

BROWN ALUMINUM OXIDE (BFA)

Brown Aluminum Oxide is produced by fusion of bauxite in an electric arc furnace at high temperatures. It has high hardness, toughness, self-sharpening, heat resistance and chemical stability, etc.

Brown Aluminum oxide for bonded abrasives

Grains shapes: angular / cubic

Property:

BFA has high hardness, strong self-sharpening, excellent heat resistance. It is suitable for resin-bonded cut off and grinding wheels, vitrified wheels, cutting cast iron, regular steel, carbon steel and nonferrous metals such as hard bronze etc.

Chemical analysis in wt. % (F24)

Index	Al ₂ O ₃	SiO ₂	FeO ₃	TiO ₂
BFA- Resin	95.23	1.21	0.13	2.39
BFA- Vitrified	95.40	0.78	0.12	2.58

Grist Available:

F12 to F220, F240 to F3000, JIS240 to JIS8000

In accordance with the current GB/FEPA /JIS/ ANSI sieve standards.

BROWN ALUMINUM OXIDE FOR COATED ABRASIVES

Grain Shape: Sharp

Property:

BFA has high toughness, strong cutting force and electrostatic absorption force. It is suitable for coated abrasive in metal working industry, such as sanding construction and tool steels, cast steel, cast iron; also, in non- ferrous metal like grinding aluminum, copper, hard wood, fiberboard, etc.

Chemical analysis in wt.% (P40)

Index	Al ₂ O ₃	SiO ₂	FeO ₃	TiO ₂
Typical value	95.31	1.14	0.15	2.46

Grits available:

P16 to P220, P240 to P2500

In accordance with the current GB/FEPA/JIS ANSI sieve standards.

CALCINED BROWN ALUMINUM OXIDE

Grain Shape: angular / cubic

Property:

It is reddish brown color, heat treated in the temperature of 1050⁰C. It has higher purity and cleanliness, stronger hydrophilicity, smaller expansion coefficient, higher toughness, lower content of magnetic materials and higher strength. Suitable for high grade coated and bonded abrasives.

Chemical analysis in wt.% (F24)

Index	Al ₂ O ₃	SiO ₂	FeO ₃	TiO ₂
Typical value	95.35	1.21	0.11	2.42

Grits available:

Coated Abrasives: P12 to P220

Bonded Abrasives: F12 to F220

Other sizes are also available on request.

BLUE FIRED BROWN ALUMINUM OXIDE

Grain Shape: angular / cubic

Property:

It is blue, heat treated in the temperature of 1350⁰C. It has greater strength, excellent hydrophilicity. Abnormal expansion can be eliminated during abrasive firing, mech cracks/ map cracks and rust spots of the fired abrasives can be avoided. Suitable for top grade coated abrasives and bonded abrasives.

Typical Chemical analysis in wt.% (P80)

Index	Al ₂ O ₃	SiO ₂	FeO ₃	TiO ₂
Typical value	95.31	1.14	0.15	2.46

Grits available:

Coated Abrasives: P12 to P220

Bonded Abrasives: F12 to F220

Other sizes are also available on request.

CERAMIC COATED BROWN ALUMINUM OXIDE

Grains shapes: angular / cubic

Property & Application:

Ceramic coating improves purity and hydrophilicity, reduces dust, and achieves grain surfaces that have greater toughness, strength, and roughness, and that are also more uniform in particle size. Primary applications: coated and bonded abrasives.

Grits available:

Coated Abrasives: P16 to P220

Bonded Abrasives: F12 to F220

Other sizes are also available on request.

BROWN ALUMINUM OXIDE – Secondary Grade

Application: Brown aluminum Oxide Secondary Grade is suitable for sand blasting, lower quality resin grinding / cutting wheels, and coated abrasives.

BFA 90-92 %

Chemical analysis in wt.% (F24)

Index	Al ₂ O ₃	SiO ₂	FeO ₃	TiO ₂
Typical value	90.68	2.95	2.15	3.54

BFA 80-85%

Chemical analysis in wt.% (F24)

Index	Al ₂ O ₃	SiO ₂	FeO ₃	TiO ₂
Typical value	83.50	5.56	4.50	5.35

Grits available:

Bonded Abrasives: F12 to F220

Coated Abrasives: P12 to P220

Other sizes are also available on request.

WHITE ALUMINUM OXIDE (WFA)

White Aluminum Oxide is made from the high quality aluminum by melting above 2000⁰C in the electric arc furnace in our plant. It is brilliant white color with the main crystal phase α -Al₂O₃. Compared with brown Aluminum Oxide, its hardness is higher and toughness is lower.

