Catalog # 41-1250 Niobium(V) chloride (99.99%-Nb) (20-200ppm Ta) PURATREM

$NbCl_5$

Thermal Behavior:
- Melting point: 204.7°C
- Boiling point 254°C
- Vapor pressure: 17.1 Torr at 153.8 °C [1]

Technical Notes:
1. ALD/CVD precursor niobium thin film deposition
2. Used for etching of Nb_2O_5 Thin Films by $NbCl_5$ [8]

Target Deposit	Deposition Technique	Delivery Temperature	Pressure	Co-reactants	Deposition Temperature	Ref.
NbN_x	ALD ALD	90°C 90°C	7.5 Torr 7.5 Torr	Me_2NNH_2 NH_3	400°C 250-500°C	2 3, 4
NbC_x	ALD	115°C	-	TMA	100-350°C	5
Nb(Si)N	ALD	95°C	-	$SiCl_4$, NH_3	400°C	6
NbTiN	ALD	-	1.1 Torr	$TiCl_4$, NH_3	450°C	7
$NbOCl_3$	ALE	90°C	-	$Nb(OEt)_5$	-	8

References:

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6. *J. Electrochem. Soc.* **2006**, *153*, G437
7. *Sci. Rep.* **2018**, *8*, 4082
8. *Chem. Vap. Deposition* **2009**, *15*, 269