

Expect the best. **REFRATECHNIK**

ENERGY SAVING BARRIER BRICKS FOR ELECTROLYSIS CELLS



REFRAL® 25 ES



The challenge: Lower thermal conductivity with comparable physical and chemical properties

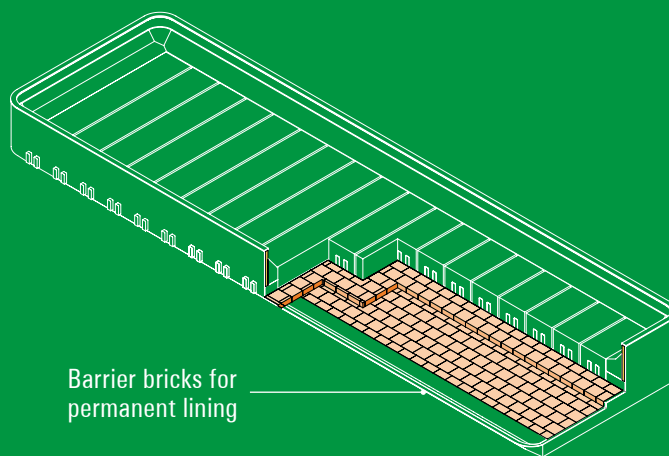
In response to customer demand for electrolysis barrier bricks with lower thermal conductivity, our research centre has developed a material with a lower bulk density to reduce weight. The physical and chemical properties, such as cold crushing strength, are fully comparable to heavier barrier bricks.

THE SOLUTION:

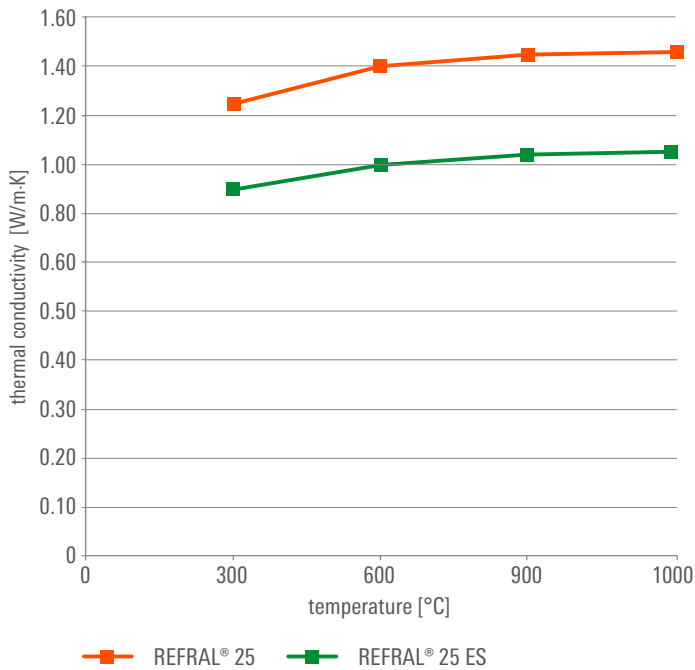
Lightweight barrier bricks

The highly effective product concept of REFRAL® 25 ES

- ▶ Low bulk density
- ▶ Low thermal conductivity
- ▶ Excellent cryolite resistance
- ▶ Good compressive strength
- ▶ Exceptional dimensional accuracy
- ▶ Very high resistance to liquid aluminum



LOW THERMAL CONDUCTIVITY + PHYSICAL / CHEMICAL STRENGTH



REFRAL® 25 ES

Lightweight floor brick for pot cells

For pot cells, we produce high quality barrier bricks with low heat transfer. The physical and chemical properties are comparable to standard barrier bricks. REFRAL 25® ES is part of the ES®-Series – our energy and emission saving refractory solutions.

Technical Data

Resistant to chemical attacks

Chemical analysis	REFRAL® 25 ES	REFRAL® 25
SiO ₂ [wt%]	68.0	68.0
Al ₂ O ₃ [wt%]	26.0	26.0
Fe ₂ O ₃ [wt%]	≤ 2.5	≤ 2.5
Chemical resistance		
Cryolite resistance Standardized crucible test [cm ²]	3.5	3.5

Resistant to high temperatures and mechanical wear

Physical properties	REFRAL® 25 ES	REFRAL® 25
Maximum application temperature	1100 °C	1100 °C
Bulk density [g/cm ³]	1.60	2.15
Apparent porosity [Vol%]	26.00	14.00
Cold crushing strength [N/mm ²]	25.00	40.00
Thermal shock resistance [cycles] / (950 °C/water)	15.00	15.00
Thermal conductivity		
300 °C [W/m·K]	0.90	1.26
600 °C [W/m·K]	0.99	1.40
900 °C [W/m·K]	1.03	1.45
1000 °C [W/m·K]	1.04	1.47
Thermal expansion at 1000 °C [%]	0.60	0.60

ALL THE BENEFITS AT A GLANCE



REFRAL® 25 ES

- ▶ Based on up to 75% recycled material
- ▶ Low bulk density
- ▶ Significantly reduced thermal conductivity
- ▶ Good cold crushing strength
- ▶ Excellent cryolith resistance
- ▶ Customer optimized shapes

WE MAKE SHAPES POSSIBLE

Customer optimized shapes

We provide refractory engineering, including component design and optimization. With our flexible manufacturing capabilities and extensive knowledge of refractory materials, we are able to provide a wide range of shapes tailored to the specific needs of various industries.






We'll be pleased to help you:

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