Brief Company History (KC沿革)

1988. 08	Establishment of Daejoo development Corporation
1989. 06	Establishment of Gooweol Steel Corporation
1992 .05	Establishment of Samyang Industry Corporation
1996. 08	Establishment of KD Corporation
1997. 07	Completion of manufacturing factory for E-rail in Shinhwa Industrial Complex
1999. 09	Change company name to Daejoo Heavy Industries Co., Ltd.
2000. 04	Establishment of KD General Construction Corporation
2001. 05	Completion of manufacturing factory for Stainless Steel Pipe in GongJoo
2001. 03	Establishment of KC Corporation
2002. 02	Establishment of ShenYang Gooweol Factory in China
2003. 02	Establishment of QingDao branch office in China
2004. 09	Declaration of POWER VISION 2010
2005. 11	Acquisition of Pohang 1 Reinforcing Bar Factory from Hyundai Steel
2006. 10	Quality certification for Excellent Improvement of Productivity (Ministry of Knowledge Economy)
2006. 12	Development of Super fine ATH
2007. 01	Selected as a Technology Improvement Company (Daejoo ENT)
2007. 10	Registerde as a company specializing in Renewable Energy (Daejoo ENT)
2007. 12	Establishment Vietnam Office of Daejoo Heavy Industries Corp.
2008. 10	Establishment of KA (Korea Alumina)
2012. 02	Development of Boehmite
2012. 08	Declaration of POWER VISION 2020
2014. 03	Build Additional Factories of Super Fine ATH

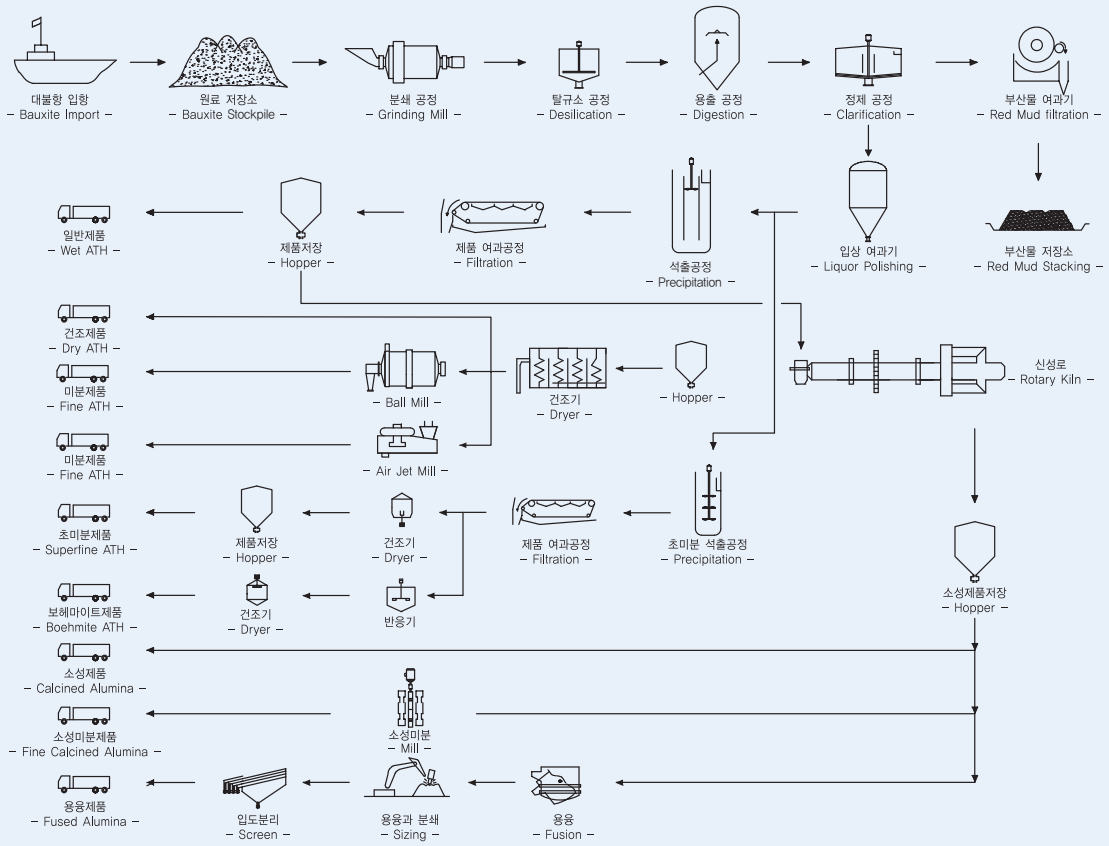
Patents (特許現況)

- Manufacturing technique of aluminum hydroxide with high grade of whiteness
- Manufacturing technique of alumina with low caustic soda.
- Manufacturing of hematite oxide with low caustic soda using by-products by Bayer process
- Method for filtration of floating solid matter from sodium aluminate
- Technique manufacturing porosity alkaline hematite material and water treatment method using it
- Inorganic supercrete on the ground of grouting and the manufacturing method
- Manufacturing technique of super fine aluminum hydroxide
- Manufacturing technique of organized super fine aluminum hydroxide
- Manufacturing technique of low caustic soda boehmite by hydrothermal synthesis
- Manufacturing technique of aluminum nitride by using a slurry of boehmite
- Manufacturing technique of clay sintered body containing red mud
- Manufacturing technique of aluminum nitride by using a slurry of wet mixed boehmit

Commendations (受賞現況)

