



TUAY GROUP

PLASTIC PACKAGING
INDUSTRY & TRADE INC.



DOĞUBAYAZIT
AĞRI, TÜRKİYE



DOCUMENT NO.
TDS-MN-TR-DBT-2026-R1



REVISION NO.
R1



ISSUE DATE
27 MAY 2026

TECHNICAL DATA SHEET (TDS)

TURKISH MANGANESE ORE

MEDIUM-GRADE FURNACE FEED & BLENDING MATERIAL

Field Sample Technical Specification

Prepared for Industrial Evaluation & Laboratory Verification



CHEMICAL COMPOSITION (As-Received Basis)

PARAMETER	UNIT	TYPICAL	CONTRACTUAL LIMIT
Manganese (Mn)	%	31.5 – 33.5	Min. 30.0
Iron (Fe)	%	14.0 – 17.0	Max. 18.0
Silica (SiO ₂)	%	8.0 – 11.0	Max. 12.0
Alumina (Al ₂ O ₃)	%	3.0 – 5.0	Max. 6.0
Phosphorus (P)	%	0.06 – 0.12	Max. 0.15
Sulfur (S)	%	0.01 – 0.04	Max. 0.05
Calcium Oxide (CaO)	%	0.8 – 1.8	Max. 3.0
Magnesium Oxide (MgO)	%	0.3 – 1.0	Max. 1.5
Moisture	%	2.0 – 4.0	Max. 8.0
Manganese / Iron Ratio	—	1.8 – 2.4	—

Note: All analyses are reported on As-Received Basis unless otherwise stated. Typical values are indicative of currently sampled material. Minor variations may occur due to natural mineral fluctuations and mining zone.



MATERIAL CHARACTERISTICS

- Naturally occurring manganese ore from DoğuBayazit region, Ağrı, Türkiye
- Suitable for blending and cost optimization in ferroalloy production
- Processed and screened for industrial furnace feed applications
- Field sample collected under controlled sampling procedure
- Geological characteristics consistent with regional manganese deposits



SAMPLING & VERIFICATION

- Field sampling performed in accordance with ISO 4296-1
- Sample preparation and reduction per ISO 4296-2
- Chemical analysis conducted as per below methods
- Moisture determination per ISO 4299
- Particle size distribution per ISO 6230
- Final industrial usability subject to buyer technical approval

TEST METHODS & STANDARDS

- Mn Analysis
ISO 4298:2022
(Potentiometric Method)
- Sampling Procedure
ISO 4296-1 / ISO 4296-2
- Moisture Determination
ISO 4299
- Particle Size Distribution
ISO 6230
- Major Oxides / Fe / SiO₂ / Al₂O₃
XRF / ICP-OES
Laboratory Method



OPERATIONAL EVALUATION FOR FERROALLOY USE

Suitability for SiMn Production	Suitable as blending feed
Suitability for FeMn Production	Blending Feed
Blending Suitability	Good
Phosphorus Level (Low is Better)	Acceptable
Silica Level (Low is Better)	Moderate
Reducibility in Furnace	Subject to furnace trial
Cost Efficiency	Good for blending
High-Grade Substitute	Not intended – blending-grade material



This material is ideal for blending with higher-grade manganese ore to achieve desired chemical specifications in SiMn and FeMn production.



TYPICAL APPLICATIONS

- Silico Manganese (SiMn) Production
- Ferro Manganese Blending Feed
- Electric Arc Furnace Feed
- Metallurgical Blending Operations
- Steel Alloy Manufacturing



PACKING & LOADING

1 MT Big Bags

or

Bulk Loading

(By truck, rail or vessel)



ORIGIN

DOĞUBAYAZIT
AĞRI, TÜRKİYE



INSPECTION & LABORATORY VERIFICATION

Independent laboratory analysis may be performed upon buyer request.

Third-party inspection subject to mutual operational coordination.

Final contractual acceptance subject to accredited laboratory verification.



Typical 31.5% – 33.5% Mn
Contractual Min. 30% Mn



5 – 10 mm
Typical Size Range



Max. 8% Moisture
Field Sample Basis



ISO Referenced
Evaluation Structure



HEADQUARTERS

TUAY GROUP PLASTIC PACKAGING
INDUSTRY & TRADE INC.
Maslak District, Meydan Street,
Beybi Giz Plaza, No:35...
+90 850 309 76 83
info@tuaygroup.com

BUILT FOR LONG-TERM
INDUSTRIAL SUPPLY

CONFIDENTIAL

This document is confidential and intended solely for the addressee.
Any distribution or unauthorized use is strictly prohibited.



DUBAI OFFICE

1 Sheikh Mohammed bin Rashid Blvd
Burj Khalifa – No: 287
Downtown Dubai, Dubai
United Arab Emirates
www.tuaygroup.com