

Tailor-made solutions for the aluminium industry.

Top quality refractory materials.



RATH

Specialist for top technology in high temperature.

**Quality with an optimum
price-performance ratio.**



The Rath sales team

Rath offers the ideal combination of tradition and innovation. The result: optimum refractory solutions for a wide range of applications. All items in our broad product portfolio are manufactured in-house. With carefully selected materials and precision processing techniques, we can guarantee top quality.

The Rath sales teams are focussed on the sector and familiar with its specific requirements; our technical offices provide the necessary engineering and assembly know-how. This means we can offer our customers individual, complete refractory solutions with an optimal price-performance ratio.

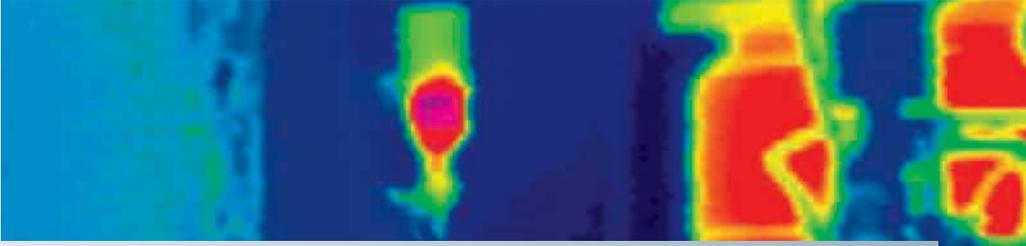
Greater efficiency in aluminium production.



Drum melting furnace

Our products guarantee energy savings and help protect the environment at a time of rising energy costs and increased environmental awareness. For the aluminium industry in particular, this is a decisive factor.

What is more, operators and plants must meet high quality and efficiency standards when it comes to manufacturing and recycling aluminium. With its clear and targeted focus on quality and innovative solutions, Rath is the ideal refractory solutions partner for the aluminium industry.



Always expect us to be one step ahead.

Aluminium is the most important of the non-ferrous metals. Despite its low melting point of just 660°C, it nevertheless requires production units to have high-performing refractory.

Rath supplies refractory material both for primary aluminium production – rotary furnaces for calcination, anode furnaces, electrolysis cells – and for the secondary aluminium industry.



Dense bricks

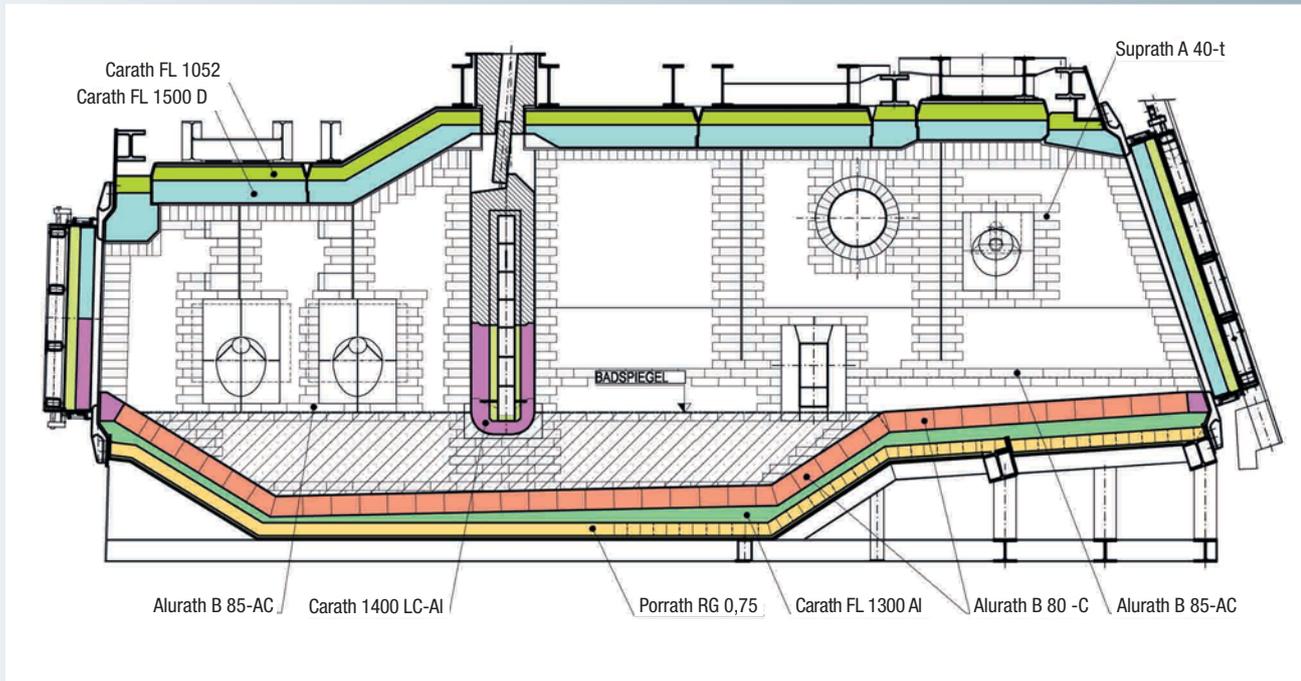
Precision is the order of the day.