Application:

It is widely used for bonded abrasives and coated abrasives.

The tools made of it are suitable for the grinding of high carbon steel, high speed and chilled steel.

It can also be used as polishing materials and precision foundry sand, spraying and coating materials, blasting, catalyst carrier, special ceramics and super refractory materials.

Chemical analysis in wt.% (F24)

Index	Al ₂ O ₃	SiO ₂	FeO ₃	TiO ₂
Typical value	99.40	0.07	0.04	0.29

Physical Property:

Basic minerals	Crystal size μm	True density g/cm^3	Bulk density g/cm^3	Knoop Hardness Kg/mm^2
α - Al ₂ O ₃	600~1400	≥ 3.90	1.5~1.95	2200~2300

Grits available:

Bonded Abrasives: F12 to F220, F240 to F3000, JIS240 to JIS8000

Coated abrasives: P16 to P220, P240 to P3000

In accordance with the current GB/FEPA/JIS/ANSI sieve standards.

WHITE ALUMINUM OXIDE – WA MICROPOWDER

(Grits available #240 to #8000 in accordance with the current FEPA /JIS sieve standards)

Application:

1. Polishing Crystal and Electronic Industry

It can be used for polishing of the optics, electronics, precision mechanical apparatus and instruments, booster vane of motors, turbine of water pumps, etc.

2. Precision Grinding

It is used for the grinding of the hard and strong bending strength materials, such as chilled steel, alloy steel, high- speed steel and high carbon steel.

3. Bonded and Coated abrasive tools

4. Wet / Dry sandblasting

Granularity Distribution (um)				
grains	D0<	D3<	D50	D94>
#240	127.0	103.0	57.0±3.0	40.0
#280	112.0	87.0	48.0±3.0	33.0
#320	98.0	74.0	40.0±2.5	27.0
#360	86.0	66.0	35.0±2.0	23.0
#400	75.0	58.0	30.0±2.0	20.0
#500	63.0	50.0	25.0±1.5	16.0
#600	53.0	43.0	20.0±1.5	13.0
#700	45.0	37.0	17.0±1.3	11.0
#800	38.0	31.0	14.0±1.0	9.0
#1000	32.0	27.0	11.5±1.0	7.0
#1200	27.0	23.0	9.5±0.8	5.5
#1500	23.0	20.0	8.0±0.6	4.5
#2000	19.0	17.0	6.7±0.6	4.0
#2500	16.0	14.0	5.5±0.5	3.0
#3000	13.0	11.0	4.0±0.5	2.0
#4000	11.0	8.0	3.0±0.4	1.3
#6000	8.0	5.0	2.0±0.4	0.8
#8000	6.0	3.5	1.2±0.3	0.6

ALUMINUM OXIDE ANTI- FRICTION POWDER

Application: Used in wear- resistant paper and laminate wooden floor coating, and also used in super lapping, sliving, painting, etc.

Aluminum Oxide Antifriction Powder is an indispensable material to improve the wooden floor's resistance of surface wear. It can form a super thin antifriction layer on the decorative paper together with melamine, etc. It can also be impregnated on the paper to form a semi – transparent antifriction paper then covered on decorating paper. The antifriction layer requires high quality, good wear- resistance and high transparency, or the grain of wood will be covered. Besides, it can improve the antifriction features of the paintings after adding aluminum oxide antifriction powder into paintings.

Features:

1. Good particle spherical degree, even particle size, concentrated single particle shape, make wooden floor to achieve wear-resisting effect.
2. High cleanliness, good diaphaneity, white color and luster, make the grain of wood clear and beautiful.
3. High hardness, good toughness, stable chemical resistance, make the anti-slip surface more durable.
4. Good safety, fruity particle, form a surface protective film which reduce the template damage to the minimum.

Property:

Code	Bulk Density g/cm ³	Grit size μm	Cleanness
T180	≥1.80	125~90	≥97 ⁰
T220	≥1.76	106~50	≥97 ⁰
T240	≥1.57	75~30	≥97 ⁰

SPECIAL ALUMINUM OXIDE FOR FLOOR / PAVEMENT:

Property: high hardness, acid and alkali resisting, corrosion resisting, wear- resisting, stable chemical properties, long service life.

Application:

Mainly used in the surface of outdoor floors and pavement, such as deck of the ship or battleship, highway speed bumps, airport runway, etc.

Because of high acid and alkali resistance, corrosion resistance, wear resistance, it can also be used in indoor floors in some special industries, for example, pharmaceutical industry, chemical industry, food processing industry etc.

