CiS ALUMINA PRODUCTS

• SPECIAL ALUMINA (Al_2O_3)	• LOW SODA ALUMINA • EASY-SINTERING ALUMINA • PLATELET(FLAKY) ALUMINA • ROUNDISH ALUMINA • HIGH PURITY ALUMINA(99.995%)
• BOEHMITE	• PSEUDO-BOEHMITE
• CATALYSTS SUPPORT	• ALUMINO SILICATE

CIS Co., Ltd. / (주)씨아이에스

106, Jungang-Ro, Jingoksandan, Oseon-dong, Gwangsan-gu, Gwangju, Korea
E-mail : webmaster@cisk.co.kr
URL : http://www.cisk.co.kr

Creative Ceramic Industry Solutions Provider

Company History

- 2012 05.08. Established CIS Co., Ltd.
  06.27. Signed MOU with Jeollanam-do Province and Jang Sung-Gun(District)
  12.20. Received Certificate of Venture Business Registration
  12.31. Completed the Jang Sung Plant (Capacity : 2,000TPA)
- 2013 01.18 Received Certificate of Research Center Registration
  03.30 Start the Production of Easy Sintering Alumina
- 2014 06.10 Received Certificate of ISO 9001 / ISO 14001
- 2015 02.11. Completed the Jang Sung Plant (Capacity : 3,000TPA)

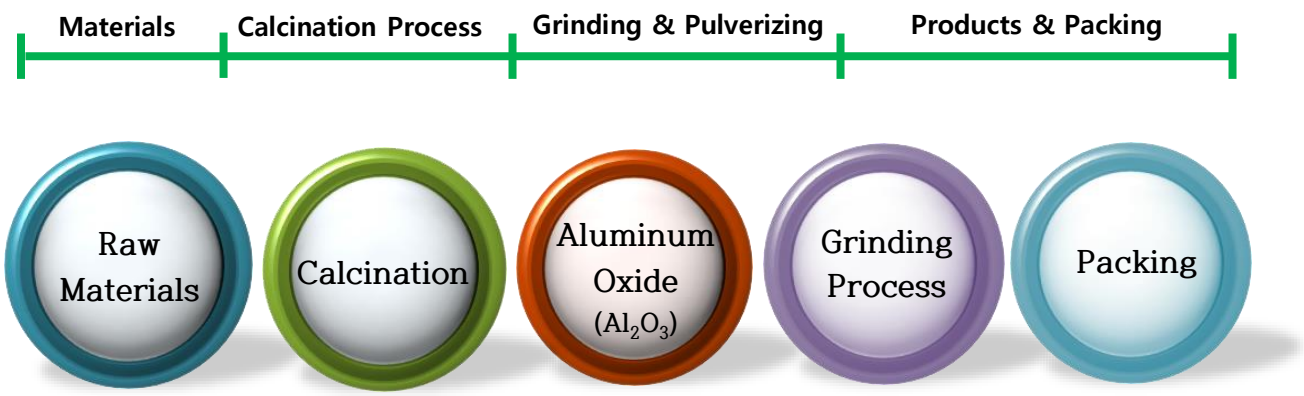
Philosophy

We will devote our human resources and technology to create superior materials and services thereby contributing to a better ceramic industry and global society

Business Principles

- We communicate
- We listen
- We will be considerate

Process



We will do our best to create and enhance future value for our clients through our tenacity and frontier sprit, and by extension, to all of our customer's clients. For your convenience, you may also contact by e-mail (webmaster@cisk.co.kr.) or visit our website at www.cisk.co.kr

Application Fields of Products and Analysis Methods

Our products, low soda and easy sintering alumina are made from roasting aluminum hydroxide in tunnel kiln and rotary kiln at high temperature to control the alpha crystal size for various special products. After calcination, the intermediate has a very low soda content which is then subjected to grinding using a ball mill and other processes to obtain fine alumina powder having easy sintering properties. It has good moldability and sinterability and also excellent surface smoothness and wear resistance. The product is suitable for making high quality ceramic products which require high dimensional accuracy, especially as IC substrate, cutting tools and special crucibles.

Application of Alumina Products

Items Application	Products									
	C-105 I	C-105IL	C-112A	C-112S	C-112M	C-112D	C-305D	C-305	C-305Y	CR-Series
IC Substrate	◎	◎	◎	◎			◎			
Cutting Tools	◎	◎	◎	◎	○	○		◎	◎	
Catalyst	○	○	○	○	○	○	◎	◎	◎	
Paint & Pigments	○	○	○	○	○	○	◎	◎	◎	◎
Crucible	◎	◎	◎	◎	○	○				
Insulating Fire Brick	○	○	○	◎	◎	◎		◎	◎	
Unshaped Refractory	○	○	○	◎	◎	◎		◎	◎	
Abrasive	○	○	○	○	○	○		◎	◎	
Medical and Dental materials	○	○	○	○						
Porcelain	◎	◎	◎	◎	◎	◎	◎	◎	◎	
Filler	○	○	○	○						◎
Others	○	○	○	○	○	○				◎