Rath has a number of engineering departments where working drawings are produced for refractory linings destined for a range of applications. The low viscosity of the aluminium melt means in-depth knowledge and great experience are required in construction.



Aluminium melting furnace

Refractory solutions in all shapes and forms. Just ask.



Longitudinal section of a double chamber furnace

We're burning to solve your problems.



Double chamber melting furnace



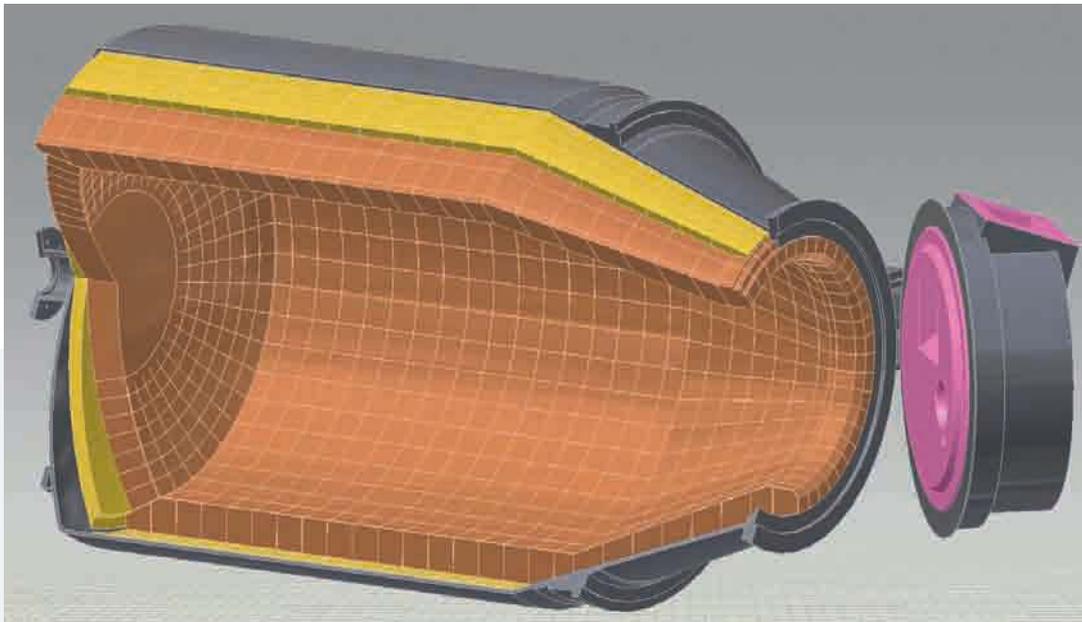
Tilting furnace

The equipment for melting materials and maintaining temperatures in re-melting furnaces and in foundries – hearth furnaces, single and double chamber furnaces, shaft kilns and induction furnaces – is lined with bauxite bricks and refractory castables (barium sulphate admixture) which are resistant to molten aluminium.

Highly resilient bauxite bricks have already proved highly effective and resilient in sections of ramps and bridges subject to extreme mechanical strain.

Nearly all our refractory castables are cast in just about every conceivable geometric form in one of the most modern production plants for pre-fabricated castable components. These can be tempered, depending on their eventual application or also pre-fired at up to 1750°C: this means they can also be supplied vitrified.

