

Process Area: LMF	Number: AL 33.10
Material: High Residuals Ferrovanadium (FeV)	Effective Date: 12/07/11
Authorized By: John Ruf	Review Date: 12/07/12

1.0 Application:

Ladle addition for alloying purposes.

2.0 Chemical Analysis and Material Properties:

Element	Absolute min.	Preferred min.	Preferred max.	Absolute max.
Vanadium	42.0%			49.0%
Carbon				1.00%
Phosphorous				0.4%
Sulfur				0.4%
Silicon				12.0%
Aluminum				10.0%
Manganese				5.50%
Nickel				3.00%
Chromium				6.00%

3.0 Packaging:

3.1 Cans - 10lb. contained - 1000-1500 contained lbs/pallet must be shipped on flatbed trucks - each shipment to be identified with lot number. Pallets shall have horizontal slats that extend beyond the vertical 2x4 members (wings) to facilitate lifting via pallet chain lifting rig.

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

4.0 Sizing:

2" X Down 10% max retained

5.0 Certification and Control:

Each lot received to include statements of conformity and certification of the above specified chemistry. 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. Copies are to be sent to the Quality Assurance EAF/LMF Process Metallurgist and Melting General Supervisor. 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:

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:

Appendix #1: MSDS Sheets

Rev	Date	Description of change	Reason for change:
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10	09/24/07	Revised location control.	Annual review.
	11/14/08	Reviewed and reauthorized.	Annual review.

Prepared by: Kevin Jessing	Page 1 of 2
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NORTH STAR BLUESCOPE STEEL LLC**Material Specification**

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11/17/09 Reviewed and re-authorized
12/02/10 Reviewed and reauthorized
12/07/11 Reviewed and reauthorized

Annual review
Annual review
Annual review