

APPENDIX 4-A

STORAGE OF COLUMBIUM METAL INGOTS (CMAT 151)

1. *Description*

- a. Columbium (Niobium) is a gray color metal that is used as an alloying element in steels and superalloys.
- b. NDS inventory consists of vacuum-grade ingots which are cylindrical in shape and weigh on average approximately 1,232 lbs each.
- c. The NDS Purchase Specification is P-116, dated 20 May 1992.

2. *Packaging*

- a. Columbium ingots are stored two ingots per “cradle” pallet. They are banded to the pallet with 3 wood locking rings bolting the ingots to the pallet.
- b. The pallets can be stacked if necessary.

3. *Markings*

- a. Ingots are marked/stamped on the ends with the name/symbol (Columbium/Cb), percent purity, lot number, and producer name/code.
- b. Embossed aluminum tags, conforming to NDS Specification T-1 are fastened to each pallet with screws. The information on the tags includes: name, form, type and size, lot number, producer, country of origin, gross and net weights, contract number, specification number and date.

4. *Storage*

- a. The pallets are stored inside of a warehouse.

5. *Precautions To Be Taken*

- a. The material is in solid ingot form, so under normal storage conditions there are no health or safety issues with regard to dust or fumes. If dust is generated, it can cause skin and eye irritation. It may also cause allergy or breathing difficulties if inhaled.
- b. Wear protective gloves and eye protection when handling. Avoid breathing dust. In case of inadequate ventilation, wear respiratory protection. Wash hands thoroughly after handling.

6. *Average Storage Factor*

- a. The average gross square feet per short ton for the storage of columbium metal ingots is approximately 10 square feet.

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FOR ADDITIONAL INFORMATION ON THIS COMMODITY REFER TO THE SAFETY DATA SHEET, OR MOST CURRENT PURCHASE SPECIFICATION.