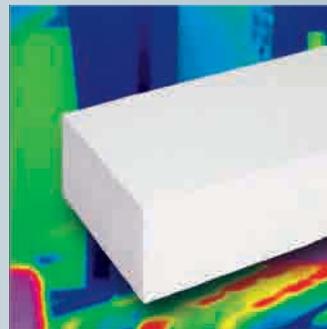
These products have a range of applications in the aluminium industry, for example as channels, burner blocks, pouring blocks, pump blocks for electric melt pumps or ladle lining.



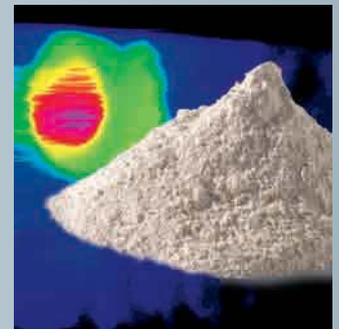
Cross-section of a rotary drum furnace

We're happy if things really start to hot up.

Rotary drum furnaces and tilting melting furnaces need to be lined with wear-resistant refractory material. This is where extremely dense fireclay bricks, silimanite bricks or bauxite bricks with a chemical are used.



Bricks



Masses

Bricks

Name	Suprath A 40-t	Suprath T 45	Durrath HS-e	Silrath AK 60	Alurath B 85 AC *	Alurath B 80 C
Raw material	Fireclay	Fireclay with high mullite content	Low-ferrous fireclay	Andalusite	Bauxite	Bauxite
Bulk density [g/cm ³]	2.35	2.3	2.35	2.6	2.9	2.85
Cold crushing strength [MPa]	≥ 60	≥ 40	90	100	> 80	200
Porosity [Vol.-%]	≤ 15	≤ 14	≤ 14	≤ 13	≤ 18	12
Thermal shock resistance [n]	18	≥ 30	> 30	120	50	≥ 25
Chemical analysis						
Al ₂ O ₃ [%]	≥ 42	46	47	61	78	83

