■ Development Project of “New Hf Precursors” Ver.2

□ Target : HfO_2

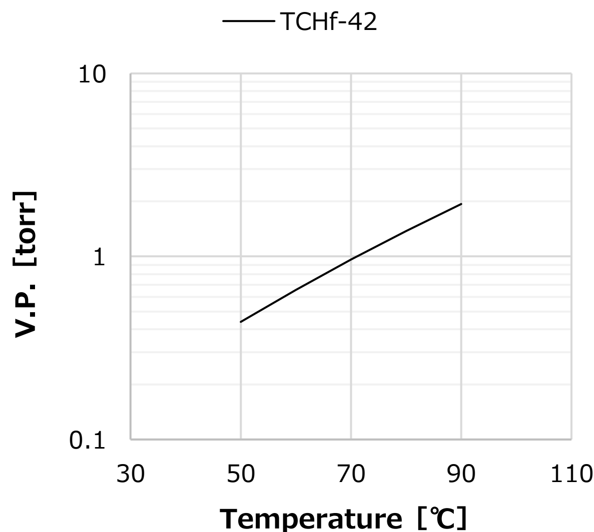
Code Name	TCHf-42
1) $TGA_{1/2}$ (℃)	186
Residual mass (%)	< 3%
2) DSC (℃)	286

1) TGA (Thermogravimetric Analysis) : Volatility property of precursor

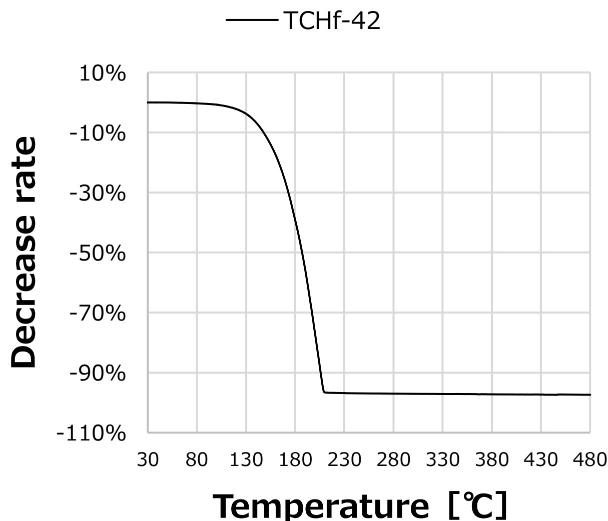
- **$TGA_{1/2}$ (℃)** : Temperature at 50% vaporization (low temperature → high volatility)
- **Residual mass (%)** : Residue mass after vaporization (low value → good thermal stability)

2) DSC (Differential Scanning Calorimetry) : Decomposition temperature of precursor

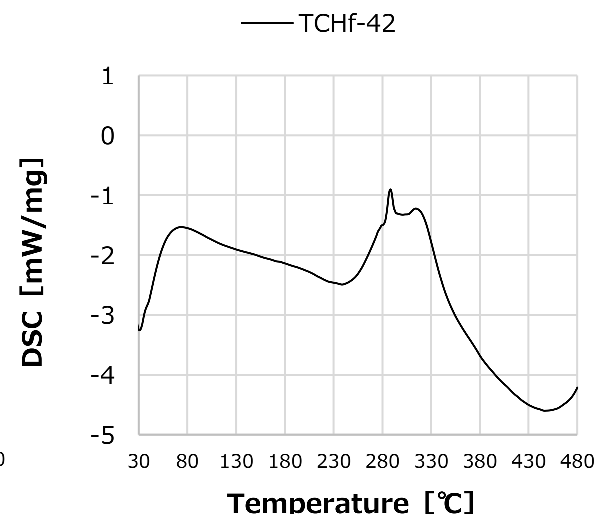
■ Vapor Pressure curve



■ TGA curve



■ DSC curve



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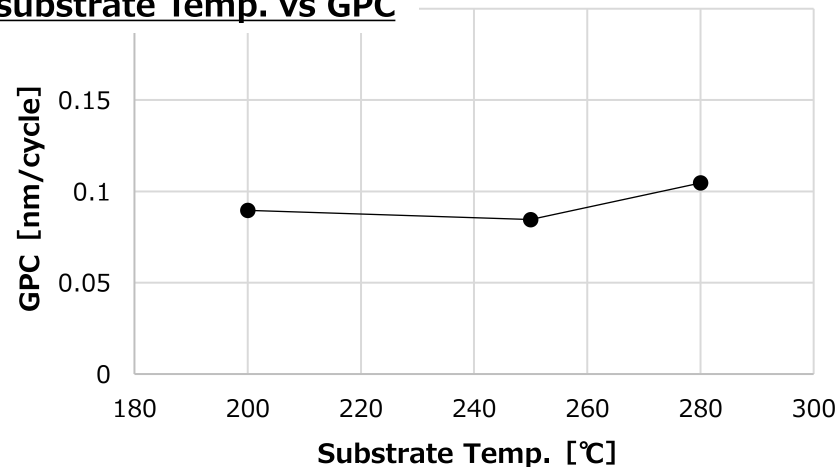
TCLC Tri Chemical Laboratories Inc.

■ Collaboration "Watty Corporation"

□ ALD evaluation about TCHf-42

Deposition equipment		Watom-2T
substrate		Si
reactant		H_2O
ALD window		< 280℃
Intensity - XPS - [atm%]	Hf	26.3
	O	73.4
	other	< 0.01

■ substrate Temp. vs GPC



■ substrate Temp. vs Uniformity