- SMBA Award (2004, Small and Medium Business Adminstration)
- Silver-Tower Industrial Award and '30 Million US Dollar Export Award (2004.KITA)
- Yeongam Export Award (2004. Yeongam-Gun)
- Mokpo Commerce & Industry Award (2005. Mokpo City Hall)
- Diligent Taxpayer Award (2006. National Emergency Management Agency)
- Award from MEMA (2006. National Emergency Management Agency)
- Korea-Japan Industrial Technology Award (2009. Ministry of Knowledge Economy)
- Best Trader ward of Korea (2009. Ministry of Knowledge Economy)
- Certification for Korean Hidden Champion Initiative (2012. The Export-Import)
- Labor and Management Culture Grand Prize Award (2012. Prime Minister)
- Stone-Tower Industrial Award (2013. Labor and Management Win-win Cooperation Field, Ministry of Safety Administration)
- Certification for Small But Strong Businesses Award (2014. Kwangju Regional Employment and Labor Administration)
- Designation of World Class 300 Company Certificate (2015. Korea Institute for Advancement of Technology)

Manufacturing Process (製造工程)



Production Capacity (生産規模)

KC Part

ALUMINUM HYDROXIDE ATH (水酸化アルミニウム)	(MT/Yr)
Wet ATH (一般製品)	130,000 MT/Yr
Dry ATH (乾燥製品)	
Fine ATH (微粉製品)	24,000 MT/Yr
SuperFine ATH (超微粉製品)	36,000 MT/Yr
BOEHMITE	
Boehmite	1,000 MT/Yr
ALUMINA (アルミナ)	
Calcined Alumina for FA (電融用焼成製品)	20,000 MT/Yr
Calcined Alumina for SA (焼結用焼成製品)	20,000 MT/Yr
Fused Alumina (電融製品)	15,000 MT/Yr
Fine Calcined Alumina (焼成微粉製品)	8,000 MT/Yr
TOTAL (合計)	**253,000** MT/Yr
ALUMINUM HYDROXIDE base (水酸化アルミニウム基準)	**270,000** MT/Yr

KA Part

KSA Series, Calcined Alumina (焼結用焼成アルミナ)	22,000 MT/Yr
KLS Series, Low Soda Calcined Alumina (低ソーダアルミナ)	15,000 MT/Yr
KES Series, SuperFine Calcined Alumina (超微粒機能性アルミナ)	20,000 MT/Yr
TOTAL (合計)	57,000 MT/Yr

Aluminum Hydroxide (ATH)(水酸化アルミニウム)

Aluminum Hydroxide obtained from bauxite by the Bayer process has the chemical formula $Al(OH)_3$ or $Al_2O_3 \cdot 3H_2O$, It has very high reactivity to acid and alkali. Since it is stable up to approximately 200°C and absorbs much of the heat, it is widely used for flame retardants. It is also used in a wide range of industrial application because of its free moisture content and standard particle size.

ボーキサイトを原料とし, バイヤー法により製造される水酸化アルミニウムは化学式$Al(OH)_3$または$Al_2O_3 \cdot 3H_2O$で表されます. 酸·アルカリに対する反応性や溶解性がよく熱的に200℃まで安定ですが, それ以上の温度では結晶水が脱水しながら多くの熱を吸収するので難燃材として広く使われます. 自由水分の含量や平均粒子経を調整し, 多様なタイプの製品を生産することになるので色々な重化学分野に適用できます.

보크사이트를 원료로 BAYER 공법을 이용하여 제조한 수산화알루미늄은 화학식으로 $Al(OH)_3$ 또는 $Al_2O_3 \cdot 3H_2O$로 표시합니다. 산, 알칼리에 쉽게 반응하여 용해하고 열적으로 200°C 까지 안정하며 더 높은 온도에서 결정수가 탈수하면서 많은 양의 열을 흡수하므로 난연재로 널리 사용됩니다. 자유수분 함량과 평균입도에 따라 여러 가지 형태의 제품을 다양하게 생산하므로 다양한 중화학공업 분야에 적용할 수 있습니다.

General Physical Properties

Mineral name	Gibbsite
Specific gravity	2.42
Refractive index	1.57
Mohs hardness	3
Dehydration starting temp'	approx. 200°C
Endothermic heat	470cal/g

Item	Name	Dp50	Characteristics	Use
Wet ATH	WH-50	50±10㎛	High reaction with acid and alkali, High solubility, Free Moisture 10%.	Aluminum sulfate, Sodium aluminate Poly aluminum chloride, Zeolite
Dry · fine ATH	DH-100	100±10㎛	High reaction with acid and alkali, High fluidity, Low dust rate.	Latex compound, Catalyst carrier, Flame-retardant filler, Glass fiber
	DH-50P	50±10㎛		
	SH-8K	8±1㎛	High reactive, High purity, High fluidity, Low viscosity.	
	SH-15K	15±3㎛		
	SH-25B	25±3㎛		
	SH-8R	8±1㎛		
	KH-17R	17±3㎛		
Superfine ATH	KH-101LP	1.7~2.5㎛	Highly fine grain, High whiteness Low electrical conductivity	Flame-retardant filler, Pigment Catalyst carrier, Electrical wire coating
	KH-101LC	1.2~1.7㎛		
	KH-101	0.8~1.2㎛	Highly fine grain, High whiteness	
	KH-101HRT	1.5~2.0㎛	Highly fine grain, High whiteness	

Wet ATH (一般製品), Dry ATH (乾燥製品)

Characteristics

WH-50 is a wet hydrate aluminum with three molecules of crystal water