Analysis Method of Alumina Products

Chemical Composition	X-Ray Fluorescence Analysis (Al_2O_3(%)= 100 – (Fe_2O_3 + SiO_2 + Na_2O))
Particle Size Analysis (㎛)	Laser Diffraction Method (Microtrac)
Density (g/㎤)	Loosed Bulk Density, Tapped Bulk Density Methods
Specific Surface Area (㎡/g)	N2 Gas Adsorption Method (BET Method)
α–Crystal Size	Scanning Electron Microscope Method (SEM)
Fired Density (g/㎤)	Pressed at 1000kg/cm^2 & sintered at 1600℃ for 2hrs without flux addition

Extra Fine Low Soda / Easy Sintering Alumina

C-105I, C-105WC is a very fine alumina powder with small and narrow range of α-crystal size and low soda content (c.a. 0.05%). It contains 0.05 to 0.1% of MgO as a sintering additive and has a low viscosity in slurry. They are suited for precision ceramic products requiring high dimensional accuracy, higher density and strength together with high wear resistance. C-112A, C-112M, C-112D, C-305D is Low soda fine alumina, but it has good sinterability at low temperature due to variable α-crystal size and low viscosity.

Physical Properties and Chemical Analysis of Easy Sintering Alumina

Products		C-105 I	C-105IL	C-112A	C-112S	C-112M	C-112D	C-305D
Chemical Composition	Al_2O_3 (%)	99.9	99.9	99.9	99.9	99.9	99.9	99.9
	Na_2O (%)	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	SiO_2 (%)	0.02	0.02	0.02	0.02	0.02	0.02	0.02
	Fe_2O_3 (%)	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	MgO (%)	0.05	-	-	-	-	-	-
	L.O.I (%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Physical Property	Mean Particle Size * (㎛)	0.5	0.5	1.2	1.5	2.5	3.0	4.5
	Size of α-crystal (㎛)	0.3	0.3	0.3~4.0	1~2	2~4	2~3	3~4
	Specific Surface Area (m^2/g)	6.0	6.0	3.0	1.8	2.0	1.5	1.0
	Green Density ** (g/cm^3)	2.32	2.32	2.65	2.30	2.40	2.50	2.35
	Fired Density (g/cm^3)	3.94*1	3.93*1	3.80	3.70	3.70	3.70	3.70*2

Application of Products

- **IC substrate, IC package**
- **Ceramic coating of Li-ion battery separator**
- **Special Alumina Porcelain**
- **Industrial Machines**
- **Cutting Tools**
- **Materials for Refractory**
- **Catalysts or Catalyst Support**
- **Abrasives**

Packaging

- Paper Bag 25kg
- Flacon Bag 1,000kg

Extra Fine Low Soda / Easy sintering alumina

C-105I is a very fine alumina powder with small and narrow range of α-crystal size and low soda content (c.a. 0.05%). It contains 0.05 to 0.1% of MgO as a sintering additive and has a low viscosity in slurry. This is suited for precision ceramic products requiring high dimensional accuracy, higher density and strength together with high wear resistance.

Physical Properties and Chemical Analysis of Easy Sintering Alumina

Products		Unit	C-105 I
Chemical Composition	Al_2O_3	%	99.9
	Na_2O	%	0.05
	SiO_2	%	0.02
	Fe_2O_3	%	0.01
	MgO	%	0.05
	L.O.I	%	0.1
Physical Property	Mean Particle Size *	㎛	0.55
	Size of α-crystal	㎛	0.3
	Specific Surface Area	㎡/g	6.0
	Green Density **	g/cm^3	2.32
	Fired Density	g/cm^3	3.94

* Method of measurement : Laser (Microtrac)
** Molding pressure : 1000kg/cm^2, *[1] without flux : 1650℃ for 2hrs

Application of Products

- **IC substrate, IC package**
- **Special Alumina Porcelain**
- **Industrial Machines**
- **Cutting Tools**
- **Materials for Refractory**
- **Catalysts or Catalyst Support**
- **Abrasives**

Packaging

- Paper Bag 25kg
- Flacon Bag 1,000kg

Extra Fine Alumina / Easy sintering alumina

C-105I is a very fine alumina powder with small and narrow range of α-crystal size and low soda content (c.a. 0.05%). It contains 0.05 to 0.1% of MgO as a sintering additive and has a low viscosity in slurry. This is suited for precision ceramic products requiring high dimensional accuracy, higher density and strength together with high wear resistance.

Physical Properties and Chemical Analysis of Easy Sintering Alumina

Products		Unit	C-105 IJ
Chemical Composition	Al_2O_3	%	99.9
	Na_2O	%	0.05
	SiO_2	%	0.05
	Fe_2O_3	%	0.02
	MgO	%	0.05
	L.O.I	%	0.1
Physical Property	Mean Particle Size *	㎛	0.55
	Size of α-crystal	㎛	0.3
	Specific Surface Area	㎡/g	6.5
	Green Density **	g/cm^3	2.32
	Fired Density	g/cm^3	3.93*1

* Method of measurement : Laser (Microtrac)
** Molding pressure : 1000kg/cm^2, *1 without flux : 1650℃ for 2hrs

Application of Products

- **IC substrate, IC package**
- **Special Alumina Porcelain**
- **Industrial Machines**
- **Cutting Tools**
- **Materials for Refractory**
- **Catalysts or Catalyst Support**
- **Abrasives**

