

News Release

February 19, 2025
Proterial, Ltd.

Proterial Wins Okochi Memorial Foundation Technology Prize in the 71st Okochi Memorial Foundation Prize

Proterial, Ltd. (hereafter “Proterial”) won the Okochi Memorial Foundation Technology Prize at the 71st (2024) Okochi Memorial Foundation Prize, which was hosted by Okochi Memorial Foundation. The prize was granted in recognition of the development of a copper alloy material for train contact wires with high strength and high wear resistance with a continuous casting and rolling process. Outline of the achievement for which the prize was granted is as follows. The prize presentation ceremony will be held at Nihon Kogyo Club Kaikan (Chiyoda-ku, Tokyo) on Tuesday, March 25.

1. Name of the prize

Okochi Memorial Foundation Technology Prize

2. Achievement for which the prize was granted

Development of a copper alloy material for train contact wires with high strength and high wear resistance with a continuous casting and rolling process

3. Recipients

Hiroyoshi Hiruta, Chief Engineer, Casting & Wire Engineering Dept., Electric Wire & Cable Business Unit, Proterial, Ltd.

Hiromitsu Kuroda, General Manager of Casting & Wire Engineering Dept., Electric Wire & Cable Business Unit, Proterial, Ltd.

Takayuki Tsuji, General Manager, Casting and Rolling Production Dept., Electric Wire & Cable Business Unit, Proterial, Ltd.

Mamoru Otomo, Assistant Manager, Casting Section, Casting and Rolling Production Dept., Electric Wire & Cable Business Unit, Proterial, Ltd.

Shinichi Takamura, Wire Drawing Subsection, Rolling & Wire Drawing Section, Rolling & Wire Drawing Production Dept., Ibaraki Technos, Ltd.

4. Outline of the achievement for which the prize was granted

(1) Background

Railroad is an important part of the social infrastructure, and the shutdown of any railroad service creates major problems. Railroad companies engage in daily maintenance operations to prevent the suspension of the service. However, maintenance involves a lot of night-time operations, and it is becoming difficult to secure the necessary workers. This has made it an important task to reduce the labor required for maintenance. Moreover, the transmission wires for trains that Proterial supplies (hereafter, “contact wires”) are required to have even higher electric conductivity to save energy.

Proterial has developed a copper alloy material that ensures the high strength, high wear resistance, and high electric conductivity of contact wires and applied it to contact wires. This has reduced the frequency of replacement of contact wires, thus reducing labor, and reduced electricity transmission loss, which helps conserve energy.

Proterial, Ltd.

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www.proterial.com/e

(2) Features of the technology and achievements

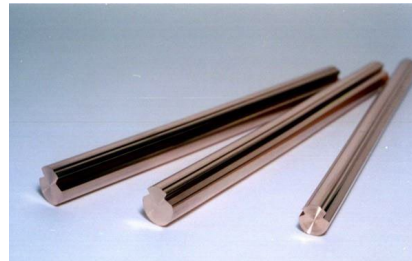
Normally, a metal material is given greater strength using more additive elements. However, the electric conductivity of a material declines in proportion to the amount of additive elements contained in it. As such, strength and electric conductivity are in a trade-off, making it difficult to increase both at the same time.

Proterial increased the strength of copper as the basic composition of a contact wire by adding a tiny amount of tin and indium. At the same time, the company developed a technology that inhibits the additive elements, which interfere with the movement of electrons, from melting into copper by having tin and indium react with oxygen in the copper and forming an oxide. The company has also found that fine dispersion of the oxide thus formed strengthens the organization and increases the strength and wear resistance of contact wire.

This has enabled the mass production of a copper alloy material for contact wire (SNN contact wire), which is about 1.2 times higher in strength and about 1.4 times higher in wear resistance than existing products from Proterial, while maintaining high electric conductivity, with continuous casting and rolling equipment. The SNN contact wire features a long interval between replacements, reducing the frequency of maintenance. It was consequently adopted immediately by West Japan Railway Company (JR West). At present, the SNN contact wire also contributes to the stability of the high-speed travel of bullet trains.



Continuous casting and rolling equipment



SNN contact wire

About the Okochi Memorial Foundation Prize

The Okochi Memorial Foundation Prize is a prestigious, time-honored prize program commemorating Dr. Masatoshi Okochi's achievements. In this program, the Okochi Memorial Foundation commends individuals, groups, and business entities which have made a major contribution to scientific advance and development of industry with achievements made in Japan in relation to research and development and practices, etc. in industrial engineering, production technology, and production systems.

Media Inquiries: Corporate Communications Dept.

https://www.cntct.proterial.com/contact/publish/inquiry_eng?g=01&c=001-01

Customer Inquiries: https://www.cntct.proterial.com/contact/publish/inquiry_eng?g=01&c=014

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■About PROTERIAL

PROTERIAL

“Proterial” reflects the essence of our corporate philosophy, which consists of three elements: Mission: “Make the best quality available to everyone;” Vision: “Leading sustainability by high performance;” and Values: “Unflinching integrity” and “United by respect.” It combines “**pro-**” with the word “**material.**”

“Pro-” represents our “three pros”:

- **Professional — work that exceeds expectations**
- **Progressive — a spirit that keeps challenging**
- **Proactive —an enterprising attitude**

“Material” refers to the high-performance materials that our original technologies produce and underpinned by the three pros. With our focus on solving customer issues and bringing new levels of value, we promise to contribute to the realization of a sustainable society through the products and services that embody our philosophy.

■Proterial, Ltd. — Company Overview

Established: April 1956

Head office: Toyosu Prime Square, 5-6-36 Toyosu, Koto-ku, Tokyo 135-0061, Japan

Capital : 310 million yen (as of March 31, 2024)

Representative : Sean M. Stack

Representative Director, Chairman, President and Chief Executive Officer (CEO)

Sales revenue: 1,033.2 billion yen (Term ended March 2024)

History: 1910: Founded as Tobata Foundry Co.

1937: Merged with Hitachi, Ltd.

1956: Established separately as Hitachi Metals Industries, Ltd.

2023: Company separated from the Hitachi Group, and renamed from Hitachi Metals, Ltd. to Proterial, Ltd.

Proterial is a participant of the United Nations Global Compact and adheres to its principles-based approach to responsible business. In January 2025, Proterial received a Silver rating in the EcoVadis Sustainability Assessment.

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