

**L** (ESR)

(ESR)

ESR

CaO Al<sub>2</sub>O<sub>3</sub> CaF<sub>2</sub> (fused)

L

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Hopkins

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(Electroslag Welding)

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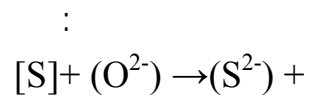
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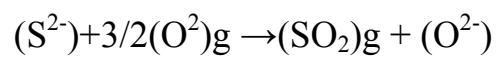
ESR

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Ti, Al

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ESR

CaO Al<sub>2</sub>O<sub>3</sub> CaF<sub>2</sub>

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ESR

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ES101

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ES103 .( ) ES102  
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ES104  
EL102  
ES102  
ES103  
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ESR [ ]  
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ESR ( )  
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ESR  
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ES103 ES101

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ES104

ESR

CaF<sub>2</sub> CaO Al<sub>2</sub>O<sub>3</sub>

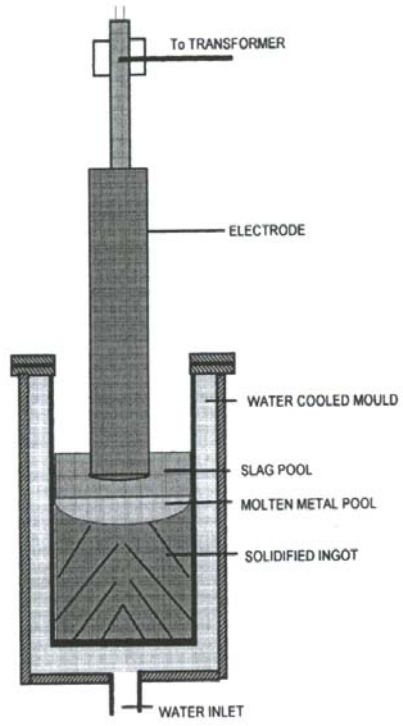
ESR CaF<sub>2</sub> CaO Al<sub>2</sub>O<sub>3</sub>

L

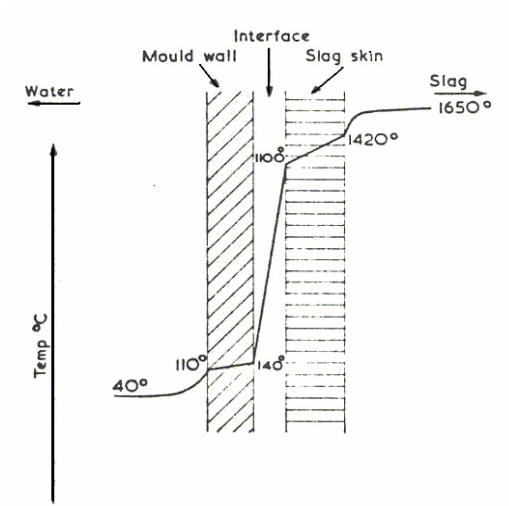
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ES101 :



ES102 :



ES103 :



ES104 :



## The effect of electroslag remelting on the macrostructure of type 316L stainless steel

Sh.Ahmadi<sup>1</sup>, S.M.M.Hadavi<sup>2</sup>, O.Bayat<sup>1</sup>, A.Najarbashi<sup>1</sup>  
[Ahmadi\\_shahram1976@yahoo.com](mailto:Ahmadi_shahram1976@yahoo.com)  
Advanced Material Research Center

### Abstract

The electroslag remelting is one of the most important processes which have been developed for the production of special steels and alloys. The main reasons for this predominance are: removes macro segregation, undesirable elements as well as non-metallic inclusions and contraction cavities. In this study concentrated the effect of electroslag remelting by prefused slag consists of CaO, Al<sub>2</sub>O<sub>3</sub>, and CaF<sub>2</sub> on macrostructure and reduction of sulfur and oxygen. To obtain uniform ingot structure during electroslag refining, it is important to control the shape and depth of the molten pool. High melting rates which are lead to deeper pool depths and interior radial solidification characteristics. Large contraction cavities in primary electrodes cause unstable melted rate, pool depths and extension of equiaxial crystals zone. Reduction of melt rate provides extra reduction of sulfur.

**Key words:** ultra clean steel, electroslag remelting, prefused slag, steel 316L, radial solidification