

EASTMAN

Eastman EastaPure™
electronic chemicals

DB solvent

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CAS: 112-34-5 (Diethylene glycol monobutyl ether)



Chemicals for the electronics industry

EastaPure™ DB solvent (diethylene glycol monobutyl ether) is the 7th product to be included in our current line of products. It is a high-boiling, slow-evaporating glycol ether providing low-trace metals content for sensitive electronic applications. High-purity specifications (low-trace metals) are required for solvents in semiconductor chip manufacturing, and special handling and storage procedures are used to maintain the high-purity specifications. Special analytical tests are used to measure critical trace metals in parts-per-billion levels (see Table 1).

Table 1: Special properties^a Upper limits for trace metals

Component	Upper Limit (parts/billion)
Aluminum (Al)	100
Barium (Ba)	100
Cadmium (Cd)	100
Calcium (Ca)	100
Chromium (Cr)	100
Cobalt (Co)	100
Copper (Cu)	100
Gallium (Ga)	100
Germanium (Ge)	100
Iron (Fe)	100
Lead (Pb)	100

Component	Upper Limit (parts/billion)
Lithium (Li)	100
Magnesium (Mg)	100
Manganese (Mn)	100
Nickel (Ni)	100
Potassium (K)	100
Silver (Ag)	100
Sodium (Na)	100
Strontium (Sr)	100
Titanium (Ti)	100
Zinc (Zn)	100

^aListed in the Sales Specification.

Eastman EastaPure™ DB solvent is being presented for photoresist applications/formulations, specifically for photoresist removers/strippers. In addition to the special analytical results on some critical trace metals, Table 2 lists some typical properties and regulatory classifications for EastaPure™ DB solvent.

Table 2: Typical properties^a

Molecular weight	162.23
Empirical formula	C ₈ H ₁₈ O ₃
Color (Pt-Co scale), max.	10
Wt/vol @ 20°C, kg/L (lb/gal)	0.96 (7.94)
Solubility	
In water, @ 20°C	Complete
Water in, @ 20°C	Complete
Evaporation rate	
(n-Butyl acetate = 1)	0.003
(ether = 1)	4,034
Dilution ratio	
Toluene	3.9
VM&P Naphtha	1.9
Refractive index @ 20°C	1.4316
Vapor density (air = 1)	
@ 20°C	0.02 mm Hg
55°C	0.04 Kpa
Specific gravity @ 20/20°C	0.955
Boiling point @ 760 mm Hg, °C (°F)	230–235 (441–455)
Freezing point, °C (°F)	– 76 (– 105)
Flash point, Cleveland open cup, °C (°F)	111 (232)
Fire point, °C (°F)	117 (242)
Flammability limits in air, % by volume	
Lower @ 135°C	0.85
Upper @ 199°C	24.6
Autoignition temperature, °C (°F)	204 (400)
Hansen solubility parameters	
Nonpolar	7.8
Polar	3.4
Hydrogen bonding	5.2
Total	10.0
Surface tension @ 20°C, dynes/cm	30
Blush resistance @ 26.7°C (80°F)	85% RH
Electrical resistance, megohms	<0.3
Critical temperature, °C	380.8
Critical pressure, ATM	25.3
Critical volume, mL/g-mol	526
Expansion coefficient, per °C @ 20°C	0.00085
Heat of vaporization, cal/g-mol	12,920
Heat of combustion, kcal/g-mol	– 1,109
Nitrocellulose solubility	Active
Maximum incremental reactivity (MIR)	2.7
Liquid viscosity @ 25°C, cP (mPa-s)	4.7
Liquid heat capacity @ 54°C, cal/g-mol	80.62

^aUnless noted otherwise, all tests are run at 23°C (73°F) and 50% relative humidity. Properties reported here are typical of average lots. Eastman makes no representation that the material in any particular shipment will conform exactly to the values given.

EASTMAN

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Material Safety Data Sheets providing safety precautions, that should be observed when handling and storing Eastman products, are available online or by request. You should obtain and review the available material safety information before handling any of these products. If any materials mentioned are not Eastman products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be observed.

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