According to customer's requirements, we could provide a variety of colors, such as White, Black, Red, Gray, etc.

PINK ALUMINUM OXIDE (PA)

Pink Aluminum Oxide is electrically fused in high temperature, being added with the right quantity of oxidized chromium. Its hardness is close to White Aluminum Oxide, but its toughness is higher than White Aluminum Oxide.

Application:

The abrasive tools made of it have excellent durability and high processing cleanliness, which is suitable for the precision grinding of the measuring tools, machine tool spindle, instruments and apparatus parts, threading work pieces, etc.

Analysis in wt.% (F24)

Index	Al ₂ O ₃	Cr ₂ O ₃	SiO ₂	FeO ₃	TiO ₂
Low Chromium	99.22	0.26	0.05	0.06	0.34
Medium Chromium	98.80	0.7	0.08	0.04	0.35
High Chromium	97.6	1.9	0.08	0.04	0.35

Physical Property:

Basic minerals	Crystal size μm	True density g/cm ³	Bulk density g/cm ³	Knoop Hardness Kg/mm ²
α- Al ₂ O ₃	600-800	≥3.90	1.40~1.91	2200~2300

Grits available:

F12 to F220, F240 to F2000
 Other sizes are also available on request.

BLACK ALUMINUM OXIDE

Black Aluminum Oxide is an abrasive that is one of the hardest minerals available. It is created through the electrofusion of bauxite, iron oxide and micro- elements in a tilting arc furnace. It can be produced in a variety of sizes from grains to micro- powders, and is one of the most economical media available for a wide array of dry and wet processing applications.

Application:

1. Resin cutting/ grinding wheels

Adding appropriate amount of Black aluminum oxide into brown aluminum oxide when producing support resin cutting, it can improve the work life, and make the incision have higher quality, then lower the cost.

2. Pavement/ Floor

It can be used for laying wear- resisting anti-skid pavement, bridge, terrace, wear-resisting non-slip floor.

3. Sandblasting

Used as blasting media to process the surface of work piece, cleaning impurity, pipeline cleaning, the body of vessel cleaning, jean cloth sandblasting, etc.

4. Polishing & Lapping

Black aluminum oxide is very good in polishing stainless steel table ware, hardly to burn the surface when lapping.

Typical Chemical analysis in wt.% (F24)

Index	Al ₂ O ₃	Fe ₂ O ₃	SiO ₂	TiO ₂
BA-II	63.48	8.69	20.41	2.78
BA-I	83.44	5.54	7.52	2.06

Grits Available:

F12 to F220, F240 to F1000

0.4-1.0mm, 1-2mm, 1-3mm, 3-5mm

Other sizes are also available on request.

BLACK SILICON CARBIDE (C)

Black Silicon Carbide is the product of silicon quartz sand and petroleum coke electrofused at high temperature in an electrical resistance furnace. The grains of Black Silicon Carbide are hexagonal crystals that are extremely hard, sharp, and friable, and have outstanding electrical and thermal conductivity and low thermal expansion.

Suitable for bonded abrasives and coated abrasives, grinding and polishing of stones, processing the low tensile strength metal and non-metal materials, like grey cast iron, brass, aluminum, stones, leather, rubber, etc.

Chemical composition:

	SIC $\geq$ %	F.C $\leq$ %	Fe2O3 $\leq$ %
12#-90#	98.50	0.2	0.2
100#-80#	98.00	0.3	0.3
220#	97.50	0.3-0.6	0.3-0.6

Physical Properties:

Mohs hardness: 9.2 – 9.6

Vickers hardness: 3000 – 3300

Grits available:

Bonded Abrasives: F12 to F220

Coated Abrasives: P16 to P220

In accordance with the current GB/FEPA/JIS/ANSI sieve standards

BLACK SILICON CARBIDE MICROPOWDER:

(Grits available #240 to #2000 in accordance with the current FEPA/JIS sieve standards)

	Chemical Index			Physical Index		
grains	SiC $\geq$ %	F.C. $\leq$ %	Fe ₂ O ₃ $\leq$ %	PH value	Bulk Density	Magnetic material
#240	98.50	0.18	0.19	6-7.5	1.26	0.010
#280	98.50	0.18	0.19	6-7.5	1.26	0.010
#320	98.50	0.18	0.19	6-7.5	1.23	0.010
#400	98.00	0.18	0.19	6-7.5	1.23	0.015
#500	98.00	0.20	0.20	6-7.5	1.20	0.015
#600	98.50	0.20	0.20	6-7.5	1.20	0.015
#800	98.50	0.20	0.20	6-7.5	1.18	0.008
#1000	98.50	0.20	0.20	6-7.5	1.15	0.008
#1200	98.50	0.20	0.20	6-7.5	1.13	0.005
#1500	98.50	0.20	0.20	6-7.5	1.12	0.005
#2000	97.50	0.20	0.20	6-7.5	1.00	0.005

