

MOTIM

MOTIM Electrocorundum Ltd. is the Hungarian producer of electrofused minerals. The total production capacity is approximately 55.000 tons. White Fused Alumina represents more than 50% of the product structure. The remaining part comes from Fused Mullite, Spinell and Zircon Mullite.

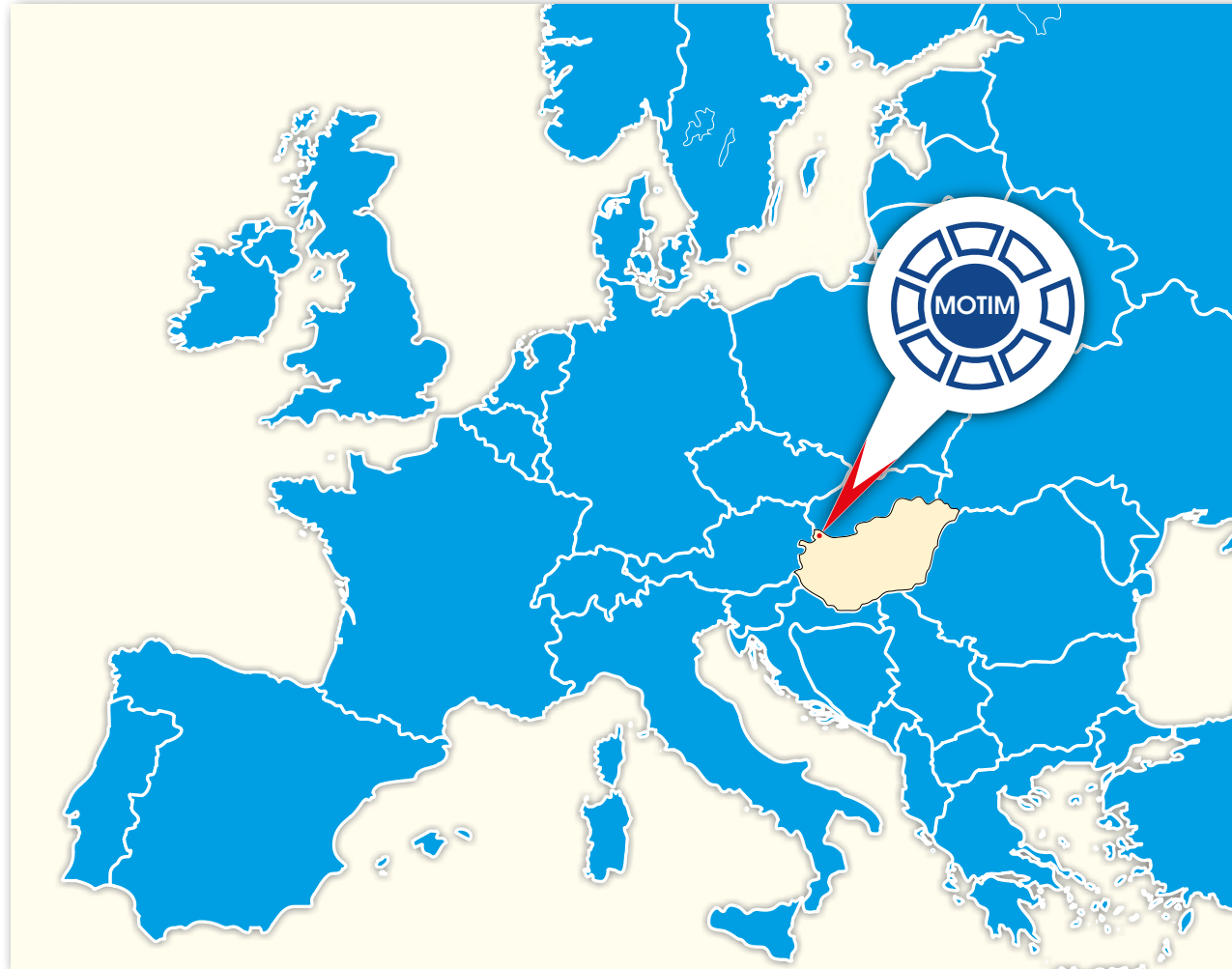
Our company annually sells ten thousands of tons of products, of which more than 90% is exported into countries around the world. 75% of the export turnover is generated in the European countries, the rest is realized in the US market and in Far-East, primarily originating from the sales to Japan and South-Korea. Our company has approximately 230 employees; our average annual turnover is 35 million EURO.

Since 1994 we have had an ISO 9002 quality Certificate, which ensures the reliable and effective quality control of our production process. In 2012 we introduced an Integrated Quality Management System, its operation is based on the standards ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007, covering the quality assurance, environmental management as well as the health and safety areas.

Our company maintains long term connections with its partners and aims to be a reliable supplier. On the other hand we are ready to cope with new challenges and satisfy special customer needs as well.



MOTIM in Europe



MOTIM

MOTIM in Centr. Europe



MOTIM Electrocorundum Ltd.

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Milestones

- 1934: Hungary's first alumina factory started its production
- 1934-1943: extension of capacity (14x)
- 1948: company brought under state control
- 1963: became member of HUNGALU Trust

Extension of the product range:

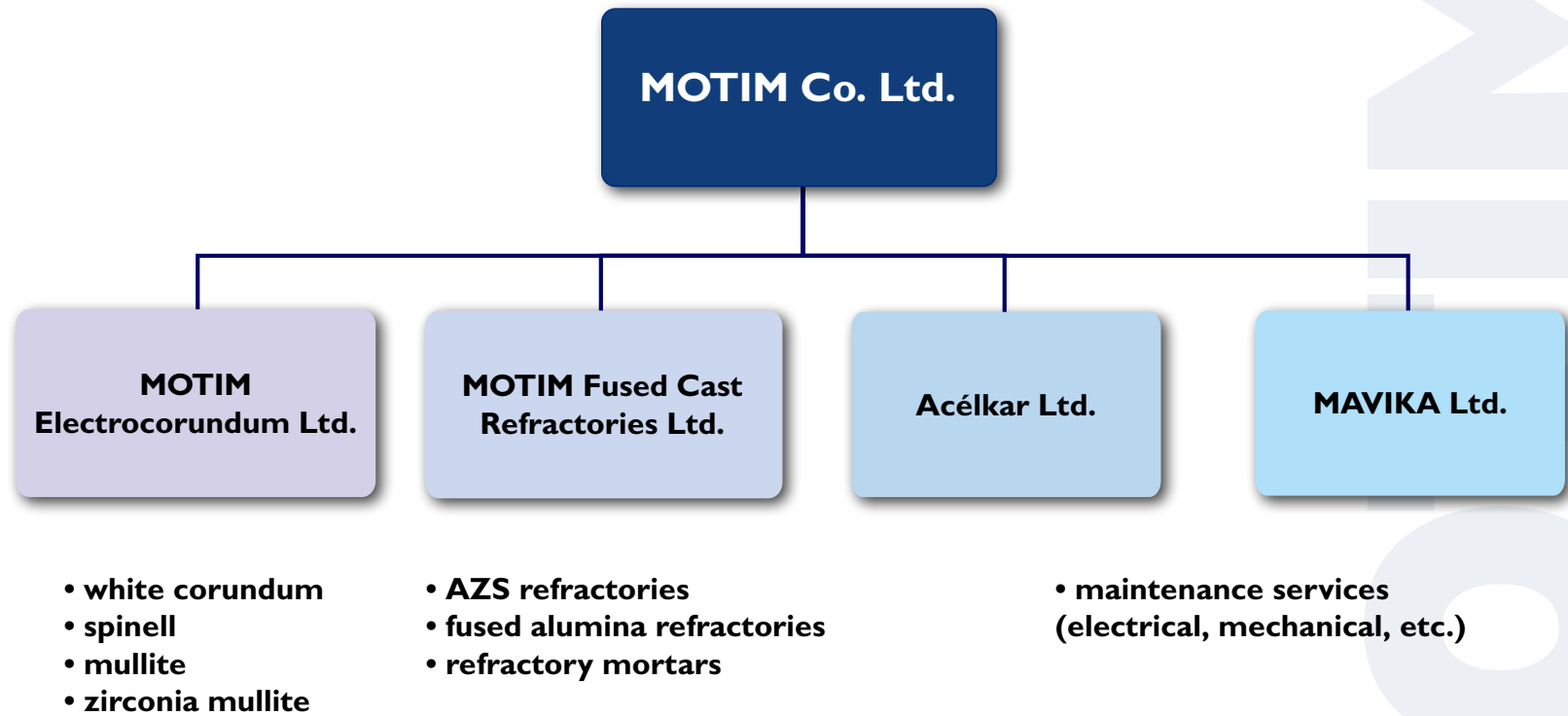
- 1951: white corundum
- 1957: fused cast alumina refractories
- 1965: AZS fused cast refractories (non-oxidised)
- 1968: aluminium sulphate
- 1980: fused mullite
- 1986: fused spinell
- 1986: introduction of the oxidising technology
(own patent) for the AZS fused cast refractories
- 1999: new products – $\alpha\beta$ -corundum and 36% ZrO_2 AZS

