

# HfCl<sub>4</sub>

## (Hafnium Tetrachloride)

### Description

Hafnium tetrachloride (HfCl<sub>4</sub>) is a solid source material for the atomic layer deposition (ALD) of hafnium oxide films.

### Specifications

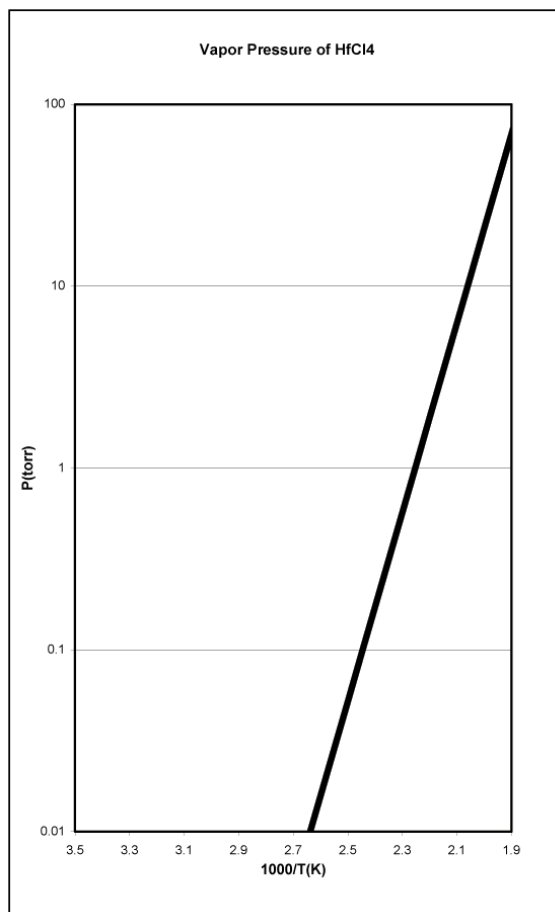
This chemical is currently being provided for R&D use only. As such, Schumacher has no set specifications for hafnium tetrachloride at this time. An actual analysis of the lot from which the chemical is taken will be provided.

### Physical Characteristics

Formula:	HfCl <sub>4</sub>
Molecular Weight:	320.30
Boiling Point:	320° C (sublimes)

### Applications

- Highly conformal ALD hafnium oxide gate dielectrics.
- $\text{HfCl}_4 + 2 \text{H}_2\text{O} \rightarrow \text{HfO}_2 + 4 \text{HCl}$



*For More Information*

If you would like additional information or technical assistance in preparing specific formulations, write or call Air Products and Chemicals, Inc. at the following location.

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