

Ghana Manganese Carbonate Ore



GMC is an established reputable producer

- Manganese deposits at Nsuta have been mined since 1916;
- Mining method is opencast, after which the ore is crushed, sized and graded according to customer needs;
- The ore is transported to Takoradi Port by rail and road transport;
- Nsuta Mine is the only operating manganese mine in Ghana.
- Indicated probable resource of 26 million tonnes
- Current mine life +2027
- Significant opportunities for substantial resource expansion in the immediate term

GMC product is highly valued pure carbonate

High value manganese

- The only true carbonate ore sold on the seaborne market
- Unique very high Mn : Fe ratio
- Competent material – ideal for alloy or metal production
 - upgrades to around 40% once sintered
 - upgrades to 97% Mn in hydrometallurgical processes
 - Higher Mn% than Chinese domestic ore
 - Low in heavy metals and other trace elements
 - Environmentally preferred option for the production of EMM

Ghana Manganese Lump



Ghana Manganese Carbonate Ore Specifications

SPECIFICATION

Mn:	28%	MIN
Fe:	2%	MAX
SiO ₂ :	16%	MAX
Al ₂ O ₃ :	3.5%	MAX
P:	0.08%	MAX
MgO:	6.5%	MAX
CaO:	6.5%	MAX
H ₂ O:	2%	MAX

Lump Size 6.25mm - 100mm

Fines Size 0 – 25 mm

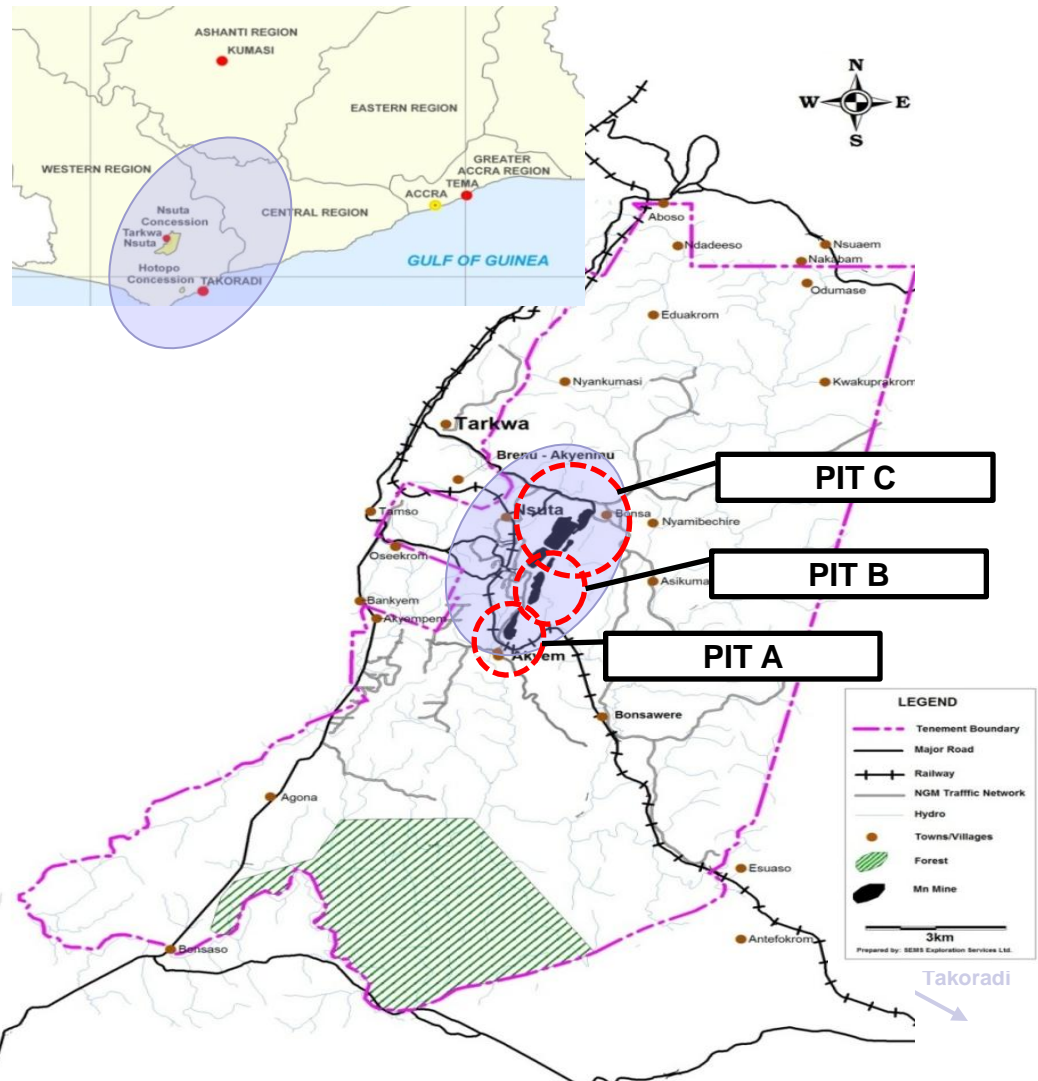
True Carbonate ore

Unique very high Mn : Fe ratio (14:1)

Ideal for Mn metal production

Ideal for alloy production - sinter

GMC - Overview



Summary

- Regional footprint is ca.175km² of which the corridor is 4.6km², excluding Hills A and B (currently not operational)
- GMC possesses the right to mine over the entire 175km² tenement lease
- All ore is crushed and screened on site
- Transport of products by rail (ca.63km) and road (ca.92km) to Takoradi Port

GMC is a conventional open cut mine...



...with long established operations





...access to world class logistics infrastructure in close proximity to port



...a dedicated focus on quality control

- Quality control starts from geology, through drill and blast, processing, loading, haulage and finally loading at the port.
- Sampling and analysis apparent at all points of the production chain

GMC is a highly awarded operation

2003: awarded most environmentally committed company in Ghana



2004: awarded most environmentally committed mine in Ghana



2008: award for proactive Environmental Management and Protection in the Western Region in Ghana



1. Established Presence

- GMC has a long history as a reliable producer of manganese ore supplying the Chinese market

2. Secure Future

- GMC operations have access to a reliable logistics chain with operations situated close to the port
- GMC is focused on optimising production output, underpinned by an extensive resource base, with significant exploration upside

3. Quality Focused

- GMC is a professionally run open cast operation, focused on the production of consistent quality manganese ores

4. Independent Producer

- Supplying 100% of production to the market