

Doloma Refractories

Question

I get excellent information from your site and find that it is helpful for ceramic students. Now I am interested about teaching topics in product design since the refractory business is expanding in our country. My questions are as follows:

1. How can dolomite refractory can give 45 heats ?
2. How are dolomite brick manufactured below 760°C ?

D.S., India

Answer

Number of Heats on Doloma Refractories: The life will vary with the process (AOD, VOD, LF, caster ladle, Al deox or Si deox practice). VOD ladles with Al deox achieve only 20-25 heats with Doloma, while AOD's and Si deox LF ladles can reach more than 100 heats using Doloma refractories.

In all applications using Doloma refractories, the most critical wear factor is the slag chemistry. Doloma and Mag-dol refractories contain MgO and free CaO, which is very reactive to SiO₂ and Al₂O₃ and other oxidized metallic components of steelmaking slags. Therefore slags used with Doloma must be close to CaO saturation for good life.

Production of Doloma Below 760 C: The grain used to make Doloma refractories is fired at temperatures > 1800 C. Typical processing temperatures for fired Doloma brick are 1500-1700 C. Temperatures of 200-450 C are used for the curing of pitch and resin-bonded Doloma brick.

D.S.'s choice of 760 C suggests a coking temperature. Pitch and resin-bonded refractories are usually heated (without air/O₂) to 700-800 C before testing; because at that temperature the original bond is converted to carbon.

Many thanks for this answer provided courtesy of Ron Marr at LWB Refractories, Ron.Marr @ lwbref.com

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