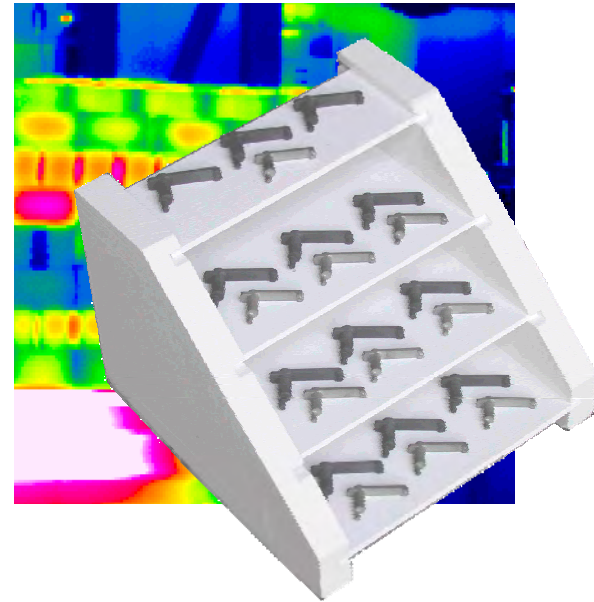


Refractory highlights. Powder metallurgy.



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Specialist in refractory technology for the powder metallurgy

Rath offers a broad line of alumina refractories for powder metal sintering in atmospheres such as Hydrogen, Ammonia, Nitrogen and mixtures of these gases up to 1800° C.

Rath high alumina materials contain negligible amounts of silica and other materials that will be volatilized under reducing

conditions at temperatures over 1100° C.

Our product line includes dense or insulating alumina materials and low and ultra low mass fibre based compositions and cover a broad range of applications in powder metallurgy sintering from conventional PM to MIM (Metal injection moulding).

Porrath FL 34-15: bubble alumina insulating brick with low silica, good thermal shock resistance

Porrath Light-weight insulating bricks

	Porrath FL 34-15
Bulk density [g/cm ³]	1,50
Classification temperature [°C]	1840
Chemical analysis [%]	
Al ₂ O ₃	> 99,5
SiO ₂	0,1

Product description.

Dense alumina refractory products are available in pressed or cast shapes and are used for furnace linings and kiln furniture and pusher slabs (Korrath K 901)

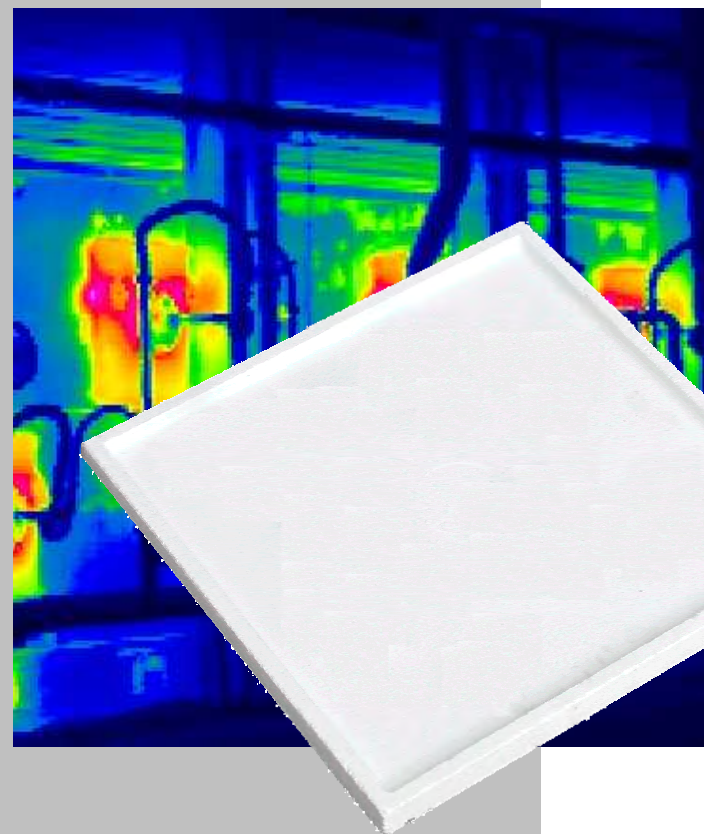
Korrath K 99: high purity with low silica

