

APPENDIX 4-A

**STORAGE OF MANGANESE ORE
(Chemical and Metallurgical)**

1. *Description*

a. Chemical grade manganese ore is a brownish-black to black or bluish-black material and may be received in the form of ores or concentrates. Material will be received for storage as either Type A or Type B. When acquired, chemical grade manganese ore shall meet Purchase Specification P-81-R (Current Edition).

b. Metallurgical grade manganese ore is a brownish-black to black or bluish-black material. It ranges in size from fines to medium-sized lumps. The following types are currently in storage or may be received for storage: Type I - Lumpy ore, and Type III - Nodules or Cinder. In addition, the following type is currently in storage: Type II - Fine ore, which will have more than 5% pass through a 20-mesh screen, but may have a considerable amount of lumps. When acquired, metallurgical grade manganese ore shall meet Purchase Specification P-30-R (Current Edition).

2. *Packaging.*

a. Chemical and metallurgical grades are shipped in bulk.

3. *Marking.*

a. Two metal embossed pile signs with the pile number, material name, country of origin and major elements as specified by the DLA Strategic Materials shall be placed at each end of the pile.

4. *Storage*

a. Chemical grade ore shall be stored in the open on well drained improved space equivalent to Type C or better, described in Chapter 4 of this Operations and Control Manual.

b. Metallurgical grade ore shall be stored in the open on well drained improved space equivalent to Type C or better, as described in Chapter 4 of this Operation and Control Manual.

c. To prevent losses by action of wind or rain, piles of concentrates and chemical grade fines shall be covered according to specifications provided by the DLA Strategic Materials.

d. Chemical manganese ore will be segregated into piles by type (A or B), form (ore or concentrates), and individual mine or deposit and country of origin.

e. Metallurgical manganese will be segregated according to country or origin, type (lumpy, fine, nodules, or cinder), and the following manganese contents: 46 percent and above 40 to 46 percent below 40 percent.

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f. Manganese ore in bulk shall not be stored within 500 feet of rubber, due to the injurious effect of manganese on rubber.

5. *Precautions To Be Taken*

a. *Health.* Dust should be minimized during the receipt and/or unloading of this material.

b. *General.* Manganese ore in bulk shall not be stored within 500 feet of rubber, due to the injurious effect of manganese on rubber.

6. Average Storage Factor

a. 1.0 gross square feet per short ton.

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