SH SCIENTIFIC Since 1982
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Since 1982, we've provided laboratory and production equipment to organizations spanning material science and engineering, mechanical and chemical engineering, extraction and processing, biotechnology, heavy industry, education, government, and healthcare.

SUPPORTING BIOMASS AND PETROCHEMICAL RESEARCH WITH HIGH TEMPERATURE (1,900°C) MUFFLE FURNACE

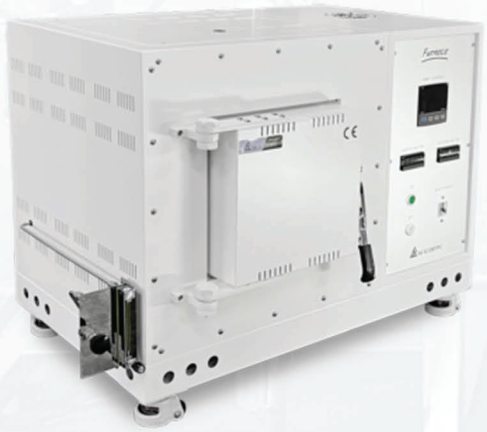
The growing field of biomass conversion and petrochemical research demands advanced equipment capable of handling the rigorous requirements of modern laboratories. As researchers focus on developing bio-renewable alternatives to traditional petrochemical products, the need for reliable, high-temperature processes becomes important. The SH Scientific High-Temperature Muffle Furnace is specifically designed to meet these needs, offering the precision and versatility required for cutting-edge research in this domain.

Biomass conversion involves transforming organic materials into useful energy or chemical products. This process often requires precise thermal treatments to alter the molecular structure of the biomass, enabling the production of fuels, chemicals, and materials that can replace those derived from fossil resources. The SH Scientific High-Temperature Muffle Furnace is ideally suited for this purpose, providing the necessary control over temperature, atmosphere, and process conditions.

For petrochemical research, particularly in the development of bio-renewable versions of traditional petrochemicals, similarly relies on high-temperature processing. Researchers in this field often work with carbonaceous solids, such as calcined coke, which require precise calcination to achieve the desired properties. The SH Scientific High-Temperature Muffle Furnace excels in these applications, ensuring that materials are processed under optimal conditions.

With maximum temperatures ranging from 1,050°C to 1,900°C and chamber volumes from 3 to 36 liters, SH Scientific's muffle furnaces offer a flexible solution for laboratories of all sizes. The furnace's advanced temperature control, with stability within ±1°C, is critical for research that demands precise thermal management. This level of control ensures that biomass and petrochemical materials are treated consistently, resulting in reliable and reproducible outcomes.

The furnace is also equipped with optional features that enhance its utility in biomass conversion and petrochemical research. These include programmable controllers, available with the MH and MS series (and optionally for the MG series), which allow for detailed thermal profiling and automation of complex processes. The compatibility with ball-type gas flow meters supports the creation of inert atmospheres, such as nitrogen or argon, which are essential for preventing unwanted reactions during high-temperature treatments.



In 2024, SH Scientific introduced several new optional enhancements designed to further support research in biomass conversion and petrochemicals:

- **Testo 300 Combustion Gas Analyzer:**
  This tool enables the monitoring of oxygen-free atmospheres inside the furnace, as well as the measurement of combustion gases and synthetic gas components. This is particularly valuable for ensuring the integrity of biomass conversion processes where controlling the gaseous environment is crucial.

- **Laboratory Gas-Drying Unit by Drierite™:**
  This unit, complete with connectors, helps maintain the desired humidity levels within the furnace, a critical factor for processes sensitive to moisture content.

- **Quartz Shelf:** Designed to maximize available space within the chamber, the quartz shelf allows for the efficient arrangement of samples, enhancing throughput in busy laboratories.

- **Digital Vacuum Precision Meter by DigiVac:**
  This precision instrument provides accurate vacuum measurements, essential for processes that require a controlled, low-pressure environment.

