

NORTH STAR BLUESCOPE STEEL LLC Material Specification

Process Area: Melt Shop LMF	Number: AL 28.17
Material: High Calcium Ladle Lime	Effective Date: 5/17/04
Authorized By: John Ruf	Review Date: 5/17/05

1.0 Application:

1.1 Ladle addition for alloying purposes.

2.0 Chemical Analysis and Material Properties:

	Absolute min.	Preferred min.	Preferred max.	Absolute max.
CaO Available	95%			
CaO Total	91%			
Al2O3				1.0%
MgO				3.0%
FeO				0.50%
SiO2				1.0%
S				0.05%
Loss on Ignition				1.75%

3.0 Packaging:

3.1 **Bulk Dump, Framed trailer** (Frameless trailer rear bumper does not clear minimum height to dump into vibratory hopper – can be unloaded for an emergency, but tailgate must not hang over the hopper lip because the tailgate drops down to 12” below the lip of the hopper by the end of the dump), **controlled flow**, (covered) when ordered this way – each shipment to be identified with lot number.

3.2 Bulk pneumatic Truck when ordered this way - each shipment to be identified with lot number.

3.3 Supersack - one 2000lb.per pallet when ordered this way - must be shipped on flatbed truck - each shipment to be identified with lot number

3.4 Supersack –Two 1000lb supersacks per pallet when ordered this way - must be shipped on flatbed truck - each shipment to be identified with lot number

3.5 The North Star BlueScope Steel Raw Material Number must appear on all shipping and billing paperwork.

4.0 Sizing:

4.1 2” X 3/8” (Screen % > 1/4” 90% minimum at point of loading)

5.0 Certification and Control:

5.1 Each lot received to include statements of conformity and certification. During weekdays certification must be presented at time of delivery with weekends submitted / faxed Monday morning. (labs are not currently operating at these times) These documents must be handed in or faxed to the scales and include:

- 1) Certification for Sulfur, LOI and % >1/4”
- 2) Quantity
- 3) Name of Material
- 4) Lot Number

5.2 All chemical constituents not expressed but are contained in the subject material may not exceed 0.5% collectively. Any material lot exceeding 0.5% must have prior approval by purchasing before shipment is made and analysis included on certification.

5.3 Material is subject to inspection at North Star BlueScope Steel to test adherence to specification. Material submitted must undergo laboratory testing and operating trials prior to approval. All material supplied to this specification must be equivalent in all respects to the material on which approval was originally granted.

6.0 Relevant Industry Standards (e.g. ASTM):

N/A

7.0 Hazardous Material:

7.1 If this material is hazardous or requires special handling or storage, this information must be clearly labeled on containers and shipping documents. MSDS Sheets must also be sent to purchasing manager for new materials.

8.0 Attachments/Reference Documents:

N/A

Prepared by: Jim Nevins	Page 1 of 2
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Rev. #	Date	Description of change(s)	Reason for change(s):
1.	3/30/98	Changed MgO Min to 2.0% and Max to 4.0% to raise the MgO of the slag to 6.0% - DSA	
2.	5/21/98	Changed footer and added revision level to comply with QP	
3.	6/29/98	Changed MgO from 2% -4% to 5% -8% (from 90/10 blend to 87/13 blend) to increase ladle life. - DSA	
4.	10/2/98	Added elements to certify - CM	
5.	11/12/98	MgO back to 90/10 Blend due to increase in MgO in Furnace Slag	
6.	11/17/98	MgO reduced to 92/8 Blend due to further increase in MgO at EAF	
7.	2/28/99	Removed minimum LOI spec.	
8.	12/22/99	Under 3.0, added that NSBHP Raw Material Number must be on all shipping and billing Paperwork	For clarification purposes
9.	12/20/00	MgO and CaO adjusted for 90/10 Blend MgO from 3%-5% to 4%-6% and min CaO from 94% to 91% this is bring average LMF slag MgO up to target of 7.0%.	
10.	1/4/02	Reviewed and re-authorized	Annual review
11.	7/29/02	Changed sizing in Section 4.0	To match 2" size now used at LMF
12.	4/2/03	MgO and CaO adjusted for 90/10 Blend MgO from 4%-6% to 3%-5%	To match current procedure
13.	4/29/03	Changed to straight 2" Hi Cal Lime	To compensate for higher MgO levels from EAF process changes
14.	5/8/03	Adjusted MgO from <3% to 3%-5%	To compensate for erratic EAF MgO fluctuations and increased slagline refractory wear
15.	1/22/04	Added allowance for weekend specs to be faxed over on Monday	To match current supplier capabilities (neither supplier is able to operate labs on the weekend at this time)
16.	3/18/04	Adjusted MgO to <3%	To adjust for elevated MgO levels from EAF More burners (Manually adding MgO at EAF)
17.	5/17/04	Added note for framed trailers	Frameless trailers don't clear the hopper lip

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