Packaging

- Paper Bag 25kg
- Flacon Bag 1,000kg

Extra Fine High Purity Alumina

C-105IL is a very fine alumina powder with small and narrow range of α-crystal size and low soda content (c.a. 0.05%). low viscosity in slurry. This is ceramic coating material of separator for Lithium Ion Battery

Physical Properties and Chemical Analysis of Easy Sintering Alumina

Products		Unit	C-105 IL
Chemical Composition	Al_2O_3	%	99.9
	Na_2O	%	0.05
	SiO_2	%	0.02
	Fe_2O_3	%	0.01
	L.O.I	%	0.1
Physical Property	Mean Particle Size *	㎛	0.5
	Size of α-crystal	㎛	0.3
	Specific Surface Area	㎡/g	6.0
	Green Density **	g/cm^3	2.32
	Fired Density	g/cm^3	3.94*1

* Method of measurement : Laser (Microtrac)
** Molding pressure : 1000kg/cm^2, *1 without flux : 1650℃ for 2hrs

Application of Products

- **Ceramic coating of Li-ion battery separator**
- **IC substrate, IC package**
- **Special Alumina Porcelain**
- **Industrial Machines**
- **Cutting Tools**
- **Materials for Refractory**
- **Catalysts or Catalyst Support**
- **Abrasives**

Packaging

- Paper Bag 25kg
- Flacon Bag 1,000kg

Fine Low Soda Alumina

C-112A is large bulk density during dry and wet molding, and the small linear shrinkage at the time of baking contributes to improved dimensional accuracy of molded products.
In wet molding, this alumina shows the low-viscosity fluidity.

Physical Properties and Chemical Analysis of Easy Sintering Alumina

Products		Unit	C-112A
Chemical Composition	Al_2O_3	%	99.9
	Na_2O	%	0.05
	SiO_2	%	0.02
	Fe_2O_3	%	0.01
	L.O.I	%	0.1
Physical Property	Mean Particle Size *	㎛	1.2
	Size of α-crystal	㎛	0.3 ~ 4.0
	Specific Surface Area	㎡/g	3.0
	Green Density **	g/cm^3	2.65
	Fired Density	g/cm^3	3.80

* Method of measurement : Laser (Microtrac)
** Molding pressure : 1000kg/cm^2, *[1] with flux 4% : 1650 ℃ for 2hrs

Application of Products

- **Coating material**
- **Special Alumina Porcelain**
- **Industrial Machines**
- **Cutting Tools**
- **Materials for Refractory**
- **Catalysts or Catalyst Support**
- **Abrasives**

Packaging

- Paper Bag 25kg
- Flacon Bag 1,000kg

Fine Low Soda Alumina

C-112S is widely used in electronic devices, spark plugs and mechanical parts as well as engineering ceramics.

Physical Properties and Chemical Analysis of Easy Sintering Alumina

Products		Unit	C-112S
Chemical Composition	Al_2O_3	%	99.9
	Na_2O	%	0.05
	SiO_2	%	0.02
	Fe_2O_3	%	0.01
	L.O.I	%	0.1
Physical Property	Mean Particle Size *	㎛	1.5
	Size of α-crystal	㎛	1~2
	Specific Surface Area	㎡/g	1.8
	Green Density **	g/cm^3	2.30
	Fired Density *[1]	g/cm^3	3.78

* Method of measurement : Laser (Microtrac)
** Molding pressure : 1000kg/cm^2, *[1] with flux 4% : 1650 ℃ for 2hrs

Application of Products

- **Electronic parts(IC substrates, capacitors)**
- **Spark plug**
- **Laboratory apparatus**
- **Mechanical parts**
- **Special refractories**
- **Catalyst carriers**
- **Abrasives**

Packaging

- Paper Bag 25kg
- Flacon Bag 1,000kg

Fine Low Soda Alumina

C-112M is widely used in electronic devices, spark plugs and mechanical parts as well as engineering ceramics.

Physical Properties and Chemical Analysis of Easy Sintering Alumina

Products		Unit	C-112M
Chemical Composition	Al_2O_3	%	99.9
	Na_2O	%	0.05
	SiO_2	%	0.02
	Fe_2O_3	%	0.01
	L.O.I	%	0.1
Physical Property	Mean Particle Size *	㎛	2.5
	Size of α-crystal	㎛	2~4
	Specific Surface Area	m^2/g	2.0
	Green Density **	g/cm^3	2.40
	Fired Density *[1]	g/cm^3	3.78

* Method of measurement : Laser (Microtrac)
** Molding pressure : 1000kg/cm^2, *[1] with flux 4% : 1650 ℃ for 2hrs

Application of Products

- **Electronic parts(IC substrates, capacitors)**
- **Spark plug**
- **Laboratory apparatus**
- **Mechanical parts**
- **Special refractories**
- **Catalyst carriers**
- **Abrasives**

Packaging

- Paper Bag 25kg
- Flacon Bag 1,000kg

Fine Low Soda Alumina

C-305D is widely used fillers for resin and electronic devices, spark plugs and mechanical parts as well as engineering ceramics. This alumina shows very low viscosity and very low Free Iron

Physical Properties and Chemical Analysis of Easy Sintering Alumina

Products		Unit	C-305D
Chemical Composition	Al_2O_3	%	99.9
	Na_2O	%	0.05
	SiO_2	%	0.02
	Fe_2O_3	%	0.01
	L.O.I	%	0.1
Physical Property	Mean Particle Size *	㎛	4.5
	Size of α-crystal	㎛	3~4
	Specific Surface Area	㎡/g	1.0
	Green Density **	g/cm^3	2.28
	Fired Density *[1]	g/cm^3	3.72*[1]

