# HIGH PURITY CHEMICALS FOR SEMICONDUCTOR

## LIQUID SOURCES

## Phosphorus Oxychloride (POCl<sub>3</sub>)

#### Application:

Phosphorus Oxychloride applications range from MOS and Bipolar dopant processing to glass doping in the fiber optics industry. POCI3 is the industry standard for N-type doping requirements. For years gaseous Phosphine (PH3) was used as the predominant phosphorus source. Phosphine, however, has significant process control difficulties due to impurity levels and water generation upon decomposition reaction. Phosphorous Oxychloride has significantly displaced Phosphine as the phosphorous source due to the ease of handling liquid source, high purity levels, dry decomposition chemisty, and overall process control capabilities.

Assay	99.99% miniimum
A1	2 ppb maximum
Ag	1 ppb maximum
As	1 ppb maximum
Au	1 ppb maximum
Ва	2 ppb maximum
Bi	2 ppb maximum
Ca	1 ppb maximum
Со	2 ppb maximum
Cr	1 ppb maximum
Cu	1 ppb maximum
Fe	2 ppb maximum
Ga	1 ppb maximum
Color	5 APHA

Purity (Trace Metals) 99.99999+%

Hg	1 ppb maximum
К	1 ppb maximum
Li	2 ppb maximum
Mg	1 ppb maximum
Mn	1 ppb maximum
Na	2 ppb maximum
Ni	2 ppb maximum
Pb	1 ppb maximum
Sn	1 ppb maximum
Sr	1 ppb maximum
Ti	2 ppb maximum
V	1 ppb maximum
Zn	1 ppb maximum

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HSG

### **Delivery Hardware:**

Hong Kong Specialty Gases offers our ULSI Grade POCl3 in industry standard quartz bubblers. High purity quartz bubblers are available in 500cc, 1000cc, and 1500cc sizes. These bubblers are offered with dual-sealing teflon valves in the inlet and outlet (1/4" or 3/8"). Our quartz bubblers come standard with a clear safety coating to protect against spillage upon breakage and are equipped with dip tubes with multiple angled laser cut holes for improved carrier gas saturation.

#### **Physical Properties:**

Formula	POCI <sub>3</sub>
Chemical Family	Inorganic Halide
Molecular Weight	153.33
Boiling Point	105°C
Freezing Point	1.2°C
Density at 200°C	1.645g/ml
Vapor Pressure	See chart below
Vapor Density (Air=1)	5.4
Flash Point	N.A.
TLV	0.5 ppm

#### Vapor Pressure:



## PHOSPHORUS OX YCHLORIDE