Reorganisation of the company:

- 1991: transformation into limited liability company
- 1995: privatisation
- 1996: transformation into company limited by shares
- 2000: profit centres transformed into legally independent companies
- 2001: new companies started activities
- 2002: alumina production stopped
- from 2008: continuous development of machinery and technology
- 2009: production of WFA micro grits started
- 2010: production of fine powders of WFM started



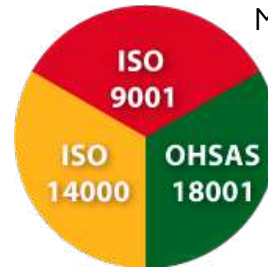
Comp.- structure



The aim of MOTIM Electrocorundum Ltd. is to perform its manufacturing and service activities uniformly and at constantly high quality which are expected by our customers, suppliers and also ourselves. The organization is committed to the quality guidelines of the quality development program, in order to fulfill even the highest level of customer expectations in order to preserve a high level of its customer satisfaction.

The organization has a policy of continuous development and training, ethics, professionalism and teamwork. The Quality Management System covers the company's entire operations. In order to implement the quality policy objectives the ISO 9001:2008 compliant quality management system has been introduced, operated and developed continuously by

The management committed to and health and safety standards has improved the ISO 14001:2004 and the management standard and health and safety



MOTIM Electrocorundum Ltd. observation of environmental management introduced, maintained and continuously OHSAS 18001:2007 environmental systems.

Our equipment background for physical and chemical testing



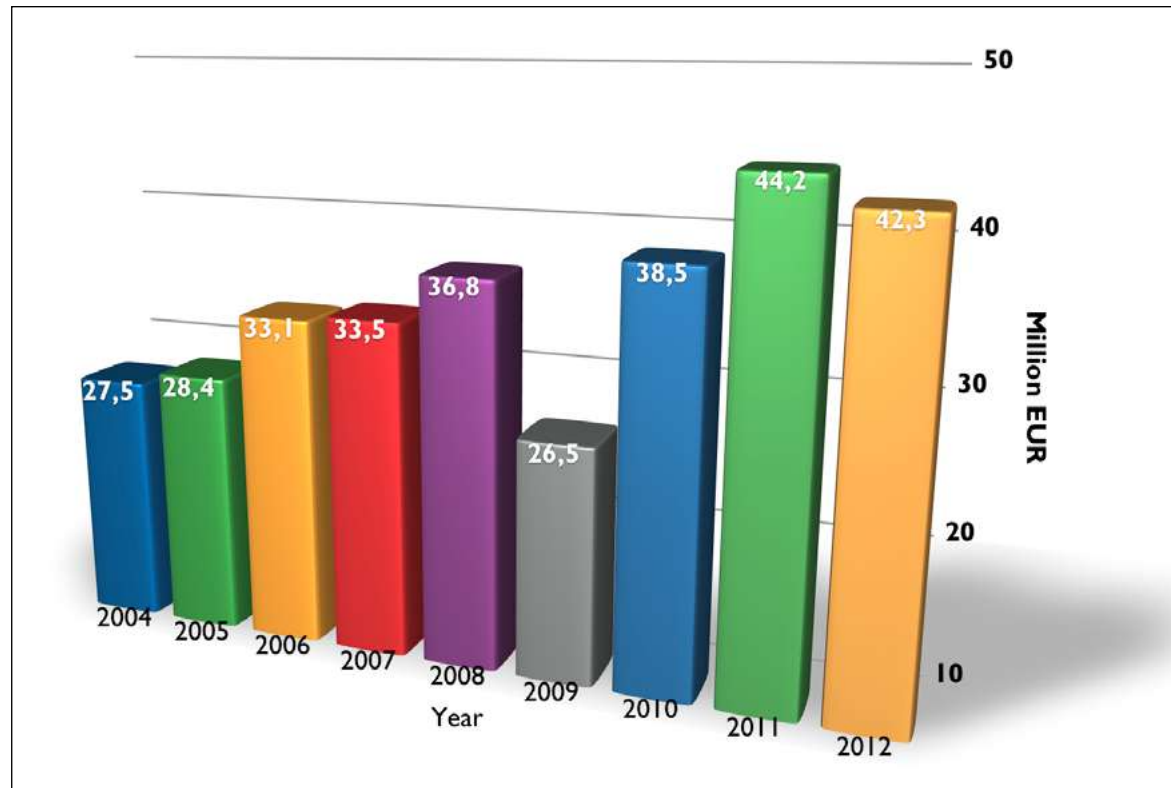
Quality policy



MOTIM Electrocorundum Ltd

Founded in 2000 as 100 % owned by MOTIM Co.