* Method of measurement : Laser (Microtrac)
** Molding pressure : 1000kg/cm^2, *[1] with flux 4% : 1650 ℃ for 2hrs

Application of Products

- **Electronic parts(IC substrates, PCB, MLCC etc)**
- **Spark plug**
- **Laboratory apparatus**
- **Mechanical parts**
- **Catalyst carriers**
- **Abrasives**

Packaging

- Paper Bag 25kg
- Flacon Bag 1,000kg

Fine Low Soda Alumina

C-112D is widely used fillers for resin and electronic devices, spark plugs and mechanical parts as well as engineering ceramics. This alumina shows very low viscosity and very low Free Iron

Physical Properties and Chemical Analysis of Easy Sintering Alumina

Products		Unit	C-305D
Chemical Composition	Al_2O_3	%	99.9
	Na_2O	%	0.03
	SiO_2	%	0.02
	Fe_2O_3	%	0.01
	L.O.I	%	0.1
Physical Property	Mean Particle Size *	㎛	3.0
	Size of α-crystal	㎛	2~3
	Specific Surface Area	㎡/g	1.5
	Green Density **	g/cm^3	2.50
	Fired Density *[1]	g/cm^3	3.70

* Method of measurement : Laser (Microtrac)
** Molding pressure : 1000kg/cm^2, *[1] with flux 4% : 1650 ℃ for 2hrs

Application of Products

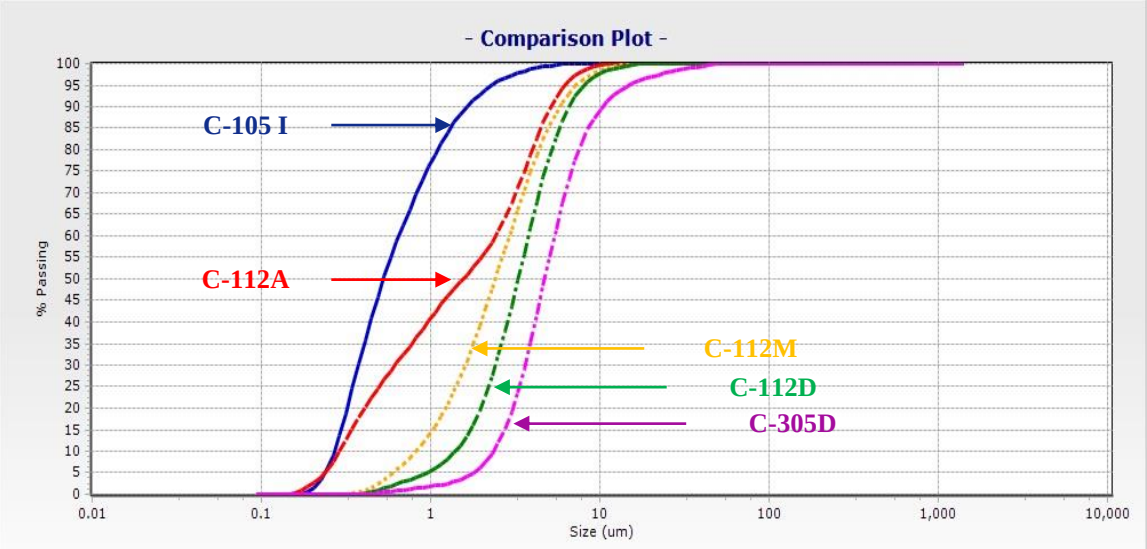
- **Paris for industrial machines**
- **Material for refractories, refractory binders and refractory mortars**
- **Material for synthetic spinel**
- **High-alumina procelain**
- **Materials for glass**
- **Abrasives for buffing**
- **Unmolding agent**

