شركة أسس الشرق الأوسط لتجارة المواد الإنشائية ذ.م.م
MIDDLE EAST FOUNDATIONS Co.
FOR CONSTRUCTION MATERIALS TRADING W.L.L.
الرقم الوطني 200214967

TECHNICAL DATA SHEET

GROUND GRANULATED BLAST FURNACE SLAG (GGBFS) - TYPICAL TECHNICAL DATA SHEET

Product Description

Ground Granulated Blast Furnace Slag (GGBFS) is a by-product of the blast furnace iron-making process. The molten slag is rapidly quenched in water, converting it into a glassy granulated material which is then dried and finely ground. GGBFS acts as a supplementary cementitious material when blended with Portland cement, improving concrete durability and long-term strength.



Ground Granulated Blast Furnace Slag (GGBFS)

Based on chemical analysis conducted by Jordan Technical Engineering Laboratories (JEL). Test methods: ASTM E1621-21 and ASTM C311. Results are on dry basis.

KSA +966 503 810008
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JOR +962 79 6179632
e-mail: sales@osos-3m.com

Chemical Composition – Sample 1 (% by weight)

Oxide	Wt %
SiO2	49.50
CaO	8.74
Al2O3	7.47
MgO	1.13
Fe2O3	23.50
MnO	4.85
TiO2	1.01
Na2O	0.70
K2O	0.21
SO3	0.35
P2O5	0.10
BaO	0.42
ZnO	0.31
Cl	0.18
SrO	0.12
Cr2O3	1.23

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Chemical Composition – Sample 2 (% by weight)

Oxide	Wt %
SiO2	28.60
CaO	9.36
Al2O3	14.30
MgO	1.25
Fe2O3	32.50
MnO	6.42
TiO2	1.49
Na2O	0.84
K2O	0.12
SO3	0.15
P2O5	0.067
BaO	0.64
ZnO	0.21
Cl	0.12
SrO	0.11
Cr2O3	3.15

Notes

- Results are reported on dry basis.
- Test results relate only to the tested samples.

3.Standards & Conformance

- **ASTM C989** — GGBFS cementitious materials classification grades (80, 100, 120) based on reactivity.
- **BS EN 15167-1:2006** — European standard for GGBFS performance.
- **AS 3582.2** — Australian specification referenced in typical data sheets. Penn State Engineering+1

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4. Performance Characteristics

Hydraulic & Cementitious Properties

- Reacts with calcium hydroxide from cement hydration to form strength-giving hydrates.
- Lower heat of hydration than pure Portland cement — beneficial for mass concrete.
- Improves long-term compressive strength and durability of concrete.

Advantages in Concrete

- ✔ Enhanced sulfate and chloride resistance
- ✔ Reduced permeability
- ✔ Reduced thermal cracking
- ✔ Improved workability and finish ability
- ✔ Better long-term strength development

5. Typical Uses

- Replacement of Portland cement (commonly 30 – 70 % by mass).
- Blended cement production (CEM III / PBFC / slag cements).
- Precast concrete, ready-mix applications, mortars, grouts, and high-performance concrete mixes.

6. Packaging & Delivery

- Bulk (loose)
- Jumbo bags (1.25 –1.5 MT)
  (*Ex-works, FOB, CFR terms negotiable*)



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JEL

JAS Accreditation Unit Test - 033

مختبرات الأردن الفنية الهندسية
Jordan Technical Engineering Laboratories

تقرير رقم
٢٠٢٥/١٠/LAB/٩٤٩

رقم طلب العمل: LAB/٩٤٩

نوع الفحص: فحص تحليل طيفي كيميائي ومعدني
مواصفة الفحص: ASTM E1621-21
ASTMC311

تاريخ الاستلام: ٢٠٢٥/١٠/٢١
تاريخ التقرير: ٢٠٢٥/١٠/٢٩

نتائج فحص التحليل الطيفي الكيميائي والمعدني:

Sample No.	Fe_2O_3 Wt %	MnO Wt %	TiO_2 Wt %	CaO Wt %	K_2O Wt %	P_2O_5 Wt %	SO_3 Wt %	SiO_2 Wt %	Al_2O_3 Wt %	MgO Wt %	BaO Wt %	Na_2O Wt %	ZnO Wt %	CL Wt %	SrO Wt %	Cr_2O_3 Wt %
1	23.5	4.85	1.01	8.74	0.21	0.10	0.35	49.50	7.47	1.13	0.42	0.70	0.31	0.18	0.12	1.23
2	32.50	6.42	1.49	9.36	0.12	0.067	0.15	28.60	14.30	1.25	0.64	0.84	0.21	0.12	0.11	3.15

Notes:
- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.

المدير الفني
م. عبد الهادي

مختبرات الأردن الفنية الهندسية
ت: ٥٥٣٥٨٢١

JEL-AD-(27)Rev.(1)

عمان - تلاع العلي - تلفون ٥٥٣٥٨٢١ فاكس ٥٥٣٥٨٥٤ - شارع ميرزا وصفي - مبنى رقم ٢٠ - بجانب مديرية الإقامة والحدود