Korrath K 901: high purity mullite bonded alumina, with excellent thermal shock resistance

Alurath M 704: high purity mullite material, with excellent thermal shock resistance

Korrath/Alurath Dense alumina products

	Korrath K 99	Korrath K 901	Alurath M 704
Bulk density [g/cm ³]	3,15	3,00	2,50
Chemical analysis [%]			
Al ₂ O ₃	> 99,5	90	72
SiO ₂	-	9	25



**Ultra low density.
Cost reduction.**

**High alumina content.
Facing reducing atmospheres.**

Product description.

Altra®: polycrystalline alumina wool, available as bulk fibre, mat (60, 80, 100 and 120 kg/m³), module and strip module (100 to 160 kg/m³ density).

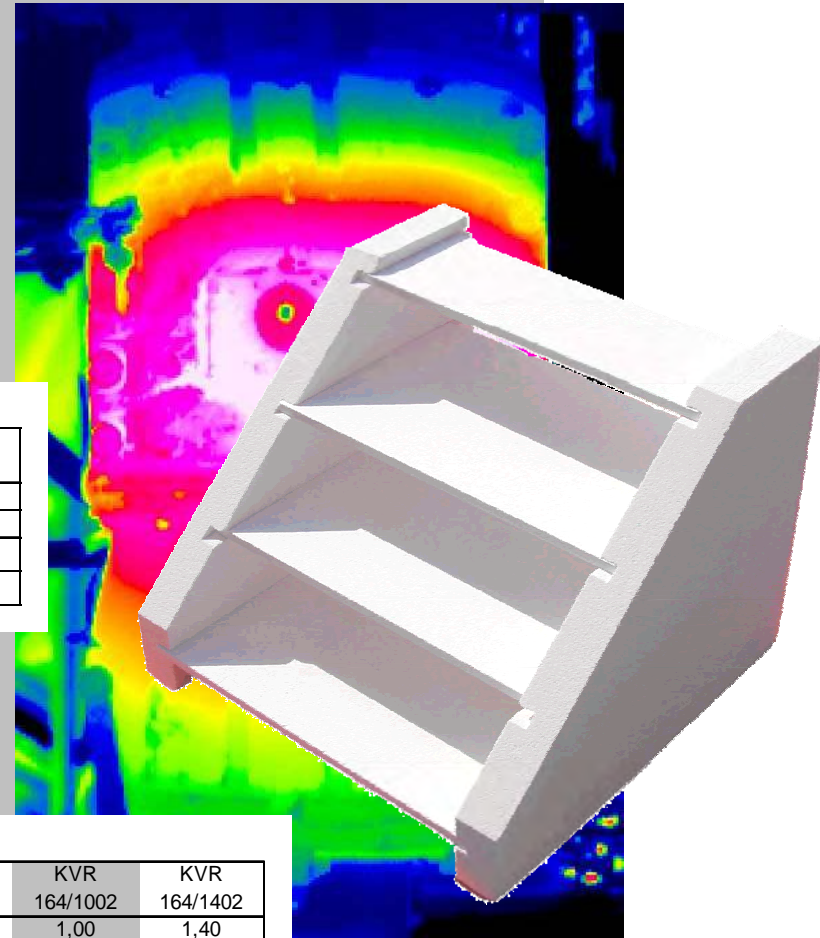
Altraform KVR: ultra light-weight vacuum formed material based on polycrystalline alumina fibre Altra® B 97, organic free, available as board, cylinder and other shapes (CNC machined to customer drawings)

