

# Development Project of "New Ti Precursors"

## Target : **TiO<sub>2</sub>**

|                            |               |
|----------------------------|---------------|
| Code Name                  | <b>TCTi-2</b> |
| 1) TGA <sub>1/2</sub> (°C) | 150           |
| Residual mass (%)          | < 1%          |
| 2) DSC (°C)                | 264           |

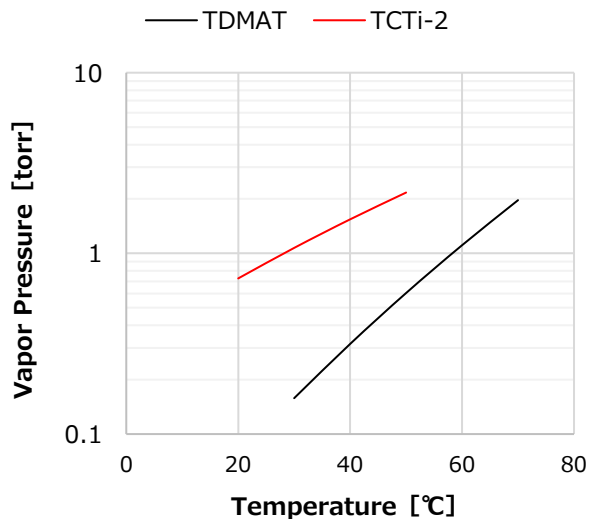
### 1) TGA (Thermogravimetric Analysis) : Volatility property of precursor

- TGA<sub>1/2</sub> (°C) : Temperature at 50% vaporization (low temperature → high volatility)

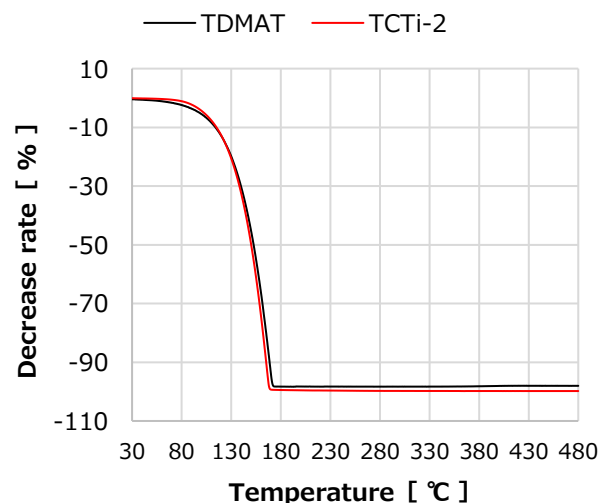
- Residual mass (%) : Residue mass after vaporization (low value → good thermal stability)

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

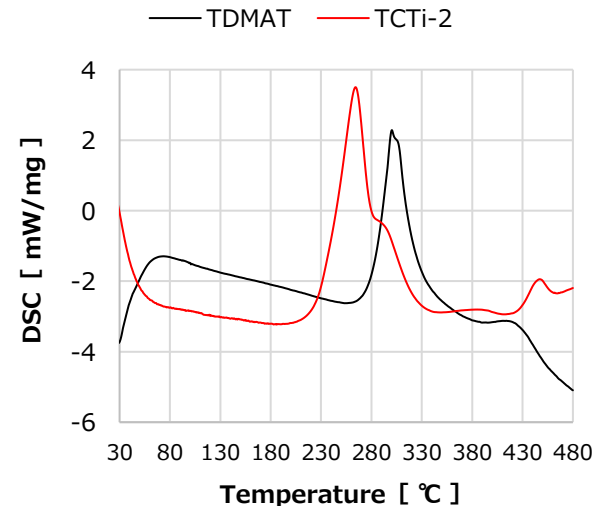
### Vapor Pressure curve



### TGA curve



### DSC curve

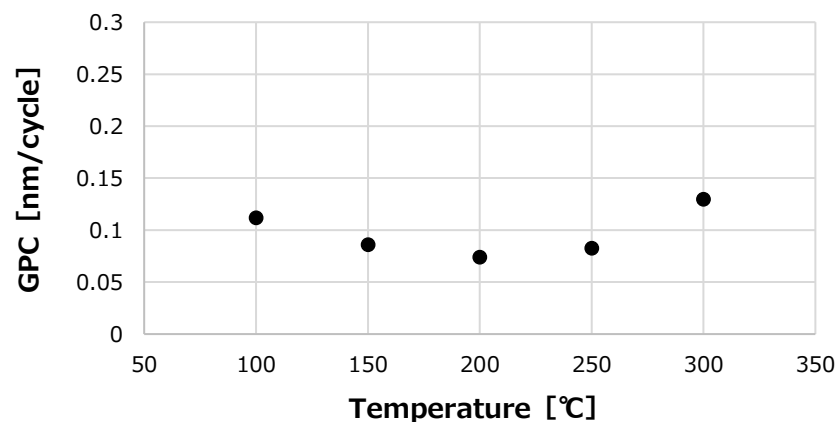


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## ALD evaluation about TCTi-2

|                      |             |                  |
|----------------------|-------------|------------------|
| substrate            |             | Si               |
| reactant             |             | H <sub>2</sub> O |
| ALD window           |             | 150~250°C        |
| Intensity<br>- XPS - | C<br>[atm%] | < 0.01           |
|                      | N<br>[atm%] | < 0.01           |

### substrate Temp. vs GPC



### substrate Temp. vs refractive index (633nm)