Packaging

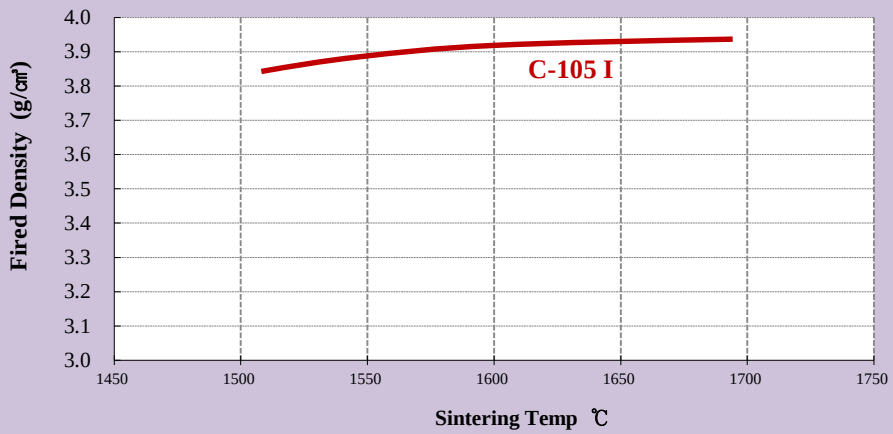
- Paper Bag 25kg
- Flacon Bag 1,000kg

Extra Fine Low Soda / Easy Sintering Alumina

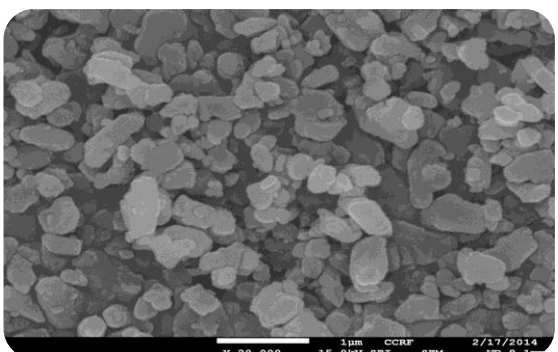
Particle Size Distribution



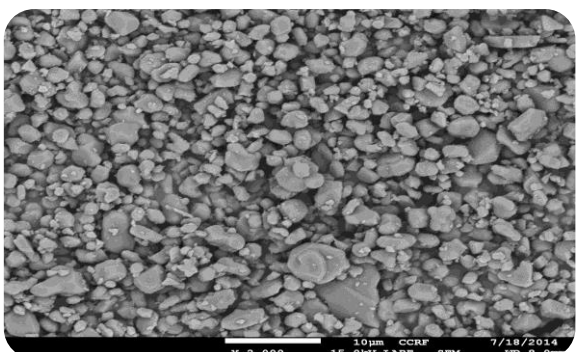
Fired Density / Sintering Temp



Scanning Electron Microscope (SEM)



C-105 I



C-112D

Normal Soda Alumina / Fine & Coarse

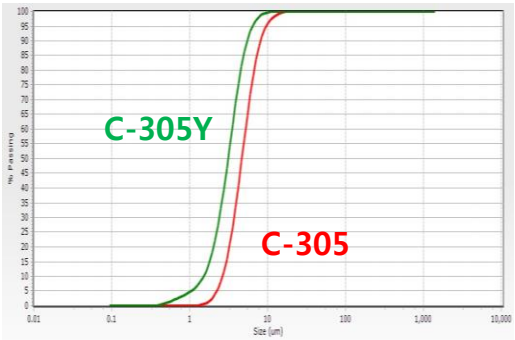
C-305, C-305Y, C-300 is Generic grade, .could be used for various applications. Fine normal soda alumina series are regular grain size. C-305 series are products with controlled particle size distribution and mean particle size.

Physical Properties and Chemical Analysis Data

Products			C-305	C-305Y	C-300
Chemical Composition	Na_2O	(%)	0.30	0.30	0.30
	SiO_2	(%)	0.02	0.02	0.02
	Fe_2O_3	(%)	0.01	0.01	0.01
	Al_2O_3	(%)	99.6	99.6	99.6
	L.O.I	(%)	0.1	0.1	0.1
Physical Property	Mean Particle Size *	(㎛)	4.5	3.0	50
	Size of α-crystal	(㎛)	3~4	2~3	3~4
	Specific Surface Area	(m^2/g)	1.2	1.9	0.5
	Green Density **	(g/cm^3)	2.32	2.32	-
	Fired Density	(g/cm^3)	3.72*1	3.72*1	-

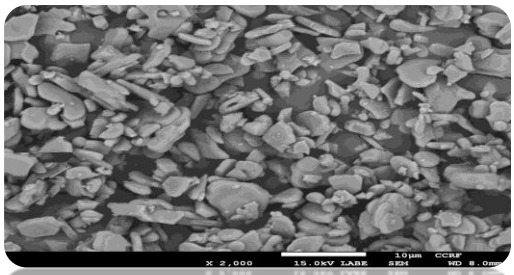
* Method of measurement : Laser (Microtrac)
** Molding pressure : 1000kg/cm^2, *with flux 4% : 1600 ℃ for 2hrs

Particle Size Distribution(PSD)

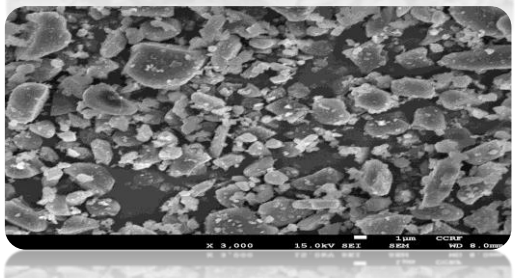


Scanning Electron Microscope (SEM)

C-305



C-305Y



Application of Products

- Material for Industrial machines
- Refractories binder, mortars
- Spinel
- Material for glass
- Alumina ceramics
- Abrasives, Polisher

Packaging

- Paper Bag 25kg
- Flacon Bag 1,000kg

Normal Soda Alumina

C-305 is fine alumina with its excellent sinterability and can be widely used for refractories and porecelains.