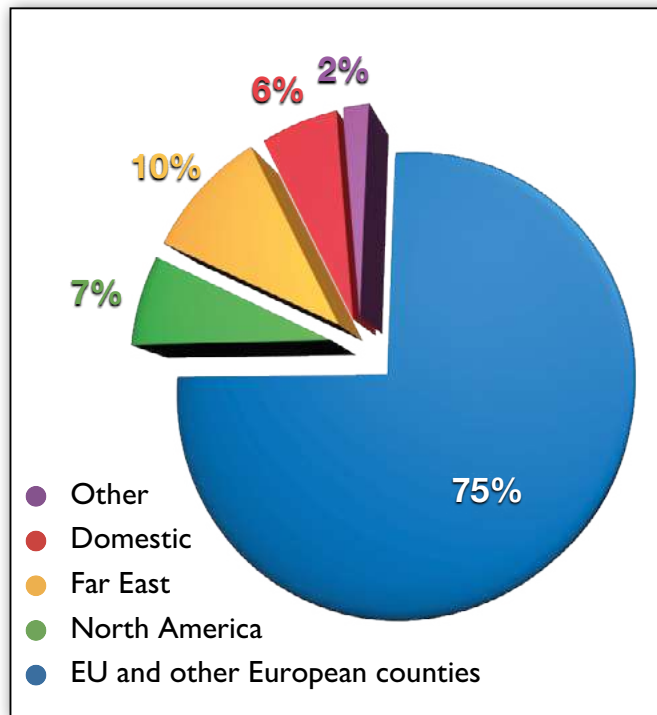
- Employees: - total number: 230 heads
- white collars : 40 heads
- blue collars : 190 heads



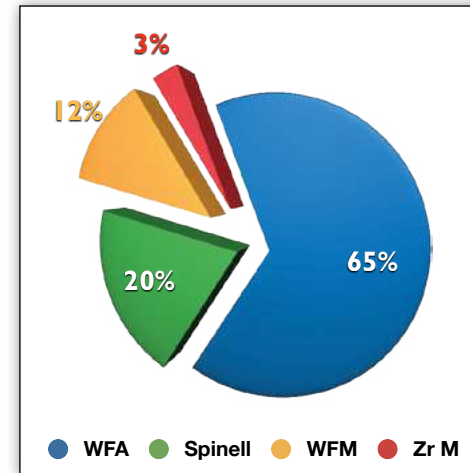
The EURO/HUF exchange rate has been fixed at 290 HUF = 1 EURO



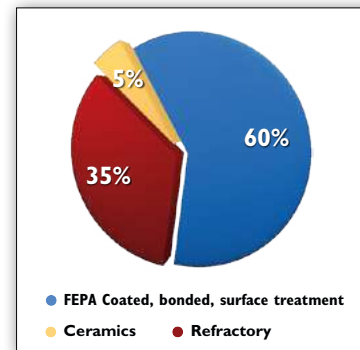
The typical shares of the main geographical regions in the company's turnover.



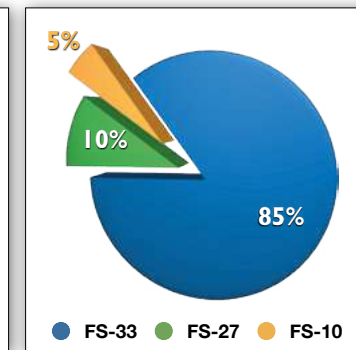
Product distribution



WFA distribution

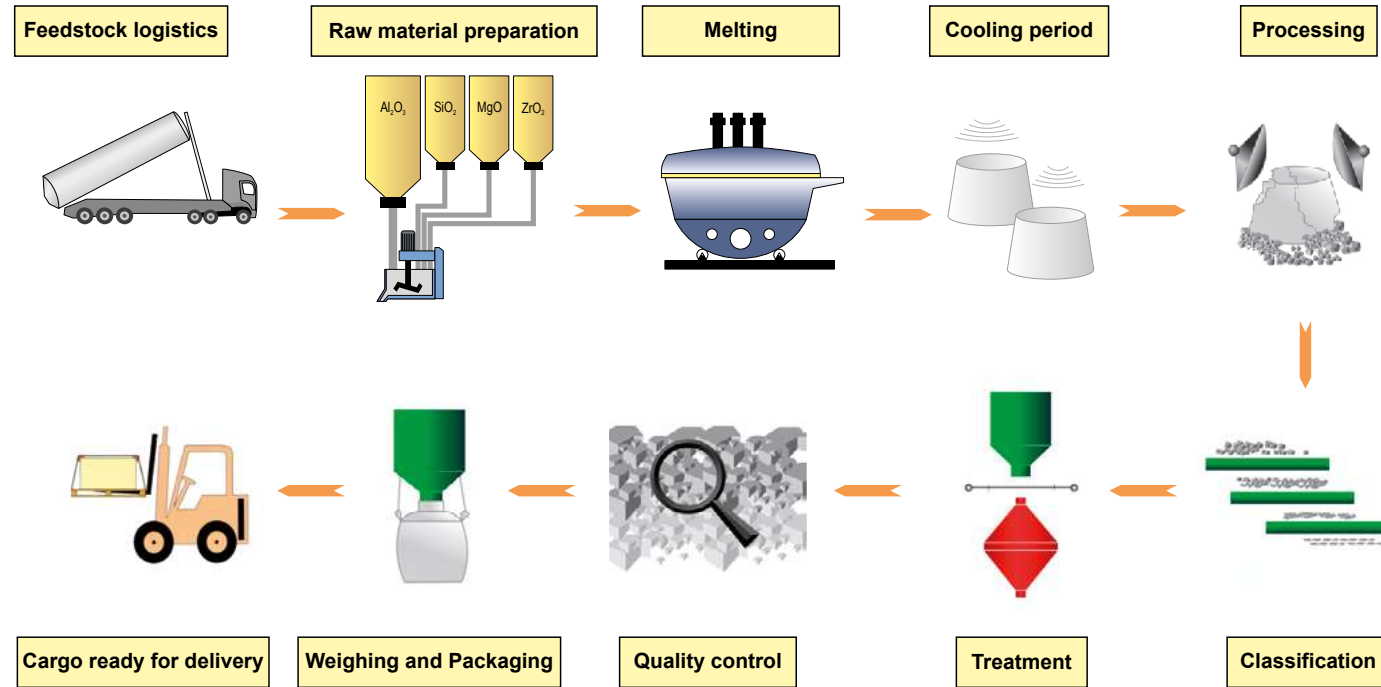


Spinell distribution



The company has a 55.000 tpa production capacity where the melting potential represents the „bottle neck”. The melting and processing capacities are relatively flexible adjustable to the actual market conditions. In the melting process batch type and continous cast type furnaces are also applied. The current production percentages between the chemically different grades of electrofused minerals are shown in the above chart.

TECHNOLOGY



I. White Fused Aluminas

II. Fused Mg-Al Spinel

MOTIM



Description: HUNGAKOR EKF is characterised by high alumina content, high chemical purity and white colour.

Field of Application: It is the most important base of grinding shape manufacturing. It can also be used for shot blasting surface treatment as it is not dangerous to health, no risk of silicosis and is not hygroscopic.

I. White Fused Aluminas

HUNGAKOR EKF

Granulometric Composition

Grain size FEPA	Base fraction [micron]	Bulk density* [kg/dm ³]
4	4750-5600	1.58-1.68
5	4000-4750	1.58-1.68
6	3350-4000	1.58-1.68
7	2800-3350	1.58-1.68
8	2360-2800	1.58-1.68
10	2000-2360	1.58-1.68
12	1700-2000	1.58-1.68
14	1400-1700	1.59-1.69
16	1180-1400	1.61-1.71
20	1000-1180	1.63-1.73
22	850-1000	1.65-1.75
24	710-850	1.67-1.77
30	600-710	1.67-1.77

Grain size FEPA	Base fraction [micron]	Bulk density* [kg/dm ³]
36	500-600	1.67-1.77
40	425-500	1.68-1.78
46	355-425	1.70-1.80
54	300-355	1.70-1.80
60	250-300	1.68-1.78
70	212-250	1.66-1.76
80	180-212	1.63-1.73
90	150-180	1.61-1.71
100	125-150	1.58-1.68
120	106-125	1.56-1.66
150	75-106	1.51-1.61
180	63-90	1.50-1.60
220	53-75	1.48-1.58

The granulometric composition of the HUNGAKOR EKF grains from F4-F220 grain size is according to the prescriptions of ISO 8486 .

