First successful commercialization of cobalt coated iron oxide magnetic tape

Registration No.	Number 00315		
Registration Date	September 14, 2021	Registration Category	Category 1

Name (Model, etc.)	Avilyn magnetic powder, needle-shaped gamma iron oxide magnetic powder, developed and manufactured by TDK.
Location	Nikaho-shi, Akita
	TDK Corporation TDK Museum
Owner (Custodian)	TDK Corporation TDK Museum
Manufacturer (Company)	TDK Corporation
Year Manufactured	1973
Year first appeared	1973
Reason For Selection	Since its birth, magnetic tape had been made of iron oxide. By the 1970s, demand for higher recording density was driving research into materials with stronger magnetic retention properties. High-density chromium dioxide recording tape was successfully commercialized in Europe and the United States, and while iron oxide enriched with cobalt promised superior magnetic retention, its magnetic properties were considered too unstable to be viable. The breakthrough came when Tokyo Denki Kagaku Kogyo (now TDK) developed a magnetic tape coating consisting of Avilyn magnetic powder deposited on top of an iron oxide surface, which was shown to be superior to chromium dioxide tape in terms of both cost and performance. TDK's discovery led directly to the development of the ubiquitous VHS and Betamax videotape recording systems, spawning the home video revolution and providing a major boost to the tape industry. Avilyn magnetic powder is highly significant in that it represents the point at which the chromium dioxide tape developed in the West was finally overtaken and Japanese industry asserted leadership in the field of magnetic materials and magnetic tape.
Registration Standard	1-B (Show a uniquely Japanese scientific or technological development from an international perspective.)

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