Materials Processing Institute

Material Development

MATERIAL DEVELOPMENT

The Material Development Group supports the onward processing of alloy materials which is essential for understanding the nature of these alloys for future deployment. Using a reheat furnace, pressing and rolling equipment, the full industrial process can be carried out to ensure the viability of larger scale production. Once processed, a full mechanical testing suite is available for the examination of impression creep, hardness and indentation analysis.

Capabilities

The Group uses a range of techniques to manufacture materials from a few grams up to 250kg along with the capability to carry out full post manufacture processing and testing of materials.

Expertise is focused on alloys development, mechanical testing, including creep, charpy and hardness testing, vacuum brazing, reheating, and energy. Materials development capability ensures that cross sector industrial research and development support is available.

Benefits

> Manufacture of materials from a few grams up to 250kg

> Ability to reheat materials up to 1250°C

> Vacuum brazing on a range of materials to analyse how materials will join through different conditions

> Analysis of materials post pressing and rolling

> Support for fusion power in the production of materials for the fusion programme

Services

> Production of materials in vacuum
> Production of materials in air
> Production of materials in inert atmospheres
> Induction melting and processing
> Radiant heating in a range of furnaces
> Slag foaming for iron and steel

Facilities

Advanced Materials Development Centre, Advanced Materials Characterisation Centre, thermodynamic, mechanical testing, and metallurgical laboratories with a comprehensive range of equipment to support material development. A production facility is also used to carry out materials development at scale.

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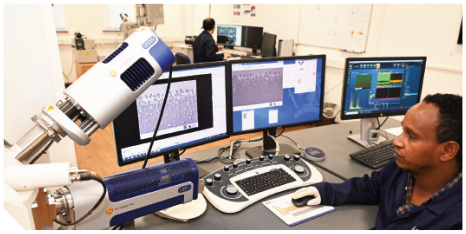
Research and Technology

Scan the relevant QR code to find out more about key areas in which we provide research and technology support.

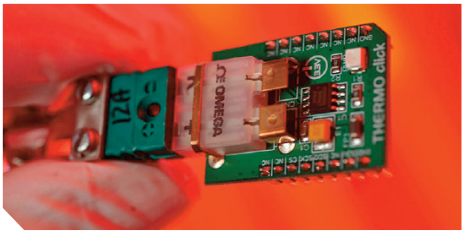
CHARACTERISATION AND ANALYSIS

SCAN QR Code to find out more



INDUSTRIAL DIGITALISATION

SCAN QR Code to find out more



CRITICAL RAW MATERIALS

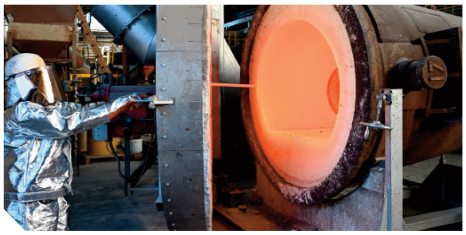
SCAN QR Code to find out more

MATERIAL DEVELOPMENT

SCAN QR Code to find out more

ENERGY AND PROCESS DECARBONISATION

SCAN QR Code to find out more



POWDER METALLURGY

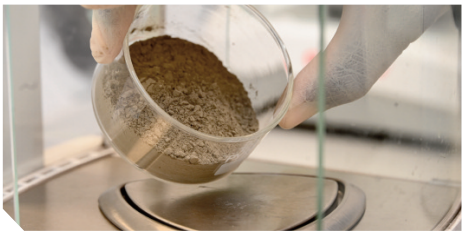
SCAN QR Code to find out more

GREEN METALS

SCAN QR Code to find out more

SUSTAINABLE CEMENT AND CONCRETE

SCAN QR Code to find out more



Address:
Materials Processing Institute
Eston Road
Middlesbrough
TS6 6US
United Kingdom

Contact Details:
t: +44 (0)1642 382000
enquiries@mpiuk.com
www.mpiuk.com