

# NORTH STAR BLUESCOPE STEEL LLC Material Specification

Process Area: Melt Shop LMF	Number: AL 17.13
Material: Standard (High Carbon) Ferromanganese - (FeMn) Grade B	Effective Date: 5/11/04
Authorized By:	Review Date: 5/11/05

**1.0 Application:**

Ladle addition for alloying purposes.

**2.0 Chemical Analysis and Material Properties:**

Element	Absolute min.	Preferred min.	Preferred max.	Absolute max.
Manganese	75.0%			82%
Carbon				7.5%
Silicon				1.2%
Phosphorous				0.35%
Sulfur				0.05%
Arsenic				0.30%
Tin				0.02%
Lead				0.05%
Chromium				0.50%

**3.0 Packaging:**

- 3.1 Bulk Dump Truck, trucks must be tarped and material dry - each shipment to be identified with lot number.
- 3.2 50lb. bags - 4000lb. per pallet (when ordered this way)
- 3.3 The North Star BlueScope Steel Raw Material Number must appear on all shipping and billing paperwork.

**4.0 Sizing:**

- 4.1 2 ½ in. By ½ in. with 10% max. retained on 3” screen (not to be larger than 4”) and less than 10% passing ½” screen. (Review sizing verbage at time of contract bids)
- 4.2 **Glencore to supply 3 ½ in. by ¼ in. with 10% max. retained on 4” screen(not larger than 4.5”) and less than 10% passing ¼ ” screen**
- 4.3 2in. By ½ in. for 50lb. bags

**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:
  - 1) Certification for Manganese, Carbon, Silicon, Phosphorous, and Sulfur.
  - 2) Quantity
  - 3) Name of material
  - 4) Lot number
- 5.1 All chemical constituents not expressed but are contained in the subject material may not exceed 0.5% (except for Al) 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.

**6.1 Relevant Industry Standards (e.g. ASTM) :**

- 6.1 ASTM A99 - Grade B

**7.0 Hazardous Material:**

- 7.1 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(s)	Reason for Change:
1.	5/21/98	Changed footer and added revision level	To comply with QP
2.	10/1/98	Added residuals and elements to certify	New procedure
3.	7/22/99	Changed sizing to 3”x1”	Ease material handling issues
4.	12/22/99	Under 3.0, added that NSBHP Raw Material Number must be on all shipping and billing paperwork	For clarification purposes
5.	3/6/00	Revised header	Included High C name
6.	5/11/00	Changed to match ASTM A99 Grade B (Mn and Si limits)	
7.	12/20/00	Mn upper limit from 78% to 82% to accept grade A material	
8.	1/17/01	Reviewed and re-authorized	Annual Review
9.	1/9/02	Reviewed and re-authorized	Annual review

*“This document is controlled electronically in Q:\Qadocs and in hard copy form with the Melt Shop Standards Administrator. All other copies are uncontrolled.”*

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

Process Area: Melt Shop LMF	Number: AL 17.13
Material: Standard (High Carbon) Ferromanganese - (FeMn) Grade B	Effective Date: 5/11/04
Authorized By:	Review Date: 5/11/05

10.	2/25/02	Changed sizing to 2 1/2" x 1/2"	Match supplier spec. notation
11.	2/20/03	Reviewed and re-authorized	Annual review
12.	2/10/04	Reviewed and re-authorized	Annual review
13.	5/11/04	Changed lower Mn spec. to 75% Added size spec exception for Glencore	To allow wider range of vendors for supply shortage / pricing