* MOTIM's standard medium bulk density

II. Fused Mg-Al Spinel



Quality: This product is manufactured by a technology certified according to **EN ISO 9001:2000, ISO 14001:2004** and **OHSAS 18001:2007**

REACH Registration Reference number: 01-2119529248-35-0023

Chemical Composition	EKF	
	Guaranteed	Typical
[%]		
Al₂O₃	min. 99.60	99.70
Fe₂O₃	max. 0.045	0.035
SiO₂	max. 0.035	0.023
TiO₂	max. 0.008	0.006
CaO	max. 0.040	0.025
Na₂O	max. 0.29	0.22

Physical Characteristics	EKF
α-Al₂O₃ phase [%]	96
β-Al₂O₃ phase [%]	3
Glassy phase [%]	1
Specific gravity [kg/dm ³]	3.98
Melting point [°C]	2040
Porosity [%]	5
Hardness, Knopp [kN/mm ²]	2050
Apparent density [kg/dm ³]	3.87

Packaging: – in net 25 kg or 50 kg multiwall paper bags
– in 1 ton plastic containers (big-bag)

The bags are stacked on pallets in one ton lots (or as much as requested) covered by shrinkwrap.

I. White Fused Aluminas

HUNGAKOR EKF

II. Fused Mg-Al Spinel



Description: **HUNGAKOR EKF MICRO** is characterized by high alumina content, high chemical purity and white color. Our EKF Microgrits are produced in precise granulometry from 53 μm to 6,5 μm .

Field of applications: **HUNGAKOR EKF MICRO** grits can mainly used as grinding, lapping and polishing media, as wet and dry microblasting material, for manufacturing of ceramic and resin bonded abrasive applications and for producing refractory products.

Quality: This product is manufactured by a technology certified according to **EN ISO 9001:2000**, **ISO 14001:2004** and **OHSAS 18001:2007**

REACH reference number: 01-2119529248-35-0023

Granulometric Composition: Grain size distribution is determined with Malvern Insitec equipment according to ISO 8486-2 standard based on mastergrit measurements. Bulk density is determined according to ISO 9136-2 standard.

Packaging: – in net 25 kg or 50 kg multiwall paper bags
– in 1 ton plastic containers (big-bag)

The bags are stacked on pallets in one ton lots (or as much as requested) covered by shrinkwrap.

I. White Fused Aluminas

HUNGAKOR EKF MICRO

II. Fused Mg-Al Spinel



I. White Fused Aluminas

HUNGAKOR EKF MICRO

Chemical Composition	EKF MICRO
[%]	Typical for EKF 240
Al₂O₃	99.60
SiO₂	0.05
Fe₂O₃	0.033
TiO₂	0.01
Na₂O	0.30
CaO + MgO	0.04

Physical Characteristics	EKF MICRO
Specific gravity [g/cm³]	3.9
Hardness, Mohs	9
Melting point [°C]	2040

Bulk Density	
FEPA	[g/cm ³]
F 230	1,50-1,70
F 240	1,50-1,70
F 280	1,50-1,70
F 320	1,50-1,70
F 360	1,35-1,55
F 400	1,20-1,40
F 500	1,20-1,40
F 600	1,10-1,30
F 800	1,00-1,20

II. Fused Mg-Al Spinel

Available Granulations			
FEPA	d _{s3} -Value max. [µm]	d _{s50} - Value [µm]	d _{s94} -Value min. [µm]
F 230	82,0	53,0 ± 3,0	34,0
F 240	70,0	44,5 ± 2,0	28,0
F 280	59,0	36,5 ± 1,5	22,0
F 320	49,0	29,2 ± 1,5	16,5
F 360	40,0	22,8 ± 1,5	12,0
F 400	32,0	17,3 ± 1,0	8,0
F 500	25,0	12,8 ± 1,0	5,0
F 600	19,0	9,3 ± 1,0	3,0
F 800	14,0	6,5 ± 1,0	2,0



Description: HUNGAKOR EKP is characterised by high alumina content, high chemical purity and white colour.

Field of Application: It is a basic material for abrasive paper manufacturing.

Granulometric Composition

I. White Fused Aluminas

HUNGAKOR EKP

Grain size FEPA	Base fraction [micron]	Bulk density* [kg/dm ³]
12	1700-2000	1.61-1.71
16	1180-1400	1.61-1.71
20	850-1000	1.63-1.73
24	710-850	1.65-1.75
30	600-710	1.65-1.75
36	500-600	1.65-1.75
40	355-425	1.67-1.77
50	300-355	1.67-1.77
60	250-300	1.65-1.75
80	180-212	1.61-1.71
100	150-180	1.55-1.65
120	106-125	1.53-1.63
150	90-106	1.51-1.61
180	75-90	1.51-1.61
220	63-75	1.51-1.61

II. Fused Mg-Al Spinel

The granulometric composition of the HUNGAKOR EKP grains from P12-P220 grain size is according to the prescriptions of ISO 6344 .

* MOTIM's standard medium bulk density



Quality: This product is manufactured by a technology certified according to **EN ISO 9001:2000, ISO 14001:2004** and **OHSAS 18001:2007**

REACH Registration Reference number: 01-2119529248-35-0023

I. White Fused Aluminas

HUNGAKOR EKP

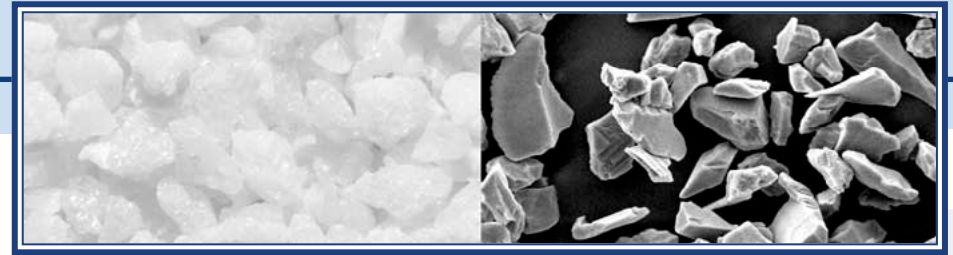
Chemical Composition	EKP	
	Guaranteed	Typical
[%]		
Al₂O₃	min. 99.60	99.70
Fe₂O₃	max. 0.045	0.035
SiO₂	max. 0.035	0.023
TiO₂	max. 0.008	0.006
CaO	max. 0.040	0.025
Na₂O	max. 0.29	0.22

II. Fused Mg-Al Spinel

Physical Characteristics	EKP
α-Al₂O₃ phase [%]	96
β-Al₂O₃ phase [%]	3
Glassy phase [%]	1
Specific gravity [kg/dm ³]	3.98
Melting point [°C]	2040
Porosity [%]	5
Hardness, Knopp [kN/mm ²]	2050
Apparent density [kg/dm ³]	3.87

Packaging: – in net 25 kg or 50 kg multiwall paper bags
 – in 1 ton plastic containers (big-bag)

The bags are stacked on pallets in one ton lots (or as much as requested) covered by shrinkwrap.



