

# HP- $\text{AlCl}_3$

## Aluminum Trichloride

Aluminum Trichloride ( $\text{AlCl}_3$ ) is used in atomic layer deposition (ALD) formation of the Aluminum oxide layer for high- $\kappa$  dielectric films.

Entegris offers  $\text{AlCl}_3$  in a high-purity grade. The material is proprietary and packaged using techniques specifically developed by Entegris. A certificate of analysis will be provided with each  $\text{AlCl}_3$  order detailing the results of a comprehensive analysis including trace metals and GC analysis.

Entegris suggests the use of our ProE-Vap® 200 for the delivery of sufficiently high flux to meet stringent conformality requirements. Our ProE-Vap 500 offers 2x fill capacity and 33% more tray surface area to enable next generation devices.

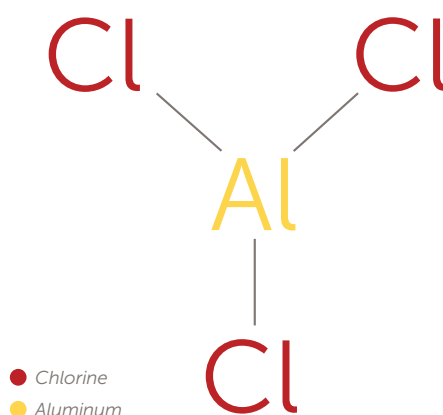
Entegris is a leading industry supplier that provides a complete line of advanced materials, delivery systems, and control/monitoring systems which enable comprehensive material lifecycle management solutions for OEMs and end users.

### FEATURES & BENEFITS

- High elemental purity
- Robust solid delivery system
- No carbon deposit in thin-films
- Non-pyrophoric
- Excellent flux and transport rates at elevated temperatures
- Standard shelf life of 2 years

### APPLICATIONS

- Solid precursor for use in ALD of aluminum oxide dielectric layers and aluminum nitride films



### PERFORMANCE DATA

$\text{AlCl}_3$  Vapor Pressure

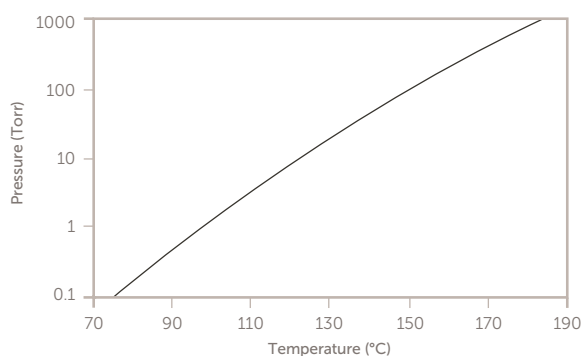


Figure 1. Vapor pressure curve

## SPECIFICATIONS

### Physical properties

<b>Chemical formula</b>	AlCl <sub>3</sub>
<b>Form</b>	White crystals
<b>Molecular weight</b>	133.34 g/mol
<b>Density</b>	2.48 g/cc
<b>Melting point</b>	192.4°C (378.32°F)
<b>Sublimation point</b>	180°C (356°F)
<b>Vapor pressure (@99°C)</b>	1 Torr
<b>Vapor pressure (@151°C)</b>	99.75 Torr

### Purity analysis

Element	Specification	Analytical method
Antimony	2.000 ppm	ICP-MS
Arsenic	2.000 ppm	ICP-MS
Calcium	10.000 ppm	ICP-MS
Chromium	5.000 ppm	ICP-MS
Copper	2.000 ppm	ICP-MS
Gallium	2.000 ppm	ICP-MS
Hafnium	2.000 ppm	ICP-MS
Iron	5.000 ppm	ICP-MS
Lead	2.000 ppm	ICP-MS
Magnesium	2.000 ppm	ICP-MS
Manganese	2.000 ppm	ICP-MS
Nickel	5.000 ppm	ICP-MS
Sodium	20.000 ppm	ICP-MS
Tin	5.000 ppm	ICP-MS
Titanium	25.000 ppm	ICP-MS
Uranium	2.000 ppm	ICP-MS
Zinc	5.000 ppm	ICP-MS
Zirconium	2.000 ppm	ICP-MS

### FOR MORE INFORMATION

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit [entegris.com](http://entegris.com) and select the Contact Us link to find the customer service center nearest you.

### TERMS AND CONDITIONS OF SALE

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