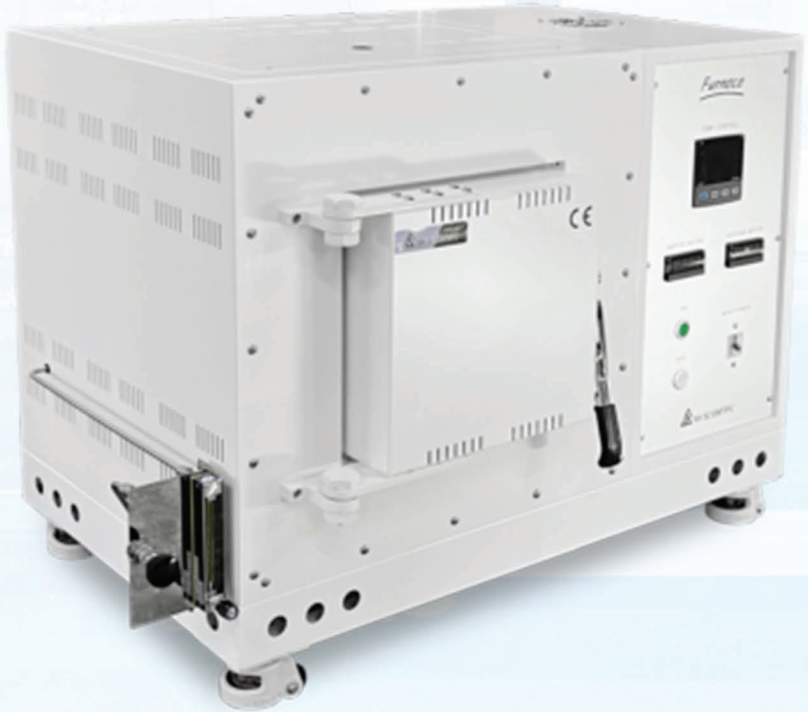
These features and options make the SH Scientific High-Temperature Muffle Furnace an indispensable tool for researchers engaged in biomass conversion and petrochemical studies.

The ability to customize the furnace to specific research needs ensures that laboratories can achieve their goals efficiently and effectively, contributing to the development of sustainable energy and chemical solutions.

To illustrate the capabilities of the SH Scientific High-Temperature Muffle Furnace in supporting biomass conversion and petrochemical research, the following table provides a detailed overview of its features and benefits:

Feature	Description	Benefit for Biomass Conversion and Petrochemical Research
Temperature Range	1,050°C to 1,900°C	Enables a wide range of thermal treatments, from low-temperature processes to high-temperature calcination.
Chamber Volume	3L to 36L	Accommodates various scales of research, from small samples to larger batch processing.
Temperature Stability	±1°C	Maintains precise control over temperature, ensuring consistent and reproducible results in research.
Programmable Controllers	Included with MH and MS series; optional for MG series (MGE series do not support)	Allows detailed thermal profiling and automation, critical for complex biomass conversion processes.
Optional Gas Module	Compatible with ball-type gas flow meters; supports inert atmospheres like nitrogen or argon	Prevents unwanted chemical reactions during high-temperature treatments, preserving material integrity.

Feature	Description	Benefit for Biomass Conversion and Petrochemical Research
Testo 300 Combustion Gas Analyzer (Optional)	Monitors oxygen-free atmosphere and measures combustion/ synthetic gas components	Ensures optimal atmospheric conditions, crucial for biomass and petrochemical processing.
Laboratory Gas-Drying Unit by Drierite™ (Optional)	Maintains desired humidity levels within the furnace	Essential for processes sensitive to moisture content, enhancing research accuracy.
Quartz Shelf (Optional)	Maximizes available space in the chamber	Increases sample throughput and efficiency in laboratory operations.
Digital Vacuum Precision Meter by DigiVac (Optional)	Provides accurate vacuum measurements	Critical for research requiring controlled, low-pressure environments.



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Serving North America Since 2013

In 2018, after particularly rapid growth in the American education and public sectors, we founded a US head office in Portland, Oregon. Whether you're visiting us on behalf of a major institution, a small lab, or anything in between, we're honored that you're considering SH Scientific as a potential partner. We look forward to a lasting relationship in support of your innovation and discovery.

A BRIEF HISTORY OF
SH SCIENTIFIC

1982
SH Scientific Co Ltd, Korea was established.

2006
ISO 9001, KS A9001 acquired.

2007
CE certified for all drying ovens, vacuum drying ovens, limate chambers incubators, clean benches, circulating water baths.

2009
Patent registered for vacuum drying ovens.

2010
Design registered for drying ovens and climate chambers.

2012
Transferred HQ and factory to Sejong city, Korea.
Utility model registered for drying ovens.
Patent registered for vacuum drying ovens.
Venture Enterprise certified.

2013
Patent registered for vacuum drying ovens.
Started overseas sales including North America.

2018
Established SH Scientific USA (sales office) in Oregon, US

2021
Started supplying laboratory and industrial furnaces to colleges, universities, county and federal entities.

2022
UEI Registered for the U.S. government projects.