Description: **HUNGAKOR EKP MICRO** is characterized by high alumina content, high chemical purity and white color. Our EKP Microgrits are produced in precise granulometry from 58,5 µm to 15,3 µm.

Field of applications: **HUNGAKOR EKP MICRO** grits can mainly be used as grinding, lapping and polishing media, as wet and dry microblasting material, for manufacturing resin bonded abrasive applications and for producing refractory products.

Quality: This product is manufactured by a technology certified according to **EN ISO 9001:2000, ISO 14001:2004** and **OHSAS 18001:2007**

REACH reference number: 01-2119529248-35-0023

Granulometric Composition: Grain size distribution is determined with Malvern Insittec equipment according to ISO 6344-3 standard based on micro mastergrit measurements. Bulk density is determined according to ISO 9136-2 standard.

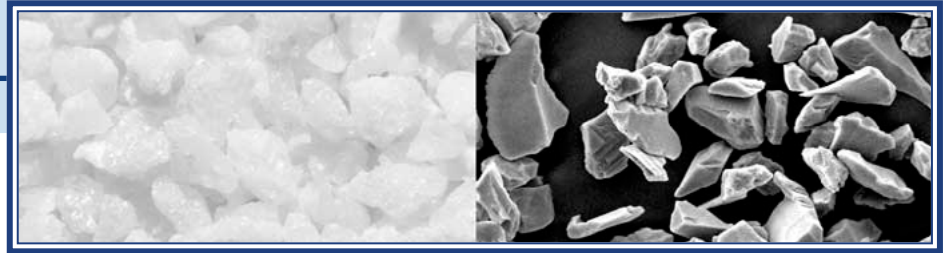
Packaging: – in net 25 kg or 50 kg multiwall paper bags
– in 1 ton plastic containers (big-bag)

The bags are stacked on pallets in one ton lots (or as much as requested) covered by shrinkwrap.

I. White Fused Aluminas

HUNGAKOR EKP MICRO

II. Fused Mg-Al Spinel



I. White Fused Aluminas

Chemical Composition	EKP MICRO
[%]	Typical for EKP 240
Al₂O₃	99.60
SiO₂	0.05
Fe₂O₃	0.033
TiO₂	0.01
Na₂O	0.30
CaO + MgO	0.04

Bulk Density	
FEPA	[g/cm ³]
P 240	1,50-1,70
P 280	1,50-1,70
P 320	1,50-1,70
P 360	1,40-1,60
P 400	1,40-1,60
P 500	1,40-1,60
P 600	1,35-1,55
P 800	1,30-1,50

HUNGAKOR EKP MICRO

Physical Characteristics	EKP MICRO
Specific gravity [g/cm³]	3.9
Hardness, Mohs	9
Melting point [°C]	2040

II. Fused Mg-Al Spinel

Available Granulations				
FEPA	d ₅₀ -Value max. [µm]	d ₅₃ -Value max. [µm]	d ₅₀ - Value [µm]	d ₉₅ -Value min. [µm]
P 240	110	81,7	58,5 ± 2,0	44,5
P 280	101	74,0	52,2 ± 2,0	39,2
P 320	94	66,8	46,2 ± 1,5	34,2
P 360	87	60,3	40,5 ± 1,5	29,6
P 400	81	53,9	35,0 ± 1,5	25,2
P 500	77	48,3	30,2 ± 1,5	21,5
P 600	72	43,0	25,8 ± 1,0	18,0
P 800	67	38,1	21,8 ± 1,0	15,1



Description: The product marked as **HUNGAKOR EKR-A** is a material with high alumina content. This grain is characteristically white and chemically extremely pure. It is produced in the size of 0 to 8 mm, in compliance with the buyers' demands.

Field of Application: Its main field of application is the refractory material industry, where it is a basic material of both the monolithic and the shaped refractory products.

Granulometric Composition: MOTIM Electrocorundum Ltd. produces electrocorundum grains in almost fifty different fractions. The grain size distribution of the fractions is in conformity with the prescriptions of MOTIM Electrocorundum Ltd. or meets specific requirements.

I. White Fused Aluminas

HUNGAKOR EKR-A

II. Fused Mg-Al Spinel

Some of the Typical Fractions [mm]	
0 – 0.1	0 – 0.15
0 – 0.5	0.25 – 0.5
0.5 – 1	0.5 – 3
0 – 1	0 – 3
1 – 3	3 – 5
200 F	



Quality: This product is manufactured by a technology certified according to **EN ISO 9001:2000, ISO 14001:2004** and **OHSAS 18001:2007**

REACH Registration Reference number: 01-2119529248-35-0023

Chemical Composition	EKR-A	
	Guaranteed	Typical
[%]		
Al₂O₃	min. 99.60	99.70
Fe₂O₃	max. 0.045	0.035
SiO₂	max. 0.035	0.023
TiO₂	max. 0.008	0.006
CaO	max. 0.040	0.025
Na₂O	max. 0.29	0.22

I. White Fused Aluminas

HUNGAKOR EKR-A

Physical Characteristics	EKR-A
α-Al₂O₃ phase [%]	96
β-Al₂O₃ phase [%]	3
Glassy phase [%]	1
Specific gravity [kg/dm ³]	3.98
Melting point [°C]	2040
Porosity [%]	5
Apparent density [kg/dm ³]	3.87
Thermal expansion to 2000°C, 1/°C	9 x 10 ⁻⁶

II. Fused Mg-Al Spinel

Packaging: – in net 25 kg or 50 kg multiwall paper bags
– in 1 ton plastic containers (big-bag)

The bags are stacked on pallets in one ton lots (or as much as requested) covered by shrinkwrap.



Description: The product marked as **HUNGAKOR EKR-B** is a material with high alumina content. This grain is slightly grayish coloured and chemically fairly pure. The product is separated in the fraction of 0 to 8 mm, in compliance with the buyers' demands.

Field of Application: Its main field of application is the refractory material industry, where it is a basic material of both the monolithic and the shaped refractory products.

Granulometric Composition: MOTIM Electrocorundum Ltd. produces electrocorundum grains in almost fifty different fractions. The grain size distribution of the fractions is in conformity with the prescriptions of MOTIM Electrocorundum Ltd. or meets specific requirements.

I. White Fused Aluminas

HUNGAKOR EKR-B

II. Fused Mg-Al Spinel

Some of the Typical Fractions [mm]

0 – 0.1	0 – 0.15
0 – 0.5	0.25 – 0.5
0.5 – 1	0.5 – 3
0 – 1	0 – 3
1 – 3	3 – 5
200 F	



Quality: This product is manufactured by a technology certified according to **EN ISO 9001:2000, ISO 14001:2004** and **OHSAS 18001:2007**

REACH Registration Reference number: 01-2119529248-35-0023

I. White Fused Aluminas

Chemical Composition	EKR-B	
	Guaranteed	Typical
[%]		
Al₂O₃	min. 99.50	99.60
Fe₂O₃	max. 0.06	0.05
SiO₂	max. 0.05	0.04
TiO₂	max. 0.008	0.007
CaO	max. 0.040	0.027
Na₂O	max. 0.32	0.25

HUNGAKOR EKR-B

II. Fused Mg-Al Spinel

Physical Characteristics	EKR-B
α-Al₂O₃ phase [%]	94
β-Al₂O₃ phase [%]	5
Glassy phase [%]	1
Specific gravity [kg/dm ³]	3.92
Melting point [°C]	2040
Porosity [%]	6
Apparent density [kg/dm ³]	3.76
Thermal expansion to 2000°C, 1/°C	9 x 10 ⁻⁶

Packaging: – in net 25 kg or 50 kg multiwall paper bags
 – in 1 ton plastic containers (big-bag)
 The bags are stacked on pallets in one ton lots (or as much as requested) covered by shrinkwrap.



