synthesis*, (1), <1997>, 57-60; Jovtscheff, A., *Chem.Ber*., ***93***, <1960>, 2048-2054; Santosusso, T.M.; Swern,D., *J.Org.Chem*., ***40***, <1975>, 2764-2769; Jaeger, D. A.; Russell, Sarah G. G.; Shinozaki, H., *J.Org.Chem*., ***59***(24), <1994>, 7544-7548; Wrigley, *et al*., *J.Am.Oil Chem.Soc*., ***39***, <1962>, 80.

Product Specifications

Name:	**2,5-Dimethyl-2,5-hexanediol**
CAS Number:	110-03-2
Structure:	
Mol Formula:	$C_8H_{20}O_2$
Mol Weight:	146.23

Test	***Specification***
Appearance	White, cast solid
Odor	Characteristic
Identity	IR
Boil Pt:	214 -215 ^{0}C / 760 mm
Mp	86-90 ^{0}C
Fp:	260 ^{0} F
Assay (glpc):	> 98%
Water (K-F):	0.5 % max.