

## Companies of the Rath Group. Worldwide.

Rath Aktiengesellschaft  
Walfischgasse 14  
A-1015 Wien  
Tel. +43 (1) 513 44 27-0  
Fax +43 (1) 513 44 27-88

Aug. Rath jun. GmbH  
Walfischgasse 14  
A-1015 Wien  
Tel. +43 (1) 513 44 26-0  
Fax +43 (1) 513 44 26-86

Rath GmbH  
Ossietzkystraße 37/38  
D-01662 Meißen  
Tel. +49 (35 21) 46 45-0  
Fax +49 (35 21) 46 45-86

Rath GmbH  
Krefelder Straße 680-682  
D-41066 Mönchengladbach  
Tel. +49 (21 61) 96 92-0  
Fax +49 (21 61) 96 92-61

Rath GmbH  
Leulitzer Straße 6a  
D-04828 Bennewitz  
Tel. +49 (34 25) 89 48-0  
Fax +49 (34 25) 89 48-13

Rath GmbH  
Siemensstraße 1  
D-56422 Wirges/Westerwald  
Tel. +49 (26 02) 939-0  
Fax +49 (26 02) 939-347

Rath Hungaria zRt.  
Porcelán utca 1  
H-1106 Budapest  
Tel. +36 (1) 43 300 43  
Fax +36 (1) 261 90 52

Rath USA Inc.  
Carr Executive Center-Suite 131  
501 Silverside Road  
USA-Wilmington, DE 19809  
Tel. +1 (302) 793 0282  
Fax +1 (302) 793 0289

Rath Zarotechnika spol. s r.o.  
ul.5. května 756  
CZ-544 02 Dvur Králové  
Tel. +420 (499) 321 577  
Fax +420 (499) 321 003

Rath Polska Sp. z o.o.  
ul. Piłsudskiego 90  
PL-41 308 Dabrowa Gornicza  
Tel. +48 (32) 795 58 27  
Fax +48 (32) 792 98 16

Rath Aktiengesellschaft  
Ufficio per l'Italia  
Im Helui 15  
I-39030 Chienes (BZ)  
Tel. +39 (0474) 56 56 20  
Fax +39 (0474) 56 56 28

E-Mail: [info@rath-group.com](mailto:info@rath-group.com)  
Internet: [www.rath-group.com](http://www.rath-group.com)

### Applies to all listed products:

For applications in corrosive atmospheres and close to maximum operating temperatures, we recommend prior consultation of our technical department. The data shown are guidelines derived on the basis of recognised analysis standards. A detailed product description can be found in the specification sheets. Other types are available on request. All information is subject to technical modifications or changes

in specification. Material Safety Data Sheets (MSDS) have been issued describing the health, safety and environmental properties of these products, identifying the possible health risks and giving advice on handling precautions and emergency procedures.

This must be consulted and fully understood before handling, storage and use.



## Calsitra, Alsitra, Altra®

Ultra-light high temperature insulation  
wool for heat insulation up to 1650°C.



# High temperature insulation wool: Ultra-light, efficient refractory solution.

## Calsitra Effective up to 900 °C.

Calsitra can be used at temperature ranges up to 900 °C. The raw materials for these products are alkalis and alkaline earths, limiting their range of applications.

## Alsitra Universal up to 1300 °C.

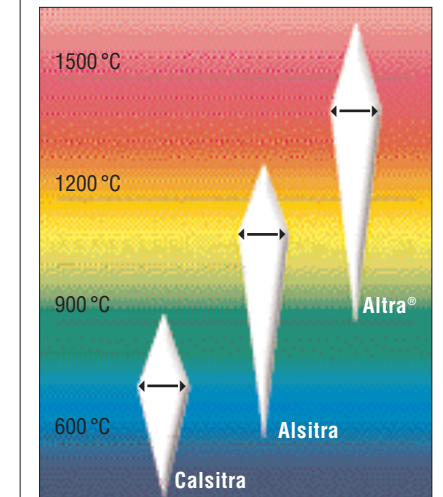
The main application of Alsitra is in temperature ranges of up to 1300 °C, primarily in the field of industrial furnace construction. Alsitra is manufactured in a blowing process. By virtue of purest raw materials and an aluminium oxide content of up to 54 %, it is suitable for all applications up to 1300 °C.

# Better value through cost, energy and environmental consciousness.

## Altra® Excels at up to 1650 °C.

Altra® is an ultra-pure polycrystalline wool with excellent thermal and mechanical properties. Produced in a sol-gel process, Altra® comes in three product varieties with aluminium oxide contents of 72 %, 80 % and 97 %. The products are characterised by their suitability in high-temperature environments with up to 1650 °C and offer a wide spectrum of applications.

