

***NORTH STAR BLUESCOPE STEEL LLC* Material Specification**

Process Area: LMF	Number: AL 47.07
Material: Nickel	Effective Date: 01/16/18
Authorized By: Jim Fox	Review Date: 01/16/19

1.0 Application:

Ladle addition for alloying purposes.

2.0 Chemical Analysis and Material Properties:

Element	Absolute min.	Preferred min.	Preferred max.	Absolute max.
Nickel	99.5%			
Fe, Si, S, C, Pb, Cu				.5%

3.0 Packaging:

- 3.0 10 kg bulk weight (all sizing / forms for manual addition use) poly-mesh bags in 55 gal. drums with bottom spacers (for moisture drainage), 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 (AL47), bulk weight (kg) per package, and material name (abbreviated) when ordered this way.
- 3.1 3000–4400 lb bulk weight supersacks (all sizing / forms approved for bulk addition use) polymesh sacks with lifting loops at top 4 corners and no bottom spout (flat bottom) Packages must be stenciled with the North Star BlueScope Raw Materials Number (AL47), bulk weight (lb) per package, and material name (abbreviated) when ordered this way
- 3.2 The North Star BlueScope Steel Raw Material Number must appear on all shipping and billing paperwork.
- 3.3 Prefer shipped on flatbed but can take specified for tailgate delivery from van.

4.0 Sizing:

- 4.1 2" x 2" x ½" Plate – approved for manual addition only (10kg bags)
- 4.2 **No Pellets / Balls – safety issue / slip hazard with broken bags & spillage on floor**
- 4.3 1 x 1.5 x ½ inch Molten Splatter – approved for manual or bulk addition
- 4.4 1 x 1.5 x ½ inch Briquettes – approved for manual or bulk addition
- 4.5 1 x 1.5 x ½ inch Coin (flattened balls) – approved for manual or bulk addition
- 4.6 Alternate bulk forms / shapes must be approved / qualified to run through the alloy system

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 Nickel
 - Quantity
 - Name of material
 - Lot number
 - North Star BlueScope Steel Material Number
- 5.1 All chemical constituents expressed or not expressed (other than Nickel) contained in the subject material may not exceed 0.5% collectively. Any material outside of the required specifications 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):

N/A

7.0 Hazardous Material:

Prepared by: Jim Nevins	Page 1 of 2
-------------------------	-------------

This document is controlled electronically in SharePoint ISO Standards Documents and a hard copy form with the S.A.O. All other copies are uncontrolled.

NORTH STAR BLUESCOPE STEEL LLC Material Specification

Process Area: LMF	Number: AL 47.07
Material: Nickel	Effective Date: 01/16/18
Authorized By: Jim Fox	Review Date: 01/16/19

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:
	12/14/12	Reviewed and reauthorized	Annual review
06	02/11/13	Updated the min Ni, max others, and wording about the total chemical constituents. Reviewed with Kevin J and Chino S – RLF.	The numbers in the text and analysis ranges were conflicting. Made the chemical constituent language clearer.
	01/17/14	Reviewed and reauthorized	Annual review
	03/30/15	Reviewed and reauthorized	Annual review
07	01/19/16	Remove “electrolytic” from title. Changed document structure to make uniform with other specs and update packaging requirements 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

Prepared by: Jim Nevins	Page 2 of 2
-------------------------	-------------

This document is controlled electronically in SharePoint ISO Standards Documents and a hard copy form with the S.A.O. All other copies are uncontrolled.