Physical Properties and Chemical Analysis of Easy Sintering Alumina

Products		Unit	C-305
Chemical Composition	Al_2O_3	%	99.7
	Na_2O	%	0.3
	SiO_2	%	0.02
	Fe_2O_3	%	0.01
	L.O.I	%	0.1
Physical Property	Mean Particle Size *	㎛	4.5
	Size of α-crystal	㎛	3~4
	Specific Surface Area	㎡/g	1.2
	Green Density **	g/cm^3	2.28
	Fired Density *[1]	g/cm^3	3.72*[1]

* Method of measurement : Laser (Microtrac)
** Molding pressure : 1000kg/cm^2, *[1] with flux 4% : 1650 ℃ for 2hrs

Application of Products

- **Paris for industrial machines**
- **Material for refractories, refractory binders and refractory mortars**
- **Material for synthetic spinel**
- **High-alumina procelain**
- **Materials for glass**
- **Abrasives for buffing**
- **Unmolding agent**

Packaging

- Paper Bag 25kg
- Flacon Bag 1,000kg

Normal Soda Alumina

C-305Y is fine alumina with its excellent sinterability and can be widely used for refractories and porecelains.

Physical Properties and Chemical Analysis of Easy Sintering Alumina

Products		Unit	C-305Y
Chemical Composition	Al_2O_3	%	99.9
	Na_2O	%	0.3
	SiO_2	%	0.02
	Fe_2O_3	%	0.01
	L.O.I	%	0.1
Physical Property	Mean Particle Size *	㎛	3.0
	Size of α-crystal	㎛	2 ~ 3
	Specific Surface Area	㎡/g	1.9
	Green Density **	g/cm^3	2.32
	Fired Density *[1]	g/cm^3	3.72*[1]

* Method of measurement : Laser (Microtrac)
** Molding pressure : 1000kg/cm^2, *[1] with flux 4% : 1650 ℃ for 2hrs

Application of Products

- **Paris for industrial machines**
- **Material for refractories, refractory binders and refractory mortars**
- **Material for synthetic spinel**
- **High-alumina procelain**
- **Materials for glass**
- **Abrasives for buffing**
- **Unmolding agent**

Packaging

- Paper Bag 25kg
- Flacon Bag 1,000kg

Spherical Alumina (CR-Series)

CR - Series has the proper features for high filling into resin because its spherical shape. It is has a sharp particle size distribution, It is especially suitable for applications which require high fluidity. High filling, High Purity, Low abrasion, High fluidity

Physical Properties and Chemical Analysis Data

Products			CR-05	CR-25	CR-45	CR-60	CR-70	CR-90
Chemical Composition	Na_2O	%	0.05	0.05	0.05	0.05	0.05	0.05
	SiO_2	%	0.02	0.02	0.02	0.02	0.02	0.02
	Fe_2O_3	%	0.01	0.01	0.01	0.01	0.01	0.01
	Al_2O_3	%	99.8	99.8	99.9	99.9	99.9	99.9
	L.O.I **	%	0.1	0.1	0.1	0.1	0.1	0.1
Physical Property	Mean Particle Size ***	㎛	5.0	25	45	60	70	90
	Specific Surface Area	㎡/g	0.5	0.5	0.5	0.5	0.5	0.5
	Electric Conductivity※	㎲/cm^3	25~60	25~60	25~60	25~60	25~60	25~60

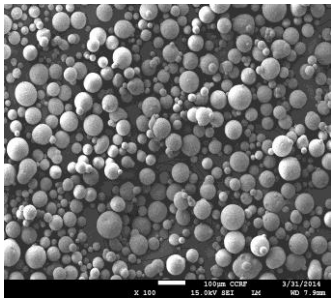
• Warm water extraction(95℃, 5hr)** Loss On Ignition *** Method of measurement : Laser (Microtrac)
※ 20g/200ml purified water

Application of Products

- Thermal conductive filler
- Grinding and Polishing
- Refractory
- Release powder

Packaging

- Paper Bag 25kg



Spherical Alumina (CR-Series)

CR - 45 is the proper features for high filling into resin because its spherical shape. It is has a sharp particle size distribution, It is especially suitable for applications which require high fluidity. High filling, High Purity, Low abrasion, High fluidity

Physical Properties and Chemical Analysis of Easy Sintering Alumina

Products		Unit	CR-45
Chemical Composition	Al_2O_3	%	99.9
	Na_2O	%	0.05
	SiO_2	%	0.02
	Fe_2O_3	%	0.01
	L.O.I	%	0.1
Physical Property	Mean Particle Size *	㎛	45
	Specific Surface Area	㎡/g	0.5
	Electric Conductivity※	㎲/cm^3	25~60

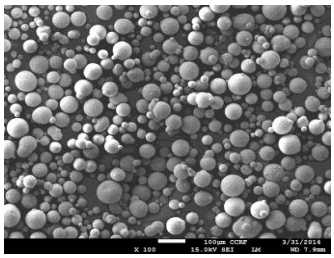
• Warm water extraction(95℃, 5hr)** Loss On Ignition *** Method of measurement : Laser (Microtrac)
※ 20g/200ml purified water

Application of Products

- Thermal conductive filler
- Grinding and Polishing
- Refractory
- Release powder

Packaging

- Paper Bag 25kg



Spherical Alumina (CR-Series)

CR - 60 is the proper features for high filling into resin because its spherical shape.
It is has a sharp particle size distribution, It is especially suitable for applications which require high fluidity. High filling, High Purity, Low abrasion, High fluidity

Physical Properties and Chemical Analysis of Easy Sintering Alumina

Products		Unit	CR-60
Chemical Composition	Al_2O_3	%	99.9
	Na_2O	%	0.05
	SiO_2	%	0.02
	Fe_2O_3	%	0.01
	L.O.I	%	0.1
Physical Property	Mean Particle Size *	㎛	60
	Specific Surface Area	㎡/g	0.5
	Electric Conductivity※	㎲/cm^3	25~60