### Thermal range:



## Calsitra/Alsitra/Altra® High temperature insulation wool

	Calsitra Mat CMS1100	Calsitra Mat MS 1250	Calsitra Mat CMS 1250	Alsitra Mat 1300	Alsitra Mat 1400	Alsitra Mat 1400Z	Altra® Mat 72	Altra® Mat 80	Altra® Mat 97
Classification temperature [°C]	1.100	1.250	1.250	1.300	1.400	1.400	1.650	1.600	1.500
Application temperature [°C]	900	1.000	1.050	1.150	1.300	1.300	1.650	1.600	1.500
Al <sub>2</sub> O <sub>3</sub> [%]	1	2,8	2	48	54	35	72	80	97
SiO <sub>2</sub> [%]	64	77	73	52	46	50	28	20	3
Miscellaneous [%]	28 <sub>[CaO]</sub> 6 <sub>[MgO]</sub>	20 <sub>[MgO]</sub>	23 <sub>[CaO]</sub>			15 <sub>[ZrO<sub>2</sub>]</sub>			
Thermal conductivity [W/mk]	0,31	0,42	0,36	0,35	0,35	0,45	0,28	0,28	0,39
at temperature [°C]	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
at density [kg/m <sup>3</sup> ]	128	128	128	128	128	128	100	100	100

## Advantages of high temperature insulation wool:

The outstanding properties of high temperature insulation wool have a significant energy- and cost-saving effect. In comparison with other refractory materials it is more economical and safer for the environment:

- faster construction and repairs
- reduced maintenance costs
- faster furnace cycling
- high thermal shock resistance
- low thermal conductivity
- high chemical resistance
- reduced gas consumption
- lower CO<sub>2</sub> emissions

Shuttle kiln

Chamber oven

Bogie furnace





# Flexible modules with a wide range of applications.

**Up to 900 °C**  
**Calsitra Mod:**  
Modules are used in continuous kiln at temperature ranges up to 900 °C.  
750

**Up to 1300 °C**  
**Alsitra Mod:**  
The diversity of the Alsitra product range makes these modules suitable for various applications between 900 °C and 1300 °C.  
1100

**Up to 1400 °C**  
**Altra®/Alsitra Kombi Mod:**  
Combined modules can be used for applications between 1200 °C and 1400 °C.  
1250

**Up to 1650 °C**  
**Altra® Mod:**  
At higher temperatures of up to 1650 °C and in sensitive environments, the use of Altra® modules is the best technical solution.  
1450

*Altra® Burner Block*

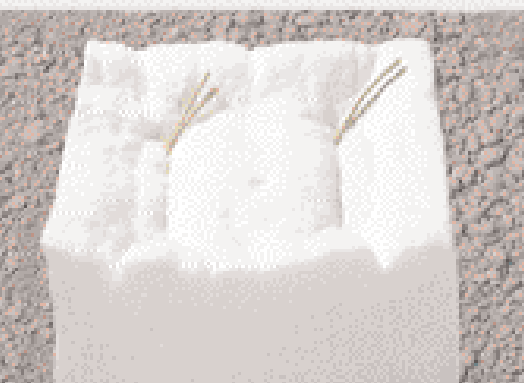
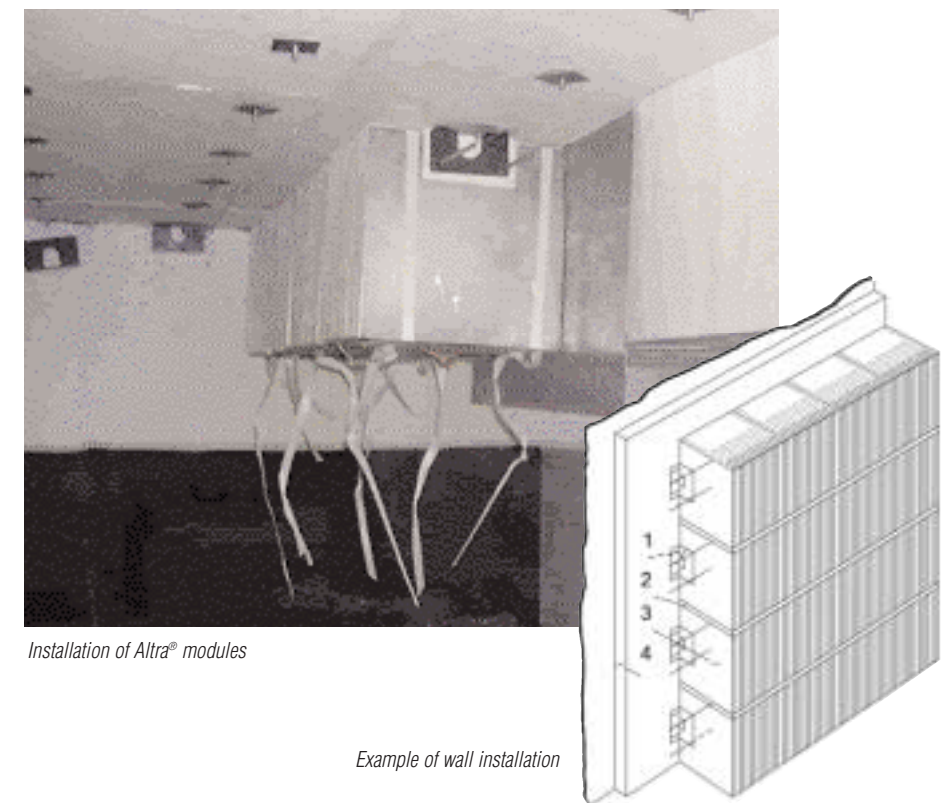
# Ultra-light and ultra-easy to install.

