



## Aluminium Industry

Gouda Refractories delivers complete refractory solutions for anode baking furnaces, pot lines, transfer ladles, melting furnaces and holding furnaces used in the production of aluminium and aluminium alloys.

## Transport Ladles & Crucibles

For many years, Gouda Refractories has successfully designed and supplied refractory materials for transport ladles and crucibles used for liquid aluminium.

Our strength is our in-depth knowledge of our customers' production processes, which enables us to pick the right materials offering the highest quality and durability in the industry.

Our world-class solutions can be provided in bricks, castables, prefab shapes or a combination of the above.

### References(\*)

Alba	Damco Aluminium Delfzijl	Sohar Aluminium
Aleris	Hencon	Stena
Bechtel & Co	Ma'aden Aluminium	Trimet
Constellium	Rio Tinto Alcan	

(\*) = Complete list of references is available upon request.



### Technical Background

Based on our technical know-how and experience we deliver not only the materials but also provide related services such as engineering, installation and dry-out of refractory linings for crucibles and transport ladles.

We design the thinnest possible refractory lining, taking into consideration:

- the maximum allowed heat loss
- the mechanical wear due to cleaning, loading and movement
- the chemical impact of the melt
- the impact by temperature fluctuations (thermal shock and thermal expansion)
- the complexity and required time for installation, repair and dry-out
- the desired life-time of the lining

#### Hot Face Lining

As per client's preference we can supply dense bricks, precast shapes or low cement castables with non-wetting additives, resulting in excellent resistance against the chemical degradation of liquid aluminium.

Materials with high strength and high abrasion resistance are applied in the impact zone. Mouldables are applied in corners/edges/rings for ease of installation and repair.