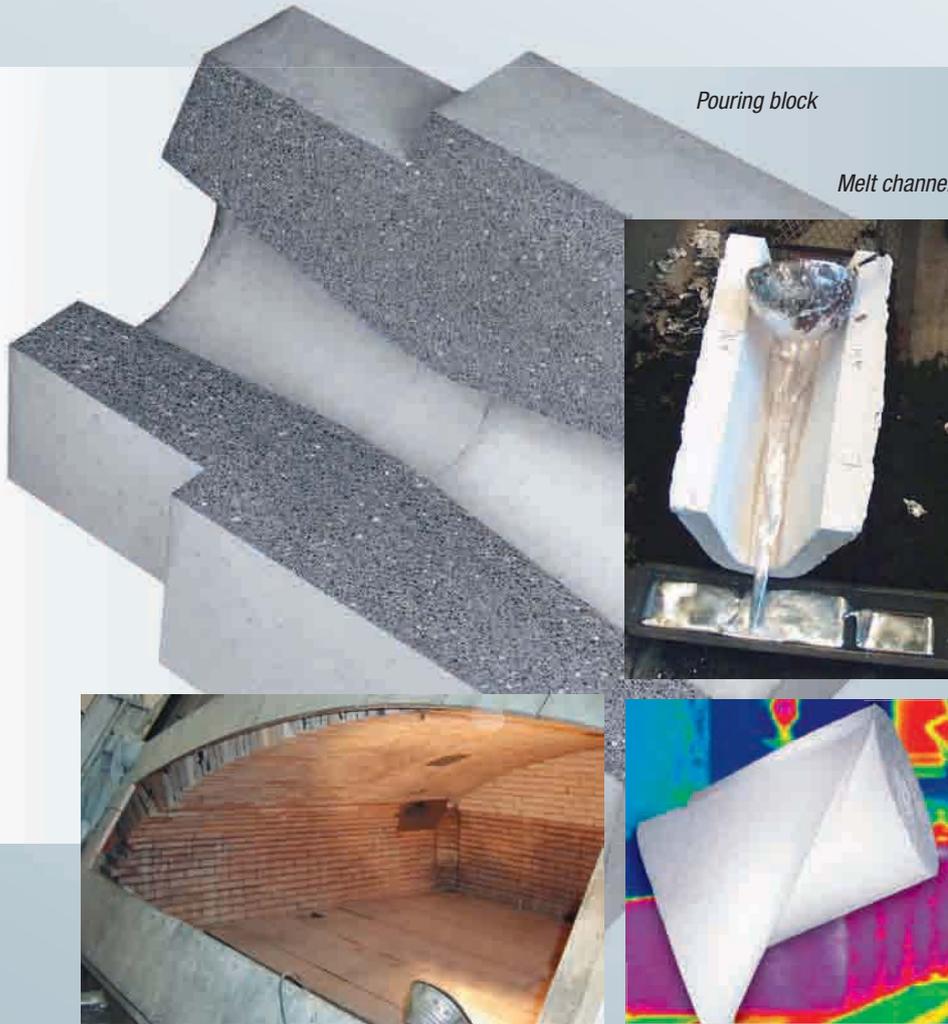
* phobic towards aluminium

Unshaped refractories

	Dense castables	Low-cement castables		Gunning castables		Insulating refractory castables			Plastic masses
Name	Carath 1500 D	Carath 1200 LC-AI	Carath 1400 LC-AI	Carath 1400 AI-GUN*	Carath 1501 GUN	Carath FL 1052	Carath FL 1300-AI	Carath FL 1401	Carathplast 850 AI*
Raw material	Fireclay with high mullite content	Bauxite	Corundum	Corundum	Andalusite	Perlite	Lightweight-fireclay	Lightweight-fireclay	Fireclay, barite
Material required [kg/m ³]	2250	2860	2960	2500	2260	650	1500	1400	2100
Cold crushing strength [MPa]	60	120	75	50	35	1.2	19	25	8
Service temperature [°C]	1500	1200	1400	1400	1500	1050	1300	1400	850
Chemical analysis									
Al ₂ O ₃ [%]	54	78	84	80	60	> 40	42	45	≤ 25

* phobic towards aluminium

International top – just so you're satisfied.



We also consider energy and the environment.

We offer customer-specific lining concepts to meet specific operating conditions and satisfy both qualitative and economic aspects. The complete Rath range is available for optimum heat insulation:

- insulating fire bricks
- insulating refractory castables
- calcium silicate products
- high temperature wool (mats, stripes, cast items and masses)

Casting furnace High temperature wool

Insulating materials

Name	Insulating fire bricks			Vacuum-formed products			High temperature wool	
	Porrath 900	Porrath FL 24-06	Porrath FL 25-10	Calcium silicate CAS 1000	Evac CS 136	Kerform KVS 121	Calsitra Mat CMS 1100	Altra Mat MS 1300
Raw material	Calcium/Aluminium silicate	Aluminium silicate	Aluminium silicate	Calcium silicate	Alkaline earth silicate wool	Aluminium silicate	Alkaline earth silicate	Aluminium silicate
Classification temperature [°C]	900	1350	1400	1000	1300	1250	1100	1300
Bulk density [g/m ³]	0.45	0.64	1.0	0.24	0.8	0.30	0.09-0.13	0.09-0.13
Cold crushing strength [MPa]	1	1.2	8	1.3	0.8	0.3	-	-
Chemical analysis [%]								
Al ₂ O ₃	15	37	38	-	-	50	1	48
SiO ₂	60	56	56	50	65	49	64	52
CaO	11.5	-	-	49	12	-	28	-

* also available as a module

Production in our own factories.

There is one very special feature of Rath: we can always fully guarantee the quality of our highly refractory products, as we manufacture them all ourselves.

State-of-the-art production processes are used in our plants in Europe and the USA. We constantly adapt these processes in line with technical and technological developments as we strive to provide you with top quality.

Our approach benefits our customers: high quality products ensure operational safety and reliability over a long period of time. This means less repairs, less breaks in production and lower costs.



Krummnußbaum



Milledgeville



Budapest

Rath meets all ISO criteria.

Quality in production can be measured – with ISO 9001/9002. All companies in the Rath Group are certified according to the strict criteria for this standard. We are doing everything to build constantly on this quality standard.

Our products undergo rigorous testing in our own company laboratories. We also regularly have externally government-authorized test centres which check material characteristics.

Our customers can rest assured that all our products are up to date – and provide, in practice, everything that we have promised.

The Rath Group.

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