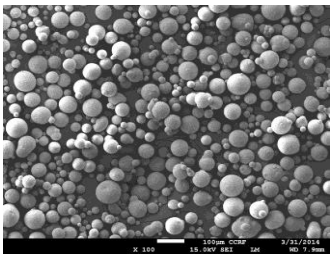
• Warm water extraction(95℃, 5hr)** Loss On Ignition *** Method of measurement : Laser (Microtrac)
※ 20g/200ml purified water

Application of Products

- Thermal conductive filler
- Grinding and Polishing
- Refractory
- Release powder

Packaging

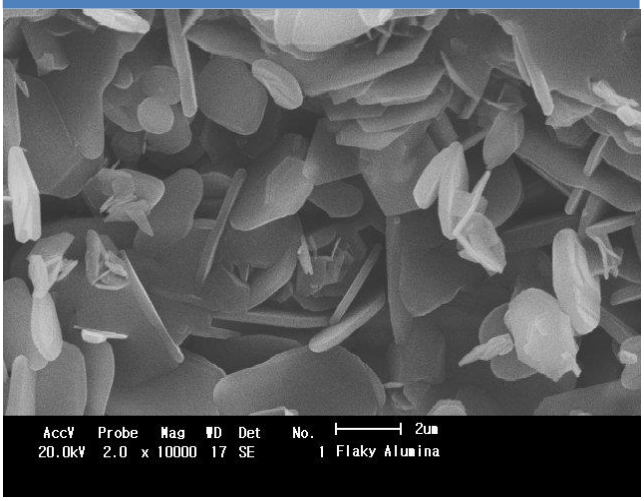
- Paper Bag 25kg



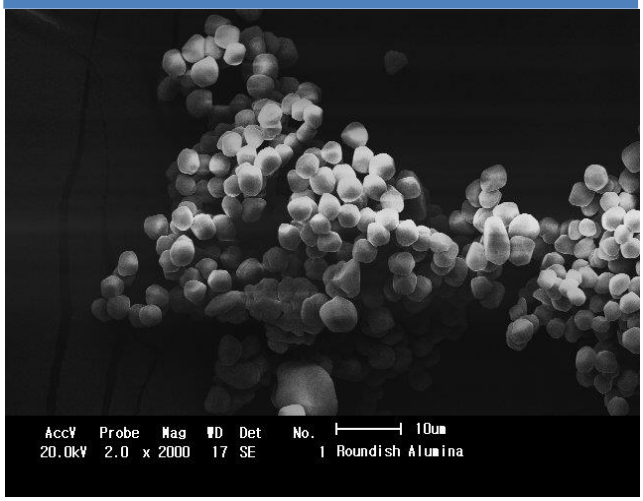
Special Alumina Products

- **PLATELET(FLAKY) ALUMINA** is an α-alumina having aspect ratio of 20-50 and 2-5μm average particle size. It can be used as filling materials for resin and paint.
- **ROUNDISH ALUMINA** is an ultra fine alumina powder which has 0.2 – 1.0μm particle size and it can be provided to α-alumina and r-alumina type, respectively. It can be used as filling materials for resin, paper and paint.
- **PSEUDO-BOEMITE** is aggregated material having <1μm (D_{50}: 10-20nm) particle size and it will be used as a precursor and filler for various applications.
- **ALUMINO-SILICATE** support is made from an alumina and silica mixture having average 2-5mm particle size, depending on the user's requirement. It can be used for making catalytic support for organic chemical processing. However, all of our products will be provided according to user's requirements are not limited to any specification or special standard

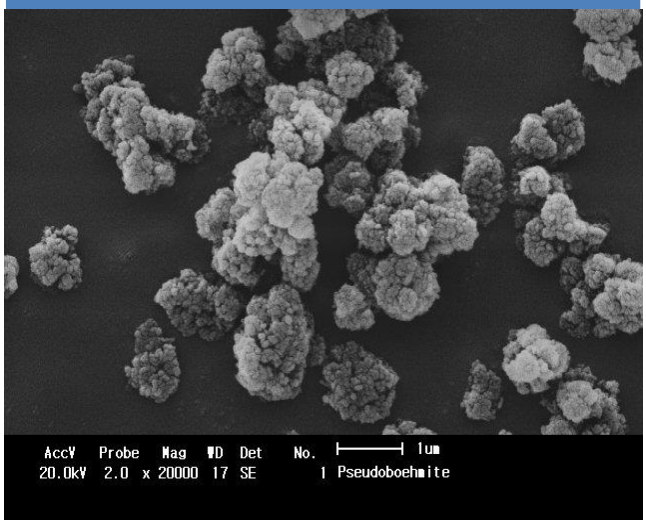
• PLATELET(FLAKY) ALUMINA



• ROUNDISH ALUMINA



• PSEUDO-BOEHMITE



• ALUMINO SILICATE

PATENT & CERTIFICATE

Certificate
of Registration

This is to certify that :

CIS CO., LTD.

186-10, Hwangnyong-ro, Hwangnyong-myeon, Jangseong-gun, Jeollanam-do, Korea

Has been assessed by International Certification Registrar Ltd., in respect of their Quality Management Systems and found to comply with

ISO 9001:2008

Approval is hereby granted for registration providing the rules and conditions relating to certification are observed at all times.

