

Process Area: LMF	Number: AL 48.08
Material: Ferrotitanium (FeTi)	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.
Titanium	65.0%			75.0%
Vanadium				3.0%
Carbon				0.2%
Silicon				.25%
Aluminum				6.0%
Tin				0.5%
Phosphorous				0.15%
Oxygen				1.0%
Sulfur				0.05%

3.0 Packaging:

- 3.1 10 kg bags in 55 gal drums, banded to winged pallets for lifting with pallet bars/chains.
- 3.2 Each 10 kg bag must be labeled with North Star BlueScope Raw Material Number AL 48, weight (in kg), and product name (abbreviated) when packaged this way.
- 3.3 Supersacks - one 3000 or 4000lb. sack per pallet must be shipped on flatbed truck - each shipment identified by lot number.
- 3.4 The North Star BlueScope Steel Raw Material Number must appear on all shipping and billing paperwork.
- 3.5 Shipped on flatbed or loaded for tailgate delivery from van.

4.0 Sizing:

2 in x ½ in (5% max minus ½ in.)

5.0 Certification and Control:

- 5.1 Each lot received to include statements of conformity and certification. These documents must be handed in at the scales and include:
 - Certification for lbs. Titanium contained per bag, Vanadium and Aluminum.
 - Quantity
 - Name of material
 - Lot number
 - North Star BlueScope Steel Material Number
- 5.1 The sum total of all residual elements not explicitly stated in the specification, excluding Iron units (analysis %), cannot exceed .5%. Any material lot exceeding 0.5% must have prior approval by purchasing before shipment is made and analysis included on certification.
- 5.2 Material is subject to inspection at North Star BlueScope Steel to test adherence to specification.
- 5.3 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):**7.0 Hazardous Material:**

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

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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

Rev	Date	Description of change	Reason for change:
	11/17/09	Reviewed and re-authorized	Annual review
07	08/23/10	Added 1.0% oxygen max Changed sizing from 2" x down to 2" x 1/2" Removed ASTM reference	Updated
	09/14/11	Reviewed and reauthorized	Annual review
08	10/25/11	Modified verbiage in section 5.1 to accommodate Iron units.	Clarification on allowable amount of residual elements
	12/07/11	Reviewed and reauthorized.	Annual review.