LIQUID SOURCES

Tetraethylorthosilicate (TEOS)

Application:

TEOS has been widely used in integrated circuit manufacturing operations to form silicon dioxide films. These conformal films are generated upon the molecular decomposition of TEOS at elevated temperatures and reduced pressures (LPCVD) or at lower temperatures in Plasma Enhanced and Atmospheric Pressure reactors (PECVD, APCVD). TEOS is typically used for undoped and doped interlayer dielectrics, intermetal dielectrics, sidewall spacers and trench filling applications.

TEOS is a stable, non-pyrophoric, non-corrosive liquid, and thereby is a preferable alternative to current processing techniques employing silane or dichlorosilane compounds. The high purity level of our ULSI Grade TEOS is preserved by supplying this material directly to the application in our stainless steel delivery systems.

Specification:

Purity (Trace Metals) 99.999999+%*

Rev. Date 10/95

Assay	99.99% miniimum
Al	1 ppb maximum
Ag	1 ppb maximum
As	1 ppb maximum
Au	1 ppb maximum
Ba	1 ppb maximum
Bi	1 ppb maximum
Ca	1 ppb maximum
Co	1 ppb maximum
Cr	1 ppb maximum
Cu	1 ppb maximum
Fe	1 ppb maximum
Ga	1 ppb maximum
Water	20 ppm maximum

Hg	1 ppb maximum
K	1 ppb maximum
Li	1 ppb maximum
Mg	1 ppb maximum
Mn	1 ppb maximum
Na	1 ppb maximum
Ni	1 ppb maximum
Pb	1 ppb maximum
Sn	1 ppb maximum
Sr	1 ppb maximum
Th	1 ppb maximum
Ti	1 ppb maximum
U	1 ppb maximum
Zn	10 APHA

* Total Metals < 10 ppb

Delivery Hardware:

Hong Kong Specialty Gases offers our ULSI Grade TEOS in industry standard quartz bubblers and stainless steel ampules as well as application specific delivery systems. High purity quartz bubbler is available in 500, 1000, and 1500cc sizes. The 316L stainless steel ampules are available in 0.5, 1.3, and 2.3 liter with various valve and delivery configurations. For large volume consumption, refill bulk canisters are available in1, 2, 5, and 10 gallon capacities.

Physical Properties:

FORMULA	$(C_2H_5O)_4Si$
Chemical Family	Organic Ester
Molecular Weight	208.33
Boiling Point	169˚C
Melting Point	-85.5˚C
Density at 20˚C	0.936gm/ml
Vapor Pressure	See chart below
Viscosity	0.72 cps.
Refractive Index	1.3838
Vapor Density (Air=1)	7.2
Flash Point	39˚C (Closed cup)

Vapor Pressure: