

EASTMAN

Eastman EastaPure™
electronic chemicals

Ethyl acetate

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CAS: 141-78-6



Chemicals for the electronics industry

EastaPure™ ethyl acetate solvent is being offered as a viscosity reducer (thinner) for resins used in photoresist formulations. Solvent systems are necessary in the process for even spin-coating photosensitive (photoresist) materials onto silicon wafers. This coating process is followed by drying and pattern development by lithographic processes. The multilayered patterns form the integrated circuits on the semiconductor chips. High-purity (low-trace metals) solvents are required to make acceptable semiconductor chips, and special handling and storage procedures are used to maintain the high purity. Also, special analytical tests are used to measure critical trace metals at parts per billion levels (see Table 1).

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

Component	Upper Limit (parts/billion)
Calcium (Ca)	50
Iron (Fe)	50
Lithium (Li)	50
Magnesium (Mg)	50
Potassium (K)	50
Sodium (Na)	50
Zinc (Zn)	50

^aListed in the Sales Specification.

Eastman EastaPure™ ethyl acetate solvent can also be used in the edge-bead removal processes after spin coating. In addition to the trace metals, Table 2 lists typical properties and regulatory classifications for EastaPure™ ethyl acetate solvent.

Table 2: Typical properties^a

Molecular weight	88.11
Assay as ethyl acetate, min. ^b	99.5%
Color (Pt-Co scale), max. ^b	10
Specific gravity @ 20/20°C ^b	0.900–0.903
Water content, max. ^b	0.05%
Acidity, as acetic acid ^b	0.005%
Alcohol content, max. ^b	0.20%
Neat viscosity, cP @ 25°C	0.50
Refractive index @ 20°C ^b	1.370–1.373
Hansen solubility parameters	
Nonpolar	7.7
Polar	2.6
Hydrogen bonding	3.5
Total	8.8
Boiling range @ 760 torr, °C	
Initial	75.5
Dry point	78.0
Freezing point, °C	–84.0
Flash point	
Tag closed cup, °C	–4.0
Autoignition temperature, °C	466.0
Evaporation rate	
Compared to n-Butyl acetate @ 1.0	4.1
Vapor pressure @ 20°C, mm Hg	86.0
Flammable limits in air, % by volume	
Lower @ 38°C	2.0
Upper @ 38°C	10.7

^aProperties 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.

^bListed in the Sales Specification.



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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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