

Solubility of Eastman™ hydroquinone and derivatives

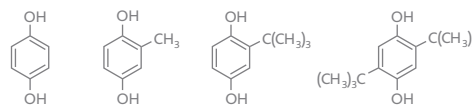
Hydroquinone and hydroquinone derivatives in the following list are used as intermediates for manufacturing a variety of products and as polymerization inhibitors for vinyl monomers and unsaturated polyester resins.

- Hydroquinone (HQ)
- Tolhydroquinone (THQ)
- Mono-tert-butylhydroquinone (MTBHQ)
- 2,5-Di-tert-butylhydroquinone (DTBHQ)

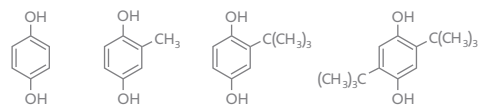
These hydroquinone derivatives are solids, and while Eastman offers them in powder form to facilitate handling, some customers prefer to predissolve these materials before use. Therefore, to aid in solvent selection, the solubilities of these products were determined in a variety of solvents. Since variations in solute, solvent, and conditions can produce different results, customers are urged to evaluate solubilities under specific use conditions.

Approximate solubility^a of Eastman™ hydroquinone and derivatives in solvents and monomers

[Wt %, 24°C (75°F)]



Solvents	Flash point TCC, °C (°F)	HQ	THQ	MTBHQ	DTBHQ
Glycol ether and glycol ether ester solvents					
Eastman™ EP solvent	49 (120)	27	34	47	30
Eastman™ EEP solvent	58 (136) ^b	14	28	52	25
Eastman™ EB solvent	62 (143)	24	32	42	27
Eastman™ EB acetate	71 (160)	10	24	42	24
Eastman™ DP solvent	93 (200)	30	—	44	—
Ester solvents					
Ethyl acetate	−4 (24)	18	50	50	31
Isopropyl acetate	2 (35)	10	24	44	24
Isobutyl acetate	21 (69)	5	18	41	21
n-Butyl acetate	27 (81)	10	21	41	24
Isobutyl isobutyrate	40 (104)	<5	10	14	18
Amyl acetate	41 (106)	5	18	41	24
Eastman Texanol™ ester alcohol	120 (248) ^c	10	14	14	18
Alcohols					
Methyl alcohol	10 (50)	30	48	>60	24
Ethyl alcohol, 95%	12 (54)	34	44	>60	21
Isopropyl alcohol, 99%	13 (55)	24	41	46	24
n-Butyl alcohol	36 (97)	21	30	47	21
2-Ethylhexyl alcohol	73 (164)	5	14	24	14
Ketones					
Acetone	−20 (4)	17	55	66	25
Methyl ethyl ketone	−9 (16)	30	41	41	14
Methyl n-propyl ketone	8 (46)	24	39	44	32
Methyl isobutyl ketone	16 (60)	18	30	46	30
Methyl isoamyl ketone	36 (96)	14	27	44	30
Methyl n-amyl ketone	39 (102)	18	30	24	30
Cyclohexanone	44 (111)	30	41	30	5



Solvents/monomers	Flash point TCC, °C (°F)	HQ	THQ	MTBHQ	DTBHQ
Glycols					
Propylene glycol	104 (220)	23	26	41	10
Ethylene glycol	119 (246)	27	34	42	<5
Dipropylene glycol	138 (280)	27	27	24	18
Diethylene glycol	143 (290) ^c	32	34	41	14
Vinyl monomers					
Vinyl acetate	-7 (20)	2	6	29	8
Acrylonitrile	0 (32)	6	18	46	12
Methyl methacrylate	10 (50)	5	16	41	19
Ethyl acrylate	16 (60)	5	18	44	22
Butyl acrylate	40 (103)	2	11	39	15
Acrylic acid	54 (130)	<1	6	23	3
Methacrylic acid	77 (170)	<0.5	<1	7	<1
Miscellaneous					
Water	—	7	7	—	Insoluble
Benzene	-11 (12)	Insoluble	—	—	—
Toluene	7 (45)	Insoluble	—	Insoluble	—
Ethyl benzene	23 (74)	—	—	—	—
Xylene	28 (83)	Insoluble	—	—	—
Styrene monomer	30 (86)	<5	<5	<5	<5
Triethyl phosphate	99 (210) ^d	32	41	41	10

^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 listed.

^bSetaflash Point

^cCleveland Open Cup

^dPensky-Martens Closed Cup

EASTMAN

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.

Eastman and Texanol are trademarks of
Eastman Chemical Company.

All other brands are the property of their respective owners.

© Eastman Chemical Company, 2009.