News Release

October 30, 2023
Proterial, Ltd.

Announcement of the latest addition to the additive manufacturing powder series offering, featuring aluminum 6000 series alloy powder

Proterial, Ltd. ("Proterial") unveiled its latest Aluminum 6000 (Al6000) series aluminum alloy powder. This powder has been trademarked as ADMUSTER® L61P and is expected to accelerate the deployment of metal additive manufacturing globally in sectors that requires lightweight and high-performance aluminum alloys. Proterial has collaborated with the Singapore Institute of Manufacturing Technology ("SIMTech"), a research institute of the Agency for Science, Technology and Research ("A*STAR") in Singapore, to develop the aluminum alloy powder.

1. Background

The ADMUSTER L61P was developed as part of the A*STAR SIMTech-Proterial Additive Manufacturing Lab (formerly "A*STAR SIMTech-Hitachi Metals Additive Manufacturing Lab"), set up in October 2018 to develop high quality metal additive manufacturing powders and associated printing processes for emerging industrial applications.

Al6061 alloy, which the powder is based on, is one of the most used aluminum materials in sectors such as aerospace, automotive and semiconductor industries. It is commonly used in aviation interior parts due to its light weight and good mechanical properties, as well as good post processibility. However, its applicability in additive manufacturing has been limited as micro-cracks exist in the printed material due to the nature of the process.

2. Outline

To address the issue above, Proterial and A*STAR's SIMTech improved the composition of the Al6061 alloy by incorporating elemental additives and establishing precise guidelines on the elements and proportions used in formulating the alloy, as well as developing the powder production and additive manufacturing processes with good quality control. These resulted in the development of Al6061-based alloy powder, ADMUSTER L61P, which demonstrates superior strength characteristics compared to the Al6061 alloy material, with crack issues mitigated.

Proterial and A*STAR's SIMTech aim to achieve early practical applications via validation testing by collaborating with industry partners in the aerospace, automotive and semiconductor manufacturing equipment industries, as well as partner with additive manufacturing experts to facilitate the widespread use of ADMUSTER L61P among end-users. Both parties will also work collaboratively to address technical challenges such as developing printing processes compatible with various types and models of additive manufacturing equipment and their post-processing, with the goal of achieving mass production of industrial components using ADMUSTER L61P. This powder will be exhibited at Formnext to be held in Messe Frankfurt (exhibition area by Proterial is A55 in Hall 11), Germany from Nov. 7, 2023.

■Comments by Dr Sharon Nai, R&D Director, SIMTech, A*STAR

"Developed with the combined expertise of A*STAR's SIMTech in additive manufacturing R&D and Proterial in metal powder development, this new aluminium alloy powder will be one of the many solutions from our strong partnership to address metal additive manufacturing challenges for impactful industry applications. A*STAR's SIMTech looks forward to further collaboration with Proterial to continue pushing the boundaries in developing new specialty alloys for additive manufacturing and meeting industry needs."

■Comments by Dr Mark Y. Maruno, President, Additive Manufacturing Solution CV, R&D Division, Proterial

"Proterial has been collaborating with A*STAR since 2018 to advance the development of innovative additive manufacturing materials and optimal printing processes to eliminate barriers for the industry's adoption of

additive manufacturing, to achieve innovative and sustainable products. Proterial is excited to unveil this new aluminium alloy powder developed under the joint collaboration with SIMTech. Proterial and SIMTech will continue to pursue the development of innovative materials and processes tailored to the needs of various industries, contributing to the realisation of a sustainable society."

Contact for press: Corporate Communications Department, Proterial
https://www.proterial.com/e/contact/

■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: "Unfaltering 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, 2023)
Representative: Sean M. Stack
Representative Director, Chairman, President, and Chief Executive Officer (CEO)
Sales revenue: 1,118.9 billion yen (Term ended March 2023)
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.