Description: The product marked as **HUNGAKOR EKR-C** is a material with high alumina content. This grain is slightly grayish coloured and chemically fairly pure. The product is separated in the fraction of 0 to 8 mm, in compliance with the buyers' demands.

Field of Application: Its main field of application is the refractory material industry, where it is a basic material of both the monolithic and the shaped refractory products.

Granulometric Composition: MOTIM Electrocorundum Ltd. produces electrocorundum grains in almost fifty different fractions. The grain size distribution of the fractions is in conformity with the prescriptions of MOTIM Electrocorundum Ltd. or meets specific requirements.

I. White Fused Aluminas

HUNGAKOR EKR-C

II. Fused Mg-Al Spinel

Some of the Typical Fractions [mm]	
0 – 0.5	0.25 – 0.5
0.5 – 1	0.5 – 3
0 – 1	0 – 3
1 – 3	3 – 5



Quality: This product is manufactured by a technology certified according to **EN ISO 9001:2000, ISO 14001:2004** and **OHSAS 18001:2007**

REACH Registration Reference number: 01-2119529248-35-0023

Chemical Composition	EKR-C	
	Guaranteed	Typical
[%]		
Al₂O₃	min. 98.80	99.40
Fe₂O₃	max. 0.18	0.10
SiO₂	max. 0.20	0.14
TiO₂	max. 0.009	0.007
CaO	max. 0.07	0.04
Na₂O	max. 0.7	0.4

I. White Fused Aluminas

HUNGAKOR EKR-C

II. Fused Mg-Al Spinel

Physical Characteristics	EKR-C
α-Al₂O₃ phase [%]	90
β-Al₂O₃ phase [%]	7
Glassy phase [%]	3
Specific gravity [kg/dm ³]	3.90
Melting point [°C]	2010
Porosity	7
Apparent density [kg/dm ³]	3.71
Thermal expansion to 2000°C, 1/°C	9 x 10 ⁻⁶

Packaging: – in net 25 kg or 50 kg multiwall paper bags
 – in 1 ton plastic containers (big-bag)
 The bags are stacked on pallets in one ton lots (or as much as requested) covered by shrinkwrap.



Description: The product marked as **HUNGAKOR EKR-C** is a material with high alumina content.

Granulometric Composition:

+ 0.075 mm	max. 20%
- 0.075 mm	min. 80%

Quality: This product is manufactured by a technology certified according to **EN ISO 9001:2000, ISO 14001:2004** and **OHSAS 18001:2007**

REACH Registration Reference number: 01-2119529248-35-0023

I. White Fused Aluminas

HUNGAKOR EKR-C 200 F

II. Fused Mg-Al Spinel



I. White Fused Aluminas

Chemical Composition	EKR-C 200 F	
	Guaranteed	Typical
[%]		
Al₂O₃	min. 98.80	99.20
Fe₂O₃	max. 0.4	0.3
SiO₂	max. 0.10	0.06
CaO	max. 0.08	0.06
Na₂O	max. 0.7	0.4

HUNGAKOR EKR-C 200 F

II. Fused Mg-Al Spinel

Physical Characteristics	EKR-C 200 F
α-Al₂O₃ phase [%]	90
β-Al₂O₃ phase [%]	7
Glassy phase [%]	3
Specific gravity [kg/dm ³]	3.92
Melting point [°C]	2040
Apparent density [kg/dm ³]	3.71
Thermal expansion to 2000°C, 1/°C	9 x 10 ⁻⁶

Packaging: – in net 25 kg or 50 kg multiwall paper bags
 – in 1 ton plastic containers (big-bag)
 The bags are stacked on pallets in one ton lots (or as much as requested) covered by shrinkwrap.



Description: During the manufacturing processes some by-products are produced in smaller quantities, which are suitable for industrial use resulting from their characteristics. They have high alumina content and they are chemically medium pure.

Typical Granulometric Composition:

I. White Fused Aluminas

EKR-S	
> 0.106 mm	max. 5%
0.063–0.106 mm	5–20%
0.045–0.063 mm	10–40%
< 0.045 mm	65–85%

Quality: This product is manufactured by a technology certified according to **EN ISO 9001:2000**, **ISO 14001:2004** and **OHSAS 18001:2007**

REACH Registration Reference number: 01-2119529248-35-0023

HUNGAKOR EKR-S

II. Fused Mg-Al Spinel



I. White Fused Aluminas

Chemical Composition	EKR-S
[%]	Guaranteed
Al₂O₃	min. 99.00
Fe₂O₃	max. 0.30
SiO₂	max. 0.07
CaO	max. 0.06
Na₂O	max. 0.50

HUNGAKOR EKR-S

II. Fused Mg-Al Spinel

Packaging: – in net 40 kg multiwall paper bags
– in 1 ton plastic containers (big-bag)

The bags are stacked on pallets in one ton lots (or as much as requested) covered by shrinkwrap.



Description: Fused magnesium-aluminium spinel is made of high purity raw materials in electric arc-furnaces. The maximum amount of spinel crystals is achieved by using pure raw materials and electric arc-furnaces. The product has a high heat-shock and slag-corrosion resistance and also good refractoriness.

Field of Application: Spinel is the basic material of refractory materials used for the sinter and transit zones of rotary furnaces in cement industry, for the arches of electric arc-furnaces, for the refractory lining of high-frequency furnaces and various kinds of torpedos and ladles used in steel works.

Granulometric Composition: MOTIM Electrocorundum Ltd. produces fused magnesium-aluminium spinel in about fifty different fractions. The grain size distribution of the fractions is in conformity with the prescriptions of MOTIM Electrocorundum Ltd. or according to a specific requirement.

Quality: This product is manufactured by a technology certified according to **EN ISO 9001:2000, ISO 14001:2004** and **OHSAS 18001:2007**

REACH Registration Reference number: 01-2119457267-32-0001

Pacaging: – in net 25 kg or 50 kg multiwall paper bags
– in 1 ton plastic containers (big-bag)

The bags are stacked on pallets in one ton lots (or as much as requested) covered by shrinkwrap.