## From standard to complex contours.

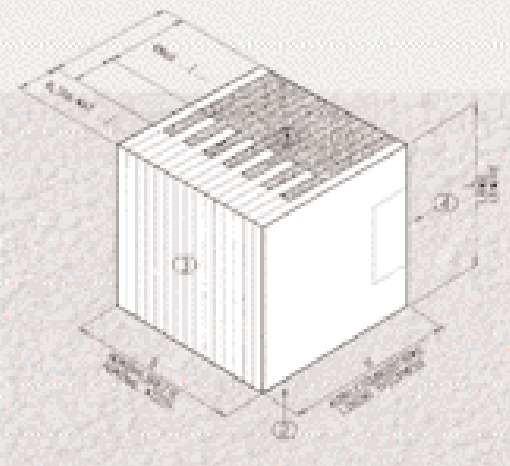
Parallel mat strips are pressed to the exact module density and held together by cords or tapes and metal plates. If technically feasible, we supply both standard dimensions and tailor-made modules designed for specific applications even for complex contours.

## Modules: Construction and assembly.

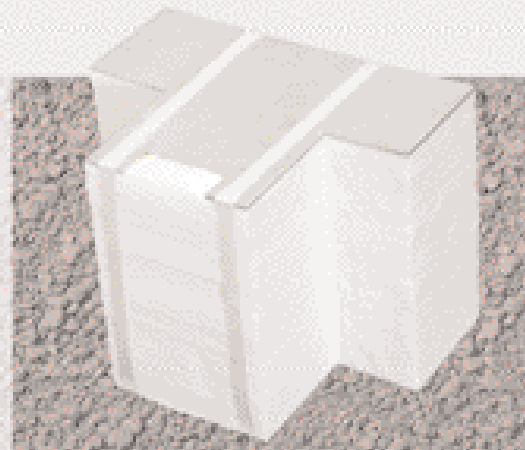
Calsitra and Alsitra modules are supplied as corded modules. In case of Kombi Mod and Altra® Mod metal sheets or panels ensure the stability of the module shape until installation. Assembly is fast, clean and professional with a high installation rate requiring no special tools.



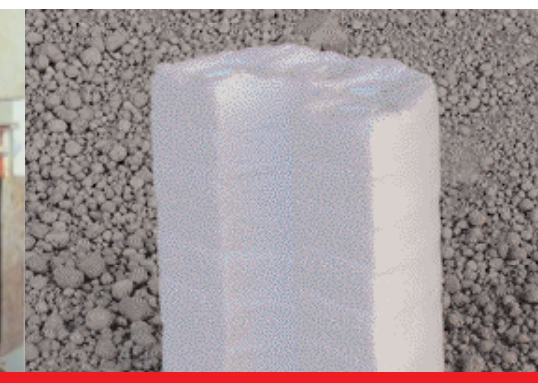
*Alsitra Mod, cord bound*



*Altra®/Alsitra Kombi Mod*



*Altra® Mod with tapes and metal plates*





# Convincing products and solutions.

## We have trust in our products. Because we produce them.

Rath has one significant advantage: we fully guarantee for the quality of our products – because they are manufactured in our own factories. They are controlled to the most stringent quality criteria. Production in all Rath companies is certified according to ISO 9001.



Mönchengladbach, North Rhine Westphalia (D)

## Range of applications.

Ultra-light high temperature insulation wools and other refractory products from Rath are used in numerous fields where special requirements and temperatures up to 1800 °C have to be met. This is including all insulation processes in the steel, ceramics, porcelain and chemical industry.

In particular refractory modules made of high temperature insulation wool have proved their value in intermittently fired industrial furnaces, afterburners and custom applications.

## Material of the future: high temperature insulation wool.

Due to its high performance high temperature insulation wool offers an increasing number of innovative solutions for different purposes in the high-tech sector. It is used for automotive applications, in aerospace technologies or as reinforcing fibre in composite materials.

# Know-how that proves its worth.

## Engineering.

Our engineers are excellently trained and particularly dedicated – qualified industry partners who can prepare a fast and thorough analysis of all aspects of a project and then develop convincing technical solutions. To give you excellent value for money.

## Construction.

Qualified supervisors and technicians with years of valuable experience transfer our know-how to the construction site. At least one staff member is always at hand during construction. This is a further reason why we can guarantee for the long durability of our linings.

## Maintenance.

As with most high-tech plants, preventive maintenance is a prerequisite for faultless operation and durability. A maintenance concept, developed by Rath, helps to prolong the working life of refractory linings in order to optimise their function and minimise the impact on employees and the environment.



Rotary hearth furnace

Annealing furnace

Inside of a cracker

Cracker for petrochemical industry

