Process Area: LMF	Number: AL 48.12
Material: Ferrotitanium (FeTi)	Effective Date: 05/12/25
Authorized By: Tony Spadafore	Review Date: 05/12/26

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	68.0%			73.0%
Vanadium				3.00%
Carbon				0.20%
Silicon				0.25%
Aluminum				6.00%
Tin				0.50%
Phosphorous				0.15%
Oxygen				1.00%
Sulfur				0.05%
Nitrogen				0.40%
Zirconium				0.50%
Nickel				0.40%
Chromium				0.40%
Molybdenum				0.40%
Arsenic				0.01%
Bismouth				0.01%
Cobalt				0.01%
Lead				0.01%
Zinc				0.02%
Copper				0.08%
Boron				0.02%
Calcium				0.02%
Magnesium				0.05%

The material that does not meet the above chemistry specification for one or more elements can and will be rejected by North Star Bluescope Steel.

3.0 Packaging:

3.1 10 kg bulk weight (all sizing / forms for manual addition use) poly-mesh bags in 55 gal. drums, banded to winged pallets that have horizontal slats extending beyond the vertical 2x4 main members (wings) to facilitate lifting via pallet chain / bar lifting rig. Packages must be stenciled with the North Star BlueScope Raw Materials Number (AL48), bulk weight (kg) per package, and material name (abbreviated) when ordered this way.

3.2 3000 – 4400 lb bulk weight supersacks (all sizing and forms approved for bulk addition use). Must be polymesh sacks with lifting loops at top 4 corners, no bottom spout (flat bottom) and no inner liner. Packages must be stenciled with North Star BlueScope Raw Materials Number (AL48), bulk weight (lbs) per package, and material name (abbreviated) when ordered this way. Super sacks must sit on pallets. The super sacks must sit inside the outer edge of all 4 sides of the pallet. NSBSL will not accept any pallets with over hanging super sacks

3.3 Pallets must be made of high quality lumber. Slat spacing must not allow for super sacks to fall between the slats. NSBSL will not accept pallets with broken slats.

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

3.5 Flatbed shipping only

4.0 Sizing:

4.1 2 in x ½ in (0% max over 2 in and 5% max minus ½ in.). The material that does not meet this size requirement will be rejected – approved for manual or bulk addition

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 Material is subject to inspection at North Star BlueScope Steel to test adherence to specification.

5.2 All material supplied to this specification must be equivalent in all respects to the material on which approval was originally granted.

5.3 A test certificate of the material marked for shipment to our facilities showing the full analysis and the particle size distribution shall be sent to NSBSL for review 24 hours prior to shipment from the supplier facilities. The supplier will be notified by North Star BlueScope Steel LLC if the material fails the specification in any aspect and our decision to whether accept or reject the material will be conveyed to the supplier promptly.

6.0 Relevant Industry Standards: None

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:

N/A

Rev	Date	Description of change	Reason for change:
11	01/19/16	Changed structure to make uniform with other specs and modify packaging to for use in new micro alloy system	Accommodate use in new alloy system
	01/04/17	Reviewed and reauthorized	Annual review
	01/16/18	Reviewed and reauthorized	Annual review
12	02/23/18	Updated Packaging section	Current procedure
	01/28/19	Reviewed and reauthorized	Annual review
	03/09/20	Reviewed and reauthorized	Annual review
	04/23/21	Reviewed and reauthorized	Annual review
	04/12/22	Reviewed and reauthorized	Annual review
	03/07/23	Reviewed and reauthorized	Annual review
	04/11/24	Reviewed and reauthorized	Annual review
	05/12/25	Reviewed and reauthorized	Annual review