

Certificate of Analysis

DOE & INGALLS
FAIRCHILD
25 COMMERCIAL ST
MEDFORD MA 02155
USA

KMG Electronic Chemicals, Inc.
10611 Harwin Drive; ste 402;
Houston, Texas 77036
EIN: 26-1413344
www.kmgchemicals.com
Emergency US: 1-800-523-9374 Int: 01-610-481-7711
Date Printed: 01 JUL 2008

Customer Ship-to: 783025
Customer Order No: 8612
Sales Order No.: 1101203073
Delivery No.: 8003335605
Ship Date: 01 JUL 2008

Container Type: 4F4E - Case - 4 Plastic 4L Bottles
Net Weight: 18.000 kg
Grade Code: Cleanroom MB 49% Bottle

Material 64003 Hydrofluoric Acid 49%	Mfg. Date 17 APR 2008	Analysis Date 21 APR 2008	Best if Used By 17 APR 2010
Batch 555036	Quantity 88 EA	Source Location 5618	

	LOWER LIMIT	UPPER LIMIT	NOMINAL VALUE	ACTUAL VALUE	UNIT	EXPANDED UNCERT.	NO REPS STD DEV	ANALYTICAL		
								PHASE	FREQ	METHOD
Assay (HF)	48.80	49.20		49.03	%		2/0.02616			B
Appearance				Pass						B
Color (APHA)		10		1	AP		2/0			B
Fluosilicic Acid		50		7	ppm		1/0			B
Chloride (Cl)		2000		< 25	ppb		2/7.07107			B
Nitrate (NO3)		1000		< 25	ppb		2/0			B
Phosphate (PO4)		400		< 50	ppb		2/0			B
Sulfate (SO4)		500		< 50	ppb		2/5.65685			B
Aluminum (Al)		10.0		< 1.0	ppb		2/0.00085			B
Antimony (Sb)		5.0		< 1.0	ppb		2/0.00048			B
Arsenic (As)		5.0		< 1.0	ppb		2/0.00373			B
Barium (Ba)		10.0		< 1.0	ppb		2/0.01844			B
Beryllium (Be)		5.0		< 1.0	ppb		2/0.00018			B
Bismuth (Bi)		5.0		< 1.0	ppb		2/0.00001			B
Boron (B)		10.0		< 1.0	ppb		2/0			B
Cadmium (Cd)		10.0		< 1.0	ppb		2/0.02354			B
Calcium (Ca)										

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						NO REPS	PHASE	FREQ	METHOD
	10.0		< 1.0	ppb	2/0.0263			B	
Chromium (Cr)	10.0		< 1.0	ppb	2/0.00721			B	
Cobalt (Co)	10.0		< 1.0	ppb	2/0.01008			B	
Copper (Cu)	10.0		< 1.0	ppb	2/0.03065			B	
Gallium (Ga)	10.0		< 1.0	ppb	2/0.0007			B	
Germanium (Ge)	10.0		< 1.0	ppb	2/0.00897			B	
Gold (Au)	5.0		< 1.0	ppb	2/0.00188			B	
Iron (Fe)	10.0		< 1.0	ppb	2/0.16207			B	
Lead (Pb)	10.0		< 1.0	ppb	2/0.00319			B	
Lithium (Li)	5.0		< 1.0	ppb	2/0.00064			B	
Magnesium (Mg)	10.0		< 1.0	ppb	2/0.00863			B	
Manganese (Mn)	10.0		< 1.0	ppb	2/0.0059			B	
Molybdenum (Mo)	10.0		< 1.0	ppb	2/0			B	
Nickel (Ni)	10.0		< 1.0	ppb	2/0.01233			B	
Niobium (Nb)	10.0		< 1.0	ppb	2/0.00523			B	
Potassium (K)	10.0		< 1.0	ppb	2/0.02595			B	
Silver (Ag)	5.0		< 1.0	ppb	2/0.01119			B	
Sodium (Na)	10.0		< 1.0	ppb	2/0.00714			B	
Strontium (Sr)	10.0		< 1.0	ppb	2/0.00025			B	
Tantalum (Ta)	10.0		< 1.0	ppb	2/0.03017			B	
Thallium (Tl)	10.0		< 1.0	ppb	2/0.00066			B	
Tin (Sn)	10.0		< 1.0	ppb	2/0.00868			B	
Titanium (Ti)	10.0		< 1.0	ppb	2/0.31417			B	
Vanadium (V)	10.0		< 1.0	ppb	2/0.0047			B	
Zinc (Zn)									

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						NO REPS	PHASE	FREQ
	10.0		< 1.0	ppb	2/0.04221			B
Zirconium (Zr)	10.0		< 1.0	ppb	2/0.01148			B
0.5 Micron Particle Count	10		< 1	Par/ml	11/0.54775			E
1.0 Micron Particle Count	2		< 1	Par/ml	11/0.11546			E

This certificate is issued electronically and is valid without a signature.

REMARKS:

B = Batch Analyzed
 E = Batch Analyzed, Container Specific
 Appearance = Clear and free of visible particles
 This product meets or exceeds the requirements for this specification.