

Introduction

For this contamination study, the NT® Electronic Flowmeter has been tested for cleanliness by third party testing agencies.

The NT® Electronic Flowmeter is manufactured by Entegris, Inc. The flowmeter is assembled and tested under Class 100 cleanroom conditions and calibrated using ultra pure DI water. Prior to shipping, the flowmeter is wiped down, purged with high purity nitrogen and double bagged.

Figure 2 illustrates the particle data collected over a period of several minutes using high purity DI water.

Table 1 details the metallic extraction test data collected using high purity DI water as the test fluid.

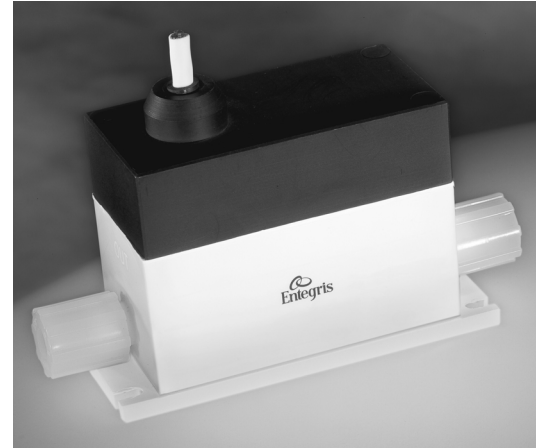


Figure 1: NT® Electronic Flowmeter measures fluid flow and pressure.

NT® Electronic Flowmeter Particle Study in UHP DI Water

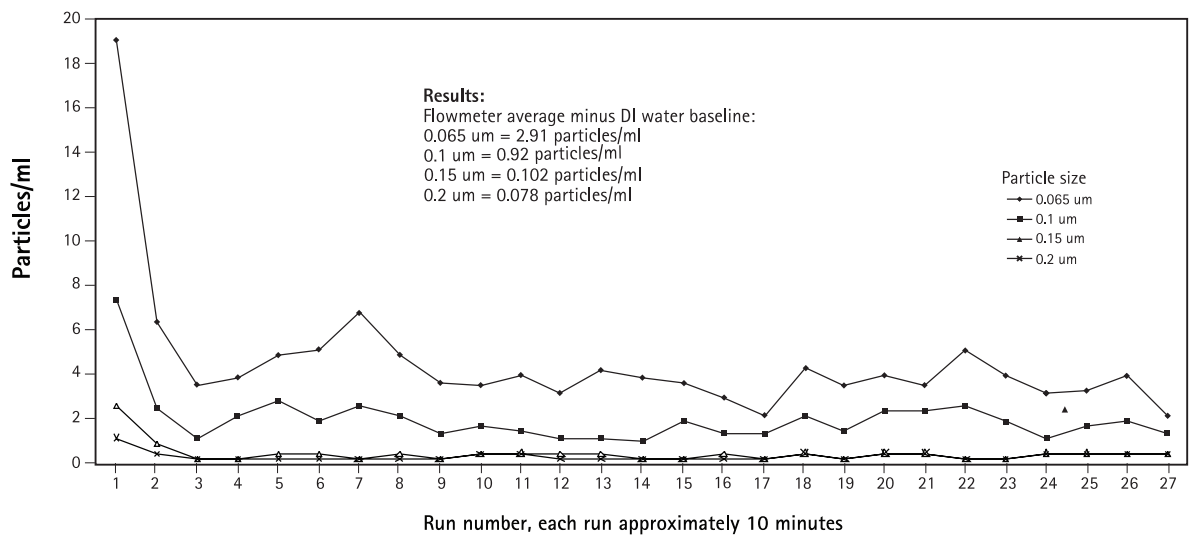


Figure 2: Particle testing for NT® Electronic Flowmeter.

