FANGMANN
ENERGY SERVICES

RESISTANCE IS THE KEY

HMR+ Blend: High-resistant and gas-tight

The HMR+ Blend is a chemically and physically optimized blast furnace slag cement-based system.

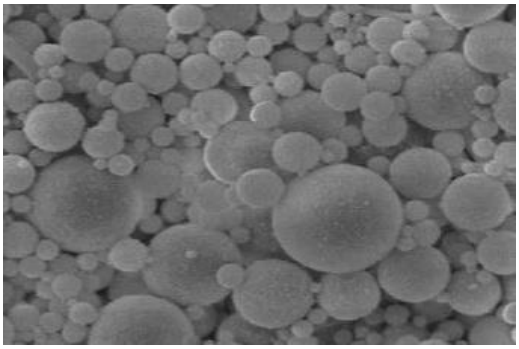
It provides premium durability under harsh borehole conditions and the presence of aggressive formation fluids. The extreme low permeability and porosity of the HMR+ Blend further extent its suitability for projects where well integrity is essential.

Flawless composition

Addition of fly ash mixture results into

- Marginal amount of natural week spots
- Superior cement integrity
- High temperature and salt stability

HMR+ Blend: Ideal cement system for harsh borehole conditions

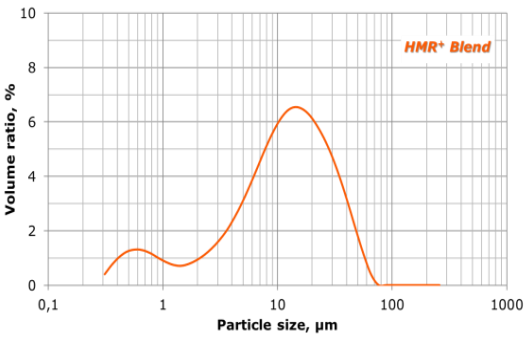


Physically engineered

Optimized particle composition leads to

- Compacter particle distribution
- Extreme low permeability and porosity
- Premium durability against CO_2

Physically induced tightness without addition of polymers



Customized recipe

The following can be fine-tuned

- Slurry density and rheology
- Thickening time
- Strength development

Specially adjusted in FES-laboratories employing standard cement additives

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Wide application range

HMR⁺ Blend is applicable for

- Casing, plug and liner cementing
- Plug and abandonment applications
- Suitable for H_2-storage

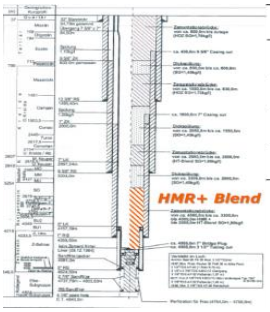
Easy to handle on site

Well-established

Some field trials with the HMR⁺ blend

- Ongoing P&A campaign in Germany
- R&D-wells in Switzerland
- Geothermal project in The Netherlands

HMR⁺ Blend: Europe-wide successful



Well Conditions	
Formation:	Tertiär – Zechstein
BHST, °C:	30 – 155
TVD, m:	1000 – 4500
BHP, psi:	2000 – 7500

Premium cement system

Added value of HMR⁺ Blend

- Ideal for harsh borehole conditions
- Extreme low permeability and porosity
- Reduced environmental impact

Special circumstances: Special cement system

HMR⁺ Blend	
Chemically engineered composition	
High Resistance against:	Aggressive brines (high salinity, presence of CO_2 and H_2S)
Physically optimized system	
High compressive strength:	70 MPa
Very high tensile strength:	15 MPa
Extreme low permeability:	< 0.0004 mD
Low porosity:	1.1%
Premium Cement System	

Benefits

- ✓ Chemically engineered composition
- ✓ Physically induced gas-tightness
- ✓ Use of common additives to fit unique wellbore conditions
- ✓ Well-established recipe for premium cement quality

READY FOR SERVICE

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