Certification Scope

Development and Manufacture of
Alumina

Certificate Issue Date : 10th June 2014
Expiration Date : 09th June 2017
Certificate No. : Q196214

The Seal of ICR Limited was here to affixed in the presence of :

President

International Certification ICR ISO 9001 REGISTERED FIRM Registrar Ltd.

IAF ANAB

Certificate
of Registration

This is to certify that :

CIS CO., LTD.

186-10, Hwangnyong-ro, Hwangnyong-myeon, Jangseong-gun, Jeollanam-do, Korea

Has been assessed by International Certification Registrar Ltd., in respect of their Environmental Management Systems and found to comply with

ISO 14001:2004

Approval is hereby granted for registration providing the rules and conditions relating to certification are observed at all times.

Certification Scope

Development and Manufacture of
Alumina

Certificate Issue Date : 10th June 2014
Expiration Date : 09th June 2017
Certificate No. : E096314

The Seal of ICR Limited was here to affixed in the presence of :

President

International Certification ICR ISO 14001 REGISTERED FIRM Registrar Ltd.

IAF ANAB

특 허 증
CERTIFICATE OF PATENT

특 허 제 10-1442193 호 (PATENT NUMBER)

출원번호 (APPLICATION NUMBER) 제 2013-0002525 호
출 원 일 (FILING DATE:YY/MM/DD) 2013년 01월 09일
등 록 일 (REGISTRATION DATE:YY/MM/DD) 2014년 09월 12일

발명의명칭 (TITLE OF THE INVENTION)
초미립 이소결성 알루미나의 제조 방법

특허권자 (PATENTEE)
주식회사 씨아이에스(200111-0******)
전라남도 장성군 황룡면 황룡로 186-10

발명자 (INVENTOR)
등록사항란에 기재

위의 발명은 「특허법」에 따라 특허등록원부에 등록되었음을 증명합니다.
(THIS IS TO CERTIFY THAT THE PATENT IS REGISTERED ON THE REGISTER OF THE KOREAN INTELLECTUAL PROPERTY OFFICE.)

2014년 09월 12일

특허청장 김 영 귀
COMMISSIONER, THE KOREAN INTELLECTUAL PROPERTY OFFICE

연차등록료는 2017년부터 매년 09월 12일까지 납부하여야 하며, 등록원부로 권리관계를 확인바랍니다.

특 허 증
CERTIFICATE OF PATENT

특 허 제 10-1454881 호 (PATENT NUMBER)

출원번호 (APPLICATION NUMBER) 제 2014-0016084 호
출 원 일 (FILING DATE:YY/MM/DD) 2014년 02월 12일
등 록 일 (REGISTRATION DATE:YY/MM/DD) 2014년 10월 20일

발명의명칭 (TITLE OF THE INVENTION)
초고순도 알루미나의 제조방법

특허권자 (PATENTEE)
주식회사 씨아이에스(200111-0******)
전라남도 장성군 황룡면 황룡로 186-10

발명자 (INVENTOR)
등록사항란에 기재

위의 발명은 「특허법」에 따라 특허등록원부에 등록되었음을 증명합니다.
(THIS IS TO CERTIFY THAT THE PATENT IS REGISTERED ON THE REGISTER OF THE KOREAN INTELLECTUAL PROPERTY OFFICE.)

2014년 10월 20일

특허청장 김 영 귀
COMMISSIONER, THE KOREAN INTELLECTUAL PROPERTY OFFICE

연차등록료는 2017년부터 매년 10월 20일까지 납부하여야 하며, 등록원부로 권리관계를 확인바랍니다.

APPLICATION

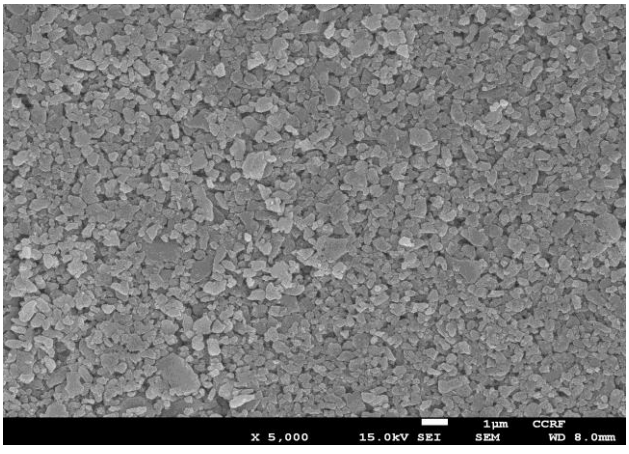
Anti-Plasma Materials

Domes, Chambers

Polishing Plates

Handling Arms

출처 : 교세라



Li-ion battery separator (Ceramic coating powder)

Contact us

CIS Co., Ltd. / (주)씨아이에스

106, Jungang-Ro, Jingoksandan, Oseon-dong, Gwangsan-gu, Gwangju, Korea

Tel : +82-62-714-1320
Fax : +82-62-714-1321
E-mail : webmaster@cisk.co.kr
URL : http://www.cisk.co.kr

Sales Manager
Managing Direct Han, Dong Gil
Tel : +82-10-2525-2392
E-mail : ewh59@naver.com