Table 1: Metallic extraction data for the NT® Electronic Flowmeter

ELEMENTS		DETECTION LIMITS (ppb)	TEST RESULTS (ppb)	ELEMENTS		DETECTION LIMITS (ppb)	TEST RESULTS (ppb)
Aluminum	(Al)	0.02	< 0.02	Rubidium	(Rb)	0.01	< 0.01
Antimony	(Sb)	0.01	< 0.01	Ruthenium	(Ru)	0.03	< 0.03
Arsenic	(As)	0.05	< 0.05	Samarium	(Sm)	0.03	< 0.03
Barium	(Ba)	0.005	< 0.005	Scandium	(Sc)	0.05	< 0.05
Beryllium	(Be)	0.03	< 0.03	Selenium	(Se)	2	< 2
Bismuth	(Bi)	0.01	< 0.01	Silicon	(Si)	5	< 5
Boron**	(B)	0.1	0.22	Silver	(Ag)	0.02	< 0.02
Cadmium	(Cd)	0.01	< 0.01	Sodium*	(Na)	0.05	< 0.05
Calcium*	(Ca)	0.1	< 0.1	Strontium	(Sr)	0.01	< 0.01
Cerium	(Ce)	0.01	< 0.01	Tantalum	(Ta)	0.02	< 0.02
Cesium	(Cs)	0.01	< 0.01	Tellurium	(Te)	0.02	< 0.02
Chromium	(Cr)	0.03	< 0.03	Terbium	(Tb)	0.02	< 0.02
Cobalt	(Co)	0.01	< 0.01	Thallium	(Tl)	0.02	< 0.02
Copper	(Cu)	0.02	< 0.02	Thorium	(Tm)	0.02	< 0.02
Dysprosium	(Dy)	0.01	< 0.01	Thulium	(Tm)	0.01	< 0.01
Erbium	(Er)	0.02	< 0.02	Tin	(Sn)	0.01	< 0.01
Europium	(Eu)	0.02	< 0.02	Titanium	(Ti)	0.05	< 0.05
Gadolinium	(Gd)	0.02	< 0.02	Tungsten	(W)	0.02	< 0.02
Gallium	(Ga)	0.01	< 0.01	Uranium	(U)	0.02	< 0.02
Germanium	(Ge)	0.02	< 0.02	Vanadium	(V)	0.01	< 0.01
Gold	(Au)	0.05	< 0.05	Ytterbium	(Yb)	0.02	< 0.02
Hafnium	(Hf)	0.03	< 0.03	Yttrium	(Y)	0.02	< 0.02
Holmium	(Ho)	0.01	< 0.01	Zinc	(Zn)	0.03	< 0.03
Indium	(In)	0.01	< 0.01	Zirconium	(Zr)	0.01	< 0.01
Iridium	(Ir)	0.05	< 0.05				
Iron*	(Fe)	0.1	< 0.1				
Lanthanum	(La)	0.01	< 0.01				
Lead	(Pb)	0.02	< 0.02				
Lithium	(Li)	0.02	< 0.02				
Lutetium	(Lu)	0.02	< 0.02				
Magnesium	(Mg)	0.02	< 0.02				
Manganese	(Mn)	0.03	< 0.03				
Mercury	(Hg)	0.05	< 0.05				
Molybdenum	(Mo)	0.02	< 0.02				
Neodymium	(Nd)	0.02	< 0.02				
Nickel	(Ni)	0.03	< 0.03				
Niobium	(Nb)	0.02	< 0.02				
Osmium	(Os)	0.02	< 0.02				
Palladium	(Pd)	0.05	< 0.05				
Platinum	(Pt)	0.05	< 0.05				
Potassium*	(K)	0.05	< 0.05				
Praseodymium	(Pr)	0.01	< 0.01				
Rhenium	(Re)	0.02	< 0.02				
Rhodium	(Rh)	0.01	< 0.01				

** Boron levels from DI water.

* Ca, Fe, K, and Na analyzed by GFAAS. All other elements analyzed by ICP-MS.

Entegris designs and manufactures measurement instruments for the high purity and corrosive chemical environments of the semiconductor industry. Our products measure flow, pressure and level for the various acids, caustics, solvents and slurries used in the industry.

For More Information

For more information on electronic flowmeter systems or our complete line of fluoropolymer fluid handling solutions, contact your local Entegris distributor or Entegris, Inc.

To review our complete line of sensing and control product solutions visit Entegris' Web site at www.entegrisfluidhandling.com or contact Entegris Customer Service.

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ENTEGRIS, INC.

Corporate Headquarters / 3500 Lyman Boulevard / Chaska, Minnesota 55318 USA
Customer Service Tel. 763-502-0200 or Toll Free 877-503-0200 / Customer Service Fax 763-502-0300
www.entegris.com / www.entegrisfluidhandling.com

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