	Granularity Distribution (μ m)			
grains	D0<	D3<	D50	D94>
#240	120.0	100.0	57.0 $\pm$ 3.0	40.0
#280	110.0	80.0	48.0 $\pm$ 3.0	33.0
#320	95.0	70.0	40.0 $\pm$ 2.5	27.0
#400	70.0	55.0	30.0 $\pm$ 2.0	20.0
#500	60.0	48.0	25.0 $\pm$ 2.0	16.0
#600	50.0	38.0	20.0 $\pm$ 1.5	13.0
#800	30.0	20.0	14.0 $\pm$ 1.0	9.0
#1000	25.0	19.0	11.5 $\pm$ 1.0	7.0
#1200	20.0	18.0	9.5 $\pm$ 1.0	5.5
#1500	19.0	17.0	8.0 $\pm$ 0.6	4.5
#2000	17.0	15.0	6.7 $\pm$ 0.6	4.0

GREEN SILICON CARBIDE (GC)

Green Silicon carbide grains are green crystals with high hardness and strong cutting capacity, stable chemical properties and good heat conduction.

Suitable for Cutting and grinding of solar silicon chips, semiconductor silicon chips and quartz chips; polishing of crystal and ferrite; precision polishing of ceramics and special steel; cutting and free grinding and polishing for bonded abrasives and coated abrasives; grinding of glass, agate, superb jewels, jade- ware and other non metal materials.

Chemical composition:

	SIC $\geq$ %	F.C $\leq$ %	Fe ₂ O ₃ $\leq$ %
12#-90#	99.0	0.2	0.2
100#-80	98.50	0.3	0.3
220#	98.00	0.3-0.6	0.3-0.6

Physical properties:

It has a micro shape of hexagonal crystal.

Mohs hardness: 9.2-9.6

Vickers hardness: 3000-3300

Grits available:

Bonded Abrasives: F12 to F220

Micropowder: #240 to 6000

In accordance with the current GB/FEPA/JIS sieves standards.

GREEN SILICON CARBIDE MICROPOWDER:

(Grits available #240 to #6000 in accordance with the current FEPA/JIS sieve standard)

grains	Chemical Index			Physical Index		
	SiC $\geq$ %	F.C. $\leq$ %	Fe ₂ O ₃ $\leq$ %	PH value	Bulk Density	Magnetic material
#240	99.00	0.13	0.13	6-7.5	1.25	0.01
#280	99.00	0.13	0.13	6-7.5	1.23	0.01
#320	99.00	0.12	0.12	6-7.5	1.23	0.01
#360	99.00	0.12	0.12	6-7.5	1.20	0.009
#400	99.00	0.13	0.13	6-7.5	1.20	0.009
#600	99.00	0.13	0.13	6-7.5	1.18	0.008
#800	99.00	0.12	0.12	6-7.5	1.18	0.008
#1000	99.00	0.12	0.12	6-7.5	1.15	0.005
#1200	99.00	0.15	0.13	6-7.5	1.13	0.005
#1500	99.00	0.15	0.13	6-7.5	1.12	0.005
#2000	99.00	0.14	0.15	6-7.5	1.00	0.005
#2500	98.00	0.30	0.30	6-7.5	1.00	0.007
#3000	97.00	0.35	0.30	6-7.5	0.92	0.007
#4000	97.00	0.35	0.30	6-7.5	0.92	0.007
#6000	97.00	0.25	0.30	6-7.5	0.90	0.007

grains	Granularity Distribution (μ m)			
	D0<	D3<	D50	D94>
#240	120.0	100.0	57.0 $\pm$ 3.0	40.0
#280	110.0	80.0	48.0 $\pm$ 3.0	33.0
#320	95.0	70.0	40.0 $\pm$ 2.5	27.0
#400	70.0	55.0	30.0 $\pm$ 2.0	20.0
#500	60.0	48.0	25.0 $\pm$ 2.0	16.0
#600	50.0	38.0	20.0 $\pm$ 1.5	13.0
#800	30.0	20.0	14.0 $\pm$ 1.0	9.0
#1000	25.0	19.0	11.5 $\pm$ 1.0	7.0
#1200	20.0	18.0	9.5 $\pm$ 1.0	5.5
#1500	19.0	17.0	8.0 $\pm$ 0.6	4.5
#2000	17.0	15.0	6.7 $\pm$ 0.6	4.0
#2500	15	13.0	5.5 $\pm$ 0.5	3.0
#3000	13	11.0	4.0 $\pm$ 0.5	2.0
#4000	11	8.0	3.0 $\pm$ 0.4	1.3
#6000	8	5.0	2.0 $\pm$ 0.4	0.8

FUSED ZIRCONIUM ALUMINA (ZA)

ZA25 & ZA40 are electro- fused alumina – zirconia grains, produced by fusing alumina and zirconia raw material in electric arc furnace, and then processed by quenching, crushing and sieving.

