

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

Process Area: LMF	Number: AL 16.14
Material: Low Hydrogen Graphite (C)	Effective Date: 02/27/17
Authorized By: Jim Fox	Review Date: 02/27/18

1.0 Application:

Ladle addition for alloying purposes.

2.0 Chemical Analysis and Material Properties:

Element	Absolute min.	Preferred min.	Preferred max.	Absolute max.
Carbon	97.0%			
Ash				2.0%
Moisture				0.2%
Nitrogen				0.4% or 4000ppm
Sulfur				0.6%
Hydrogen				0.00100% or 100 ppm

3.0 Packaging:

- 3.1 50lb bags - 2500lb. per pallet when ordered this way - must be shipped on flatbed truck - 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 2500 lb Supersacks.
- 3.3 The North Star BlueScope Steel Raw Material Number must appear on all shipping and billing paperwork.

4.0 Sizing:

10 mesh by 80 mesh with less than 2% above or below

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 Carbon, Nitrogen, Sulfur
 - Quantity
 - Name of material
 - Lot number
- 5.1 All chemical constituents not expressed but are contained in the subject material may not exceed 1.0% collectively. 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):

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:

N/A

Prepared by: Carl Miller	Page 1 of 2
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Rev	Date	Description of change	Reason for change:
13	09/24/07	Revised location control.	Annual review.
	11/14/08	Reviewed and reauthorized.	Annual review.
	11/17/09	Reviewed and reauthorized.	Annual review.
	12/02/10	Reviewed and reauthorized	Annual review
	12/07/11	Reviewed and reauthorized	Annual review
	12/14/12	Reviewed and reauthorized	Annual review
	12/17/13	Reviewed and reauthorized	Annual review
	11/20/14	Reviewed and reauthorized	Annual review
14	4/17/15	Added Hydrogen Spec and loosened nitrogen, carbon, and sulfur. Changed title to "Low Hydrogen Graphite" from "Graphite"	This Spec is required for summer ladle carbon blend.
	03/07/16	Reviewed and reauthorized	Annual review
	02/27/17	Reviewed and reauthorized	Annual review