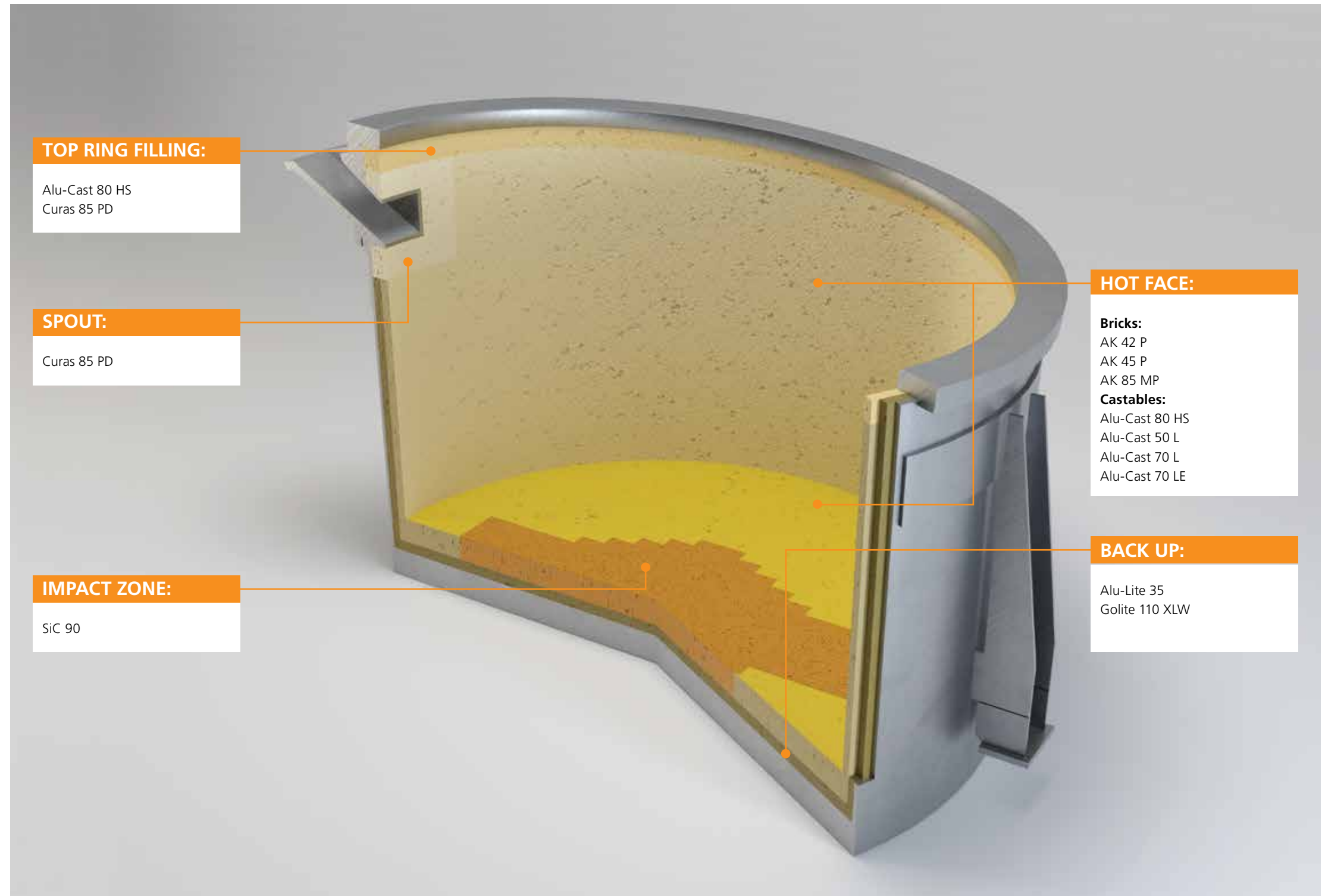
#### Alu-Cast 70 L

Refractory castable Alu-Cast 70 L is specially developed for use in transport ladles. It is a semi-insulating (0.8 W/mK) castable for use in areas that are in direct contact with liquid aluminium.

Alu-Cast 70 L is characterised by a high strength as well as by an excellent resistance against thermal shock and chemical degradation caused by liquid aluminium. This allows for an increased ladle capacity by applying thinner linings while keeping the same insulating capacity of the lining.

#### Back-up Insulation

Non-wetting insulating castables, in combination with insulation slabs, minimise the heat loss while keeping the freeze line inside the hot face layer



#### TOP RING FILLING:

Alu-Cast 80 HS  
Curas 85 PD

#### SPOUT:

Curas 85 PD

#### HOT FACE:

##### Bricks:

AK 42 P  
AK 45 P  
AK 85 MP

##### Castables:

Alu-Cast 80 HS  
Alu-Cast 50 L  
Alu-Cast 70 L  
Alu-Cast 70 LE

#### BACK UP:

Alu-Lite 35  
Golite 110 XLW

#### IMPACT ZONE:

SiC 90

Materials			
		Hot Face	Back Up
<b>Dense Refractorie Bricks</b>			
AK 42 P	42% Al <sub>2</sub> O <sub>3</sub> phosphate bonded fire-clay brick	•	
AK 45 P	42% Al <sub>2</sub> O <sub>3</sub> phosphate bonded fire-clay brick	•	
AK 85 MP	85% Al <sub>2</sub> O <sub>3</sub> phosphate bonded bauxite brick	•	
SiC 90	92% SiC abrasion resistant brick	•	
<b>Dense Castables</b>			
Alu-Cast 80 HS	84% Al <sub>2</sub> O <sub>3</sub> non-wetting low cement castable	•	
Alu-Cast 50 L	50% Al <sub>2</sub> O <sub>3</sub> non-wetting insulating castable	•	
Alu-Cast 70 L	72% Al <sub>2</sub> O <sub>3</sub> non-wetting insulating castable	•	
Alu-Cast 70 LE	75% Al <sub>2</sub> O <sub>3</sub> non-wetting low expansion castable	•	
Curas 85 PD	85% Al <sub>2</sub> O <sub>3</sub> phosphate bonded mouldable	•	
<b>Insulating Castables</b>			
Alu-Lite 35	35% Al <sub>2</sub> O <sub>3</sub> non-wetting insulating castable		•
Golite 110 XLW	Extra low density insulating castable		•

Material Properties						
Bricks	Service Temp	Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub>	Density	Porosity	CCS
AK 42 P	1.450 °C	42%	53%	2.350 kg/m <sup>3</sup>	14%	60 MPa
AK 45 P	1.300 °C	50%	42%	2.400 kg/m <sup>3</sup>	14%	60 MPa
AK 85 MP	1.500 °C	83%	8%	2.850 kg/m <sup>3</sup>	14%	130 MPa
SiC 90	1.650 °C	SiC 92%		2.600 kg/m <sup>3</sup>	15%	80 MPa

Castables	Service Temp	Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub>	Density at 110 °C	Porosity	CCS at 815 °C
Alu-Cast 50 L	1.300 °C	50%	37%	1.980 kg/m <sup>3</sup>	< 4 mm	60 MPa
Alu-Cast 70 L	1.300 °C	72%	16%	1.600 kg/m <sup>3</sup>	< 8 mm	30 MPa
Alu-Cast 70 LE	1.300 °C	75%	20%	2.720 kg/m <sup>3</sup>	< 8 mm	80 MPa
Alu-Cast 80 HS	1.300 °C	84%	8%	2.900 kg/m <sup>3</sup>	< 8 mm	120 MPa
Curas 85 PD	1.650 °C	85%	7%	2.700 kg/m <sup>3</sup>	P <sub>2</sub> O <sub>5</sub> : 2%	Fe <sub>2</sub> O <sub>3</sub> : < 1,5%
Alu-Lite 35	1.300 °C	35%	40%	1.650 kg/m <sup>3</sup>	< 5 mm	12 MPa
Golite 110 XLW	1.100 °C	30%	39%	650 kg/m <sup>3</sup>	< 5 mm	1,5 MPa

Values are typical but not guaranteed, unless agreed otherwise.  
Datasheets are available upon request.