

EASTMAN

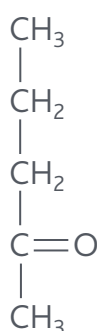
Eastman EastaPure™
electronic chemicals

MPK solvent

Eastman EastaPure™ electronic chemicals

MPK solvent

CAS: 107-87-9 (2-Pentanone)



Chemicals for the electronics industry

Solvent systems are necessary in the process of spin coating photosensitive (photoresist) materials evenly onto a silicon wafer. 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) specifications are required for the solvents to make acceptable semiconductor chips. This requires special storage and handling to maintain the high-purity specifications. Also, key trace metals are being measured in parts-per-billion levels as seen in Table 1.

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

Component	Upper Limit (parts/billion)
Aluminum (Al)	20
Barium (Ba)	20
Cadmium (Cd)	20
Calcium (Ca)	20
Chromium (Cr)	20
Cobalt (Co)	20
Copper (Cu)	20
Gallium (Ga)	20
Germanium (Ge)	20
Iron (Fe)	20
Lead (Pb)	20

Component	Upper Limit (parts/billion)
Lithium (Li)	20
Magnesium (Mg)	20
Manganese (Mn)	20
Nickel (Ni)	20
Potassium (K)	20
Silver (Ag)	20
Sodium (Na)	20
Strontium (Sr)	20
Titanium (Ti)	20
Zinc (Zn)	20

^aListed in the Sales Specification.

Eastman EastaPure™ MPK solvent can be used in the edge-bead removal processes after spin coating. This product can also be utilized in a variety of specialty cleaning operations. Table 2 lists some typical properties for EastaPure™ MPK solvent.

Table 2: Typical properties^a

Molecular weight	86.13
Assay as MPK, min.	90–95%
Methyl isobutyl ketone, max.	5–10%
Color (Pt-Co scale), max. ^b	15
Specific gravity @ 20/20°C ^b	0.806–0.809
Water content, max. ^b	0.05%
Acidity, as acetic acid ^b	0.01%
Alcohol content, max. ^b	0.3%
Neat viscosity, cP @ 25°C	0.68
Refractive index @ 25°C ^b	1.387–1.393
Nonvolatiles, max. ^b	0.005 g/mL
Hansen solubility parameters	
Nonpolar	7.8
Polar	3.7
Hydrogen bonding	2.3
Total	8.9
Boiling range @ 760 torr, °C ^b	
Initial	101.0
Dry point	105.0
Freezing point, °C	–86.0
Flash point	
Tag closed cup, °C	8.0
Autoignition temperature, °C	449.0
Evaporation rate	
Compared to n-Butyl acetate @ 1.0	2.3
Vapor pressure @ 20°C, mm Hg	27.8
Flammable limits in air, % by volume	
Lower @ 66°C	1.56
Upper @ 121°C	8.7

^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.



**Eastman Chemical Company
Corporate Headquarters**

P.O. Box 431
Kingsport, TN 37662-5280 U.S.A.

Telephone:
U.S.A. and Canada, 800-EASTMAN
(800-327-8626)
Other Locations, (1) 423-229-2000
Fax: (1) 423-229-1193

Eastman Chemical Latin America

9155 South Dadeland Blvd.
Suite 1116
Miami, FL 33156 U.S.A.

Telephone: (1) 305-671-2800
Fax: (1) 305-671-2805

Eastman Chemical B.V.

Fascinatio Boulevard 602-614
2909 VA Capelle aan den IJssel
The Netherlands

Telephone: (31) 10 2402 111
Fax: (31) 10 2402 100

**Eastman (Shanghai) Chemical
Commercial Company, Ltd. Jingan Branch**

1206, CITIC Square
No. 1168 Nanjing Road (W)
Shanghai 200041, P.R. China

Telephone: (86) 21 6120-8700
Fax: (86) 21 5213-5255

Eastman Chemical Japan, Ltd.

AIG Aoyama Building 5F
2-11-16 Minami Aoyama
Minato-ku, Tokyo 107-0062 Japan

Telephone: (81) 3-3475-9510
Fax: (81) 3-3475-9515

Eastman Chemical Asia Pacific Pte. Ltd.

#05-04 Winsland House
3 Killiney Road
Singapore 239519

Telephone: (65) 6831-3100
Fax: (65) 6732-4930

www.eastman.com

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.

Neither Eastman Chemical Company nor its marketing affiliates shall be responsible for the use of this information, or of any product, method or apparatus mentioned, and you must make your own determination of its suitability and completeness for your own use, for the protection of the environment and for the health and safety of your employees and purchasers of your products. NO WARRANTY IS MADE OF THE MERCHANTABILITY OR FITNESS OF ANY PRODUCT, AND NOTHING HEREIN WAIVES ANY OF THE SELLER'S CONDITIONS OF SALE.

EastaPure and Eastman are trademarks of Eastman Chemical Company.

© Eastman Chemical Company, 2008.