Altra® Alumina wool

	Altra B 72	Altra B 80	Altra B 97
Max. service temperature [°C]	1650	1600	1500
Chemical analysis [%]			
Al ₂ O ₃	72	80	97
SiO ₂	28	20	3

Altraform KVR Vacuum formed products

	KVR 164/242	KVR 164/502	KVR 164/702	KVR 164/1002	KVR 164/1402
Bulk density [g/cm³]	0,24	0,50	0,70	1,00	1,40
Max. service temperature [°C]	1600	1600	1600	1600	1600
Chemical analysis [%]					
Al ₂ O ₃	98	98	98	98	98
SiO ₂	2	2	2	2	2



Each of our customers expects something special.

From furnace linings to firing setters and pusher plates Rath has a unique combination of products, applications knowledge, and engineering resources to fulfil almost any requirement up to 1800° C while allowing manufacturers to reduce costs.

Kiln furniture.

Rath manufactures kiln furniture and sintering trays for sintering powder metal parts (PM, MIM) for technical ceramics (CIM) as well as for electronic components.

Pressed dense refractory materials like our Korrath K and Alurath M, based on alumina or mullite, are available as flat plates, frames, saggers or shapes up to 1800° C.

Especially for sintering of complex metal injection moulded parts (MIM), our ultra light-weight vacuum formed material Altraform KVR 164 based on Altra® B 97 high temperature wool is successfully used.

Low mass Altra® based materials allow rapid heating and cooling, reducing energy consumption and improving furnace or kiln turnaround time.

The machinability of this material allows ultimate flexibility in setter design to fit customer requirements with none of the hard tooling requirements or shape limitations of denser alumina materials. In turn this gives engineers more flexibility in setter design, rather than settle for dense refractory designs that have an existing mould.

In our plants demands become reality.

Altraform KVR 164 is available in densities from 240 kg/m³ to 1400 kg/m³ (15 lbs/ft³ to 85 lbs/ft³) allowing the end user to tailor unique setter designs to meet their specific process requirements.

The ultra low mass material Altraform KVR 164/242 makes it possible to position green MIM-parts by impressing them into the setter material.

Altraform KVR 164 can be used for applications up to 1600° C in highly reducing environments such as vacuum and dry hydrogen and oxidising atmospheres.

Kiln and furnace lining.

For kiln and furnace lining and kiln car applications up to 1800° C we offer dense and insulating alumina refractory grades and also modules and boards based on our Altra® alumina and mullite fibres.

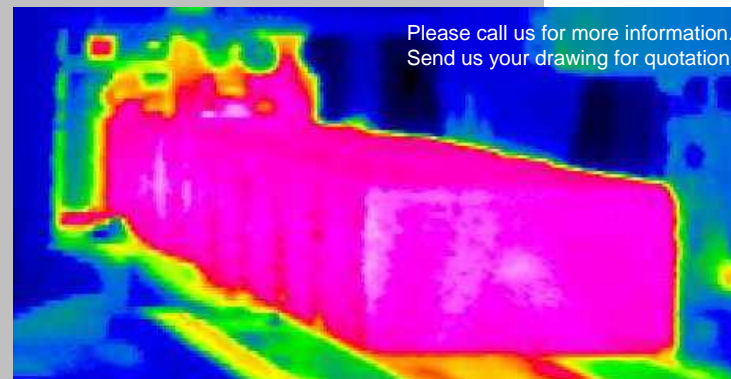
Low mass Altra® based linings allow rapid heating and cooling, reducing energy consumption and improving furnace or kiln turnaround time. Low mass also will reduce the possibility of refractory spalling and cracking due to thermal shock, thus reducing maintenance costs, downtime and extending the lining lifetime.



Krummnußbaum, Austria



Mönchengladbach, Germany



Please call us for more information.
Send us your drawing for quotation.