ZA25

Character & application:

ZA25 is a hard and tough raw material, which has compact structure, high hardness and toughness, good grinding performance. It is mainly used for producing high pressure grinding wheels, and sandblasting, Due to it can quickly soften the metal strength without letting the metal get burned, it has very good grinding effect on steel, cast iron nickel alloys, titanium alloys, aluminum alloys and tungsten alloys.

Typical Chemical analysis in wt.%5(F24)

Index	Al ₂ O ₃	ZrO ₂	SiO ₂	Fe ₂ O ₃	TiO ₂
Typical value	73.19	25.28	0.42	0.22	0.30

Grits available:

F4 to F220

In accordance with the current GB/FEPA/JIS sieve standards.

ZA40**Character & Application:**

This product has small crystal size and unique microstructure, which give it high toughness and hardness, good cutting capacity, and longer lifetime. Therefore, its quality is far superior to brown aluminum oxide, silicon carbide and other traditional abrasive materials. It can be used for both coated abrasives and bonded abrasives, including abrasives belts, abrasive cloth, sandpaper, and resin grinding wheels. These abrasives has a wide application in grinding rail, casting surface, alloy steel, stainless-steel, wood and so on.

Chemical analysis in wt.% (F24)

Index	Al ₂ O ₃	ZrO ₂	SiO ₂	Fe ₂ O ₃	TiO ₂
Typical value	59.8	39.1	0.35	0.26	0.30

Grits available:

Bonded Abrasive: F8 to F220

Coated Abrasives: P20 to P220

In accordance with the current GB/FEPA/IS sieve standards.

MONOCRYSTALLINE ALUMINA

Monocrystalline Alumina, also called Single Crystal Aluminum Oxide, is produced in a unique process in which particles of various sizes are formed naturally during production, without the need for mechanical crushing. The grinding wheel made of Single Crystal Aluminum Oxide is light blue color (when fired between 300⁰C and 1280⁰ C) and it has the advantages of extremely high hardness, sharp multi-prism cutting edges, stable bulk density, and excellent grinding performance with relatively low heat- generation.

Typical Chemical analysis in wt. % (F46)

Index	Al ₂ O ₃	Fe ₂ O ₃	SiO ₂	TiO ₂	Na ₂ O
Typical value	99.04	0.04	0.07	0.35	0.14

Physical property:

Basic minerals	Melting Point °C	Refractoriness °C	True density g/cm ³	Vickers hardness Hv (kgf /mm ²)
α-Al ₂ O ₃	≥2250	≥1900	≥3.95	3000-3400

Grits available:

F12 to F220, P16 to P220

#240 to #3000

In accordance with the current GB/FEPA/JIS/ANSI sieve standards.

Other sizes are also available on request.

CERAMIC ABRASIVE GRAIN

Ceramic Abrasive Grain is a sintered abrasive made by solgel process with special alumina as the main raw material and mixed with various modified components. The blunt tiny grains on the surface layer will continuously expose new sharp micro-grinding edge after it falls off from the abrasive grains under the action of grinding force. The grinding tools made of Ceramic Abrasive Grain have the characteristics of long life, good self-sharp ability, high cutting efficiency and good toughness, and low workpiece burning.

Application:

Ceramic Abrasive Grain can be used in Bond Abrasives and Coated Abrasives. It has a wide range of applications, not only in casting and grinding under high pressure, but also in fine grinding of various materials including gear grinding bearing grinding, crankshaft grinding, roll grinding and so on.

Physical Properties:

Color	Specific Gravity (g/cm ³)	Crystal Size nm	Vickers Hardness Hv (kgf/mm ²)
Blue	3.9	100-500	2100-2200

Grits available:

Bonded Abrasives: F16 to F220, F240 to F1200, JIS240 to JIS4000

Coated Abrasives: P16 to P220, P240 to P2500

In accordance with the current GB/FEPA/JIS/ANSI sieve standards.