

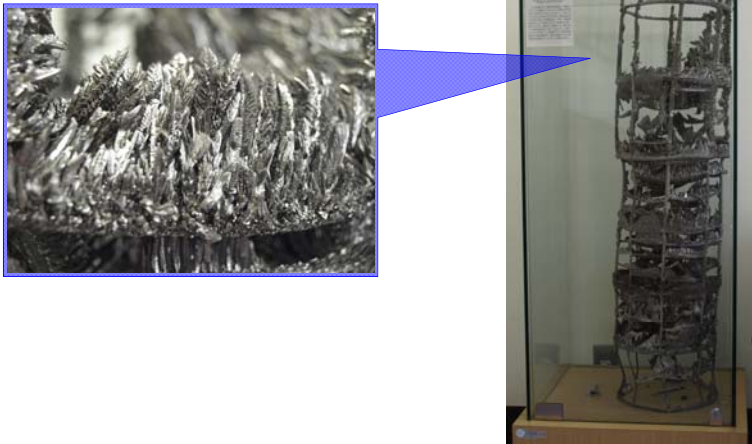
Registration No.	Number 00083		
Registration Date	September 27, 2011	Registration Category	Category 2

Name (Model, etc.)	Metallic Titanium Dendrite		
Location	Aoba Ward, Sendai City, Miyagi Pref		
	Institute for Materials Research, Tohoku University		
Owner (Custodian)	Institute for Materials Research, Tohoku University		
Manufacturer (Company)	Sakae Takeuchi		
Year Manufactured	1959		

Reason For Selection	<p>Titanium is a highly active element, and in the natural world, it does not exist as a metal by itself, but exists for the most part within magnetite as TiO₂. By purifying this TiO₂ compound, the metal titanium can be obtained, but doing so first requires the creation of titanium tetrachloride. The method of reducing titanium tetrachloride was developed by Hunter and Kroll. By a method of letting titanium tetrachloride drop onto melted magnesium and crystallize the titanium in the melted magnesium, Kroll developed a technology that would allow industrial production of titanium. But with this method, the purity that could be obtained was limited. Takeuchi and his colleagues succeeded in directly obtaining titanium metal with a high degree of purity by using a vapor phase reduction method. With a method that caused titanium tetrachloride and magnesium to react directly in a vapor phase, Takeuchi was able to solve in one fell swoop the defects of the Kroll method such as the interfusing of unreacted magnesium and magnesium tetrachloride. This material was created by Takeuchi et al in 1959, and it is an epoch-making accomplishment in the history of titanium technology, since it verified the possibility of obtaining a high level of purity for titanium.</p>		
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Registration Standard	1 - B		
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Open/Closed to Public	Open to Public		
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Other useful information			
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