I. White Fused Aluminas

II. Fused Mg-Al Spinel

FS-10



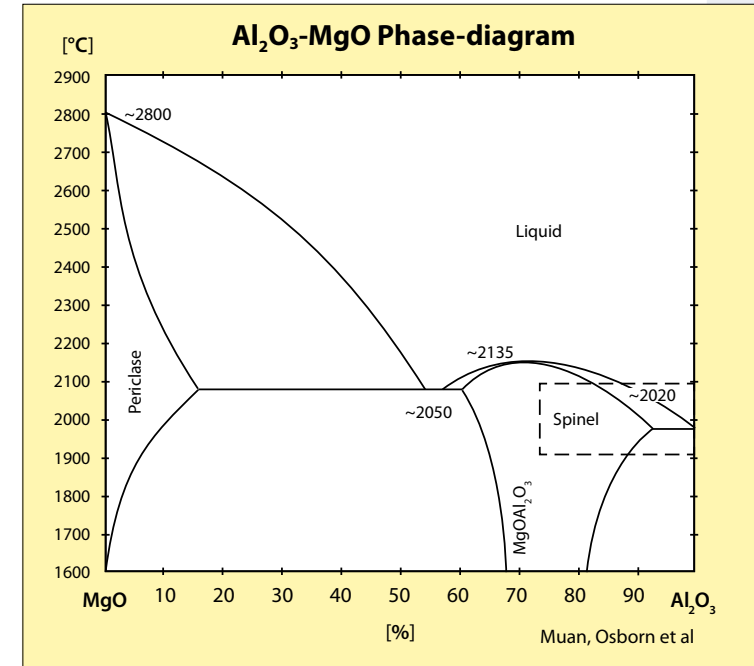
I. White Fused Aluminas

Chemical Composition	FS-10	
[%]	Guaranteed	Typical
Al₂O₃	89 ± 1.0	89.00
MgO	10 ± 1.0	10.00
SiO₂	max. 0.06	0.04
Fe₂O₃	max. 0.10	0.08
CaO	max. 0.12	0.09
Na₂O	max. 0.25	0.18

Physical Characteristics	FS-10
Porosity [%]	3
Water absorption [%]	1

II. Fused Mg-Al Spinel

FS-10





Description: Fused magnesium-aluminium spinel is made of high purity raw materials in electric arc-furnaces. The maximum amount of spinel crystals is achieved by using pure raw materials and electric arc-furnaces. The product has a high heat-shock and slag-corrosion resistance and also good refractoriness.

Field of Application: Spinel is the basic material of refractory materials used for the sinter and transit zones of rotary furnaces in cement industry, for the arches of electric arc-furnaces, for the refractory lining of high-frequency furnaces and various kinds of torpedos and ladles used in steel works.

Granulometric Composition: MOTIM Electrocorundum Ltd. produces fused magnesium-aluminium spinel in about fifty different fractions. The grain size distribution of the fractions is in conformity with the prescriptions of MOTIM Electrocorundum Ltd. or according to a specific requirement.

Quality: This product is manufactured by a technology certified according to **EN ISO 9001:2000**, **ISO 14001:2004** and **OHSAS 18001:2007**

REACH Registration Reference number: 01-2119457267-32-0001

Pacaging: – in net 25 kg or 50 kg multiwall paper bags
– in 1 ton plastic containers (big-bag)

The bags are stacked on pallets in one ton lots (or as much as requested) covered by shrinkwrap.

I. White Fused Aluminas

II. Fused Mg-Al Spinel

FS-27



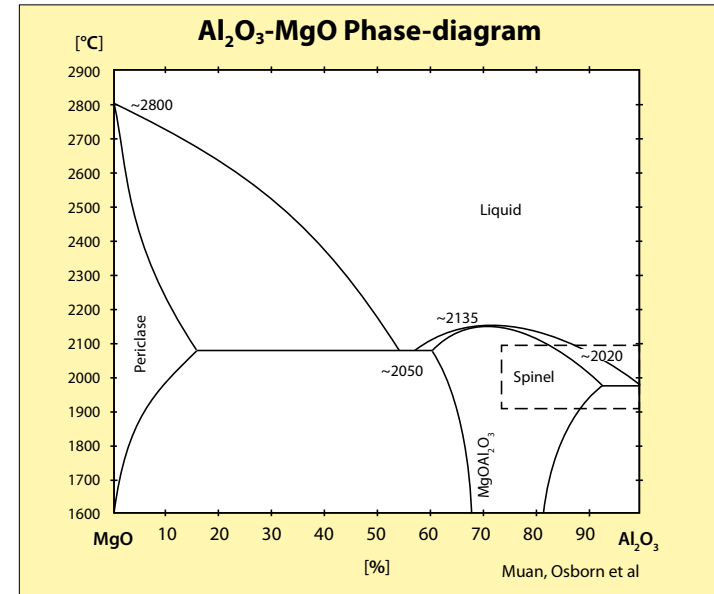
I. White Fused Aluminas

Chemical Composition	FS-27	
[%]	Guaranteed	Typical
Al₂O₃	72 ± 1.0	72.00
MgO	27 ± 1.0	27.00
SiO₂	max. 0.10	0.06
Fe₂O₃	max. 0.19	0.17
CaO	max. 0.28	0.20
Na₂O	max. 0.18	0.12

Physical Characteristics	FS-27
Specific gravity [kg/dm ³]	3.5
Porosity [%]	4
Water absorption [%]	1
Periclase phase [%]	0
α-Al₂O₃ phase [%]	1
Refractoriness [°C]	1900

II. Fused Mg-Al Spinel

FS-27





Description: Fused magnesium-aluminium spinel is made of high purity raw materials in electric arc-furnaces. The maximum amount of spinel crystals is achieved by using pure raw materials and electric arc-furnaces. The product has a high heat-shock and slag-corrosion resistance and also good refractoriness.

Field of Application: Spinel is the basic material of refractory materials used for the sinter and transit zones of rotary furnaces in cement industry, for the arches of electric arc-furnaces, for the refractory lining of high-frequency furnaces and various kinds of torpedos and ladles used in steel works.

Granulometric Composition: MOTIM Electrocorundum Ltd. produces fused magnesium-aluminium spinel in about fifty different fractions. The grain size distribution of the fractions is in conformity with the prescriptions of MOTIM Electrocorundum Ltd. or according to a specific requirement.

Quality: This product is manufactured by a technology certified according to **EN ISO 9001:2000**, **ISO 14001:2004** and **OHSAS 18001:2007**

REACH Registration Reference number: 01-2119457267-32-0001

Pacaging: – in 1 ton plastic containers (big-bag)
– in loose

The bags are stacked on pallets in one ton lots (or as much as requested) covered by shrinkwrap.

I. White Fused Aluminas

II. Fused Mg-Al Spinel

FS-33



I. White Fused Aluminas

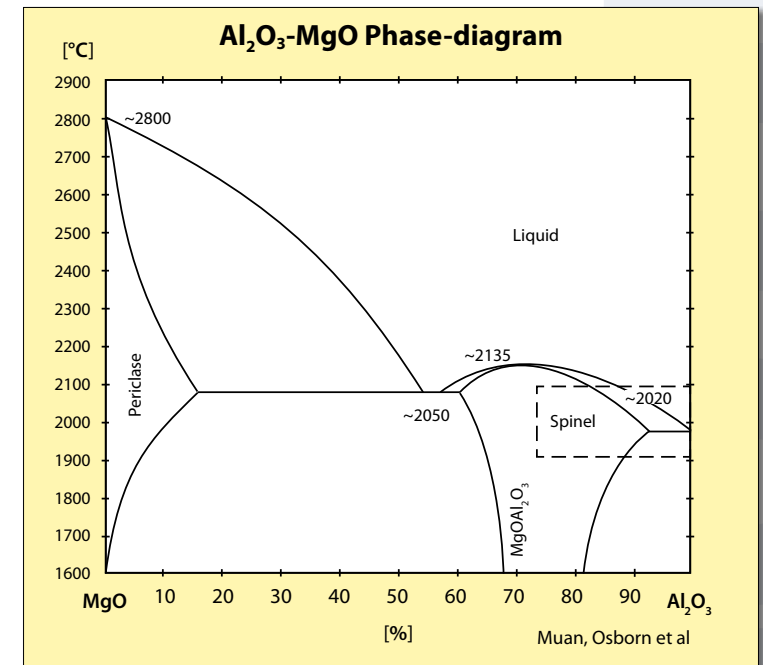
Chemical Composition	FS-33	
[%]	Guaranteed	Typical
Al₂O₃	66 ± 1.5	65.86
MgO	33 ± 1.5	33.05
SiO₂	max. 0.40	0.28
Fe₂O₃	max. 0.30	0.25
CaO	max. 0.65	0.44
Na₂O	max. 0.25	0.18

Physical Characteristics	FS-33
Specific gravity [kg/dm ³]	3.5
Porosity [%]	7

II. Fused Mg-Al Spinel

FS-33

Fractions [mm]
0 – 1
0 – 3
0 – 40
1 – 3





Description: Fused mullite is made of high purity raw materials in electric arc-furnaces. The grain is characterised by grayish colour and high chemical purity. The material is the most important component of refractory materials based on aluminium-silicate, having outstanding heat-shock and slag-corrosion resistance. The product is separated in the fraction between 0 to 8 mm, in compliance with the buyers' demands.

Field of Application: Fused mullite is a basic material for refractory materials used in the steel industry at precision and continuous casting, at the charging holes of various furnaces, at making burner-frames, for lining ladles and off-takes. Additionally, fused mullite of MOTIM Electrocorundum Ltd. can also be used for the production of high purity mullite blocks for glass melting furnaces (superstructures and crowns).

Granulometric Composition: MOTIM Electrocorundum Ltd. produces fused mullite grains in almost fifty different fractions. The grain size distribution of the fractions is in conformity with the prescriptions of MOTIM Electrocorundum Ltd. or according to a specific requirement.

Quality: This product is manufactured by a technology certified according to **EN ISO 9001:2000, ISO 14001:2004** and **OHSAS 18001:2007**

REACH Registration Reference number: 01-2119517522-47-0002

I. White Fused Aluminas

II. Fused Mg-Al Spinel

III. White Fused Mullite



I. White Fused Aluminas

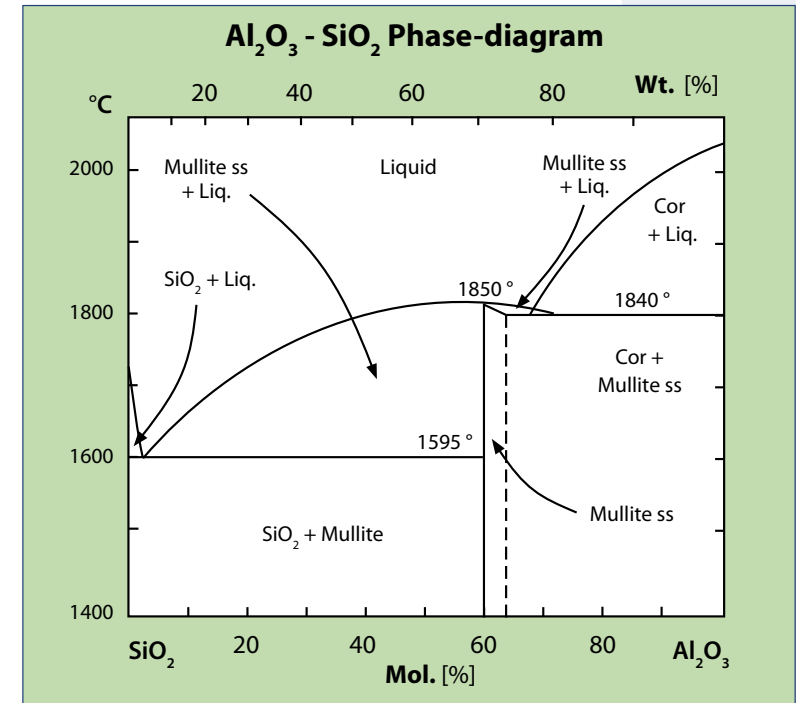
Chemical Composition	Mullite	
[%]	Guaranteed	Typical
Al₂O₃	76 ± 1	76.00
SiO₂	23.5 ± 1	23.5
Fe₂O₃	max. 0.10	0.06
TiO₂	max. 0.02	0.01
CaO	max. 0.05	0.02
Na₂O	max. 0.10	0.06

Packaging: – in net 25 kg or 50 kg multiwall paper bags
 – in 1 ton plastic containers (big-bag)
 The bags are stacked on pallets in one ton lots (or as much as requested) covered by shrinkwrap.

II. Fused Mg-Al Spinel

III. White Fused Mullite

Physical Characteristics	Mullite
Mullite phase [%]	93
α-Al₂O₃ phase [%]	3
Glassy phase [%]	4
Specific gravity [kg/dm³]	3.16
Porosity [%]	6
Ta Point [°C]	1700





Description: Fused zirconia mullite is made of high purity raw materials in electric arc-furnaces. The grain is characterised by high chemical purity.

Field of Application: Fused zirconia mullite is a basic material for refractory materials used in the steel industry at precision and continuous casting, at the charging holes of various furnaces, at making burner-frames, for lining ladles and off-takes. Additionally, fused zirconia mullite of MOTIM Electrocorundum Ltd. can also be used for the production of high-purity zirconia mullite blocks for glass melting furnaces (superstructure and crown).

Granulometric Composition:

Some Typical Fractions [mm]
0 – 0.3
0 – 0.5
0 – 1.0
0.5 – 1.0
1.0 – 3.0
3.0 – 5.0

I. White Fused Aluminas

II. Fused Mg-Al Spinel

IV. Fused Zirconia Mullite



Quality: This product is manufactured by a technology certified according to **EN ISO 9001:2000, ISO 14001:2004** and **OHSAS 18001:2007**

REACH Registration Reference number:
Mullite: 01-2119517522-47-0002
Zirconium-dioxide: 01-2119486976-14-0004

I. White Fused Aluminas

Chemical Composition	Zirconia Mullite	
	Guaranteed	Typical
[%]		
Al₂O₃	44.5 – 47.0	46.0
SiO₂	16.0 – 18.0	17.5
ZrO₂	34.0 – 38.5	36.5
Fe₂O₃	max. 0.20	0.10
TiO₂	max. 0.18	0.09
Na₂O	max. 0.25	0.20

II. Fused Mg-Al Spinel

Physical Characteristics	Zirconia Mullite
Specific gravity [g/cm ³]	3.94
Apparent porosity [%]	4.0
Refractoriness [°C]	1750

IV. Fused Zirconia Mullite

Packaging: – in net 25 kg or 50 kg multiwall paper bags
 – in 1 ton plastic containers (big-bag)

The bags are stacked on pallets in one ton lots (or as much as requested) covered by shrinkwrap.

I. White Fused Aluminas

II. Fused Mg-Al Spinel

III. White Fused Mullite

IV. Fused Zirconia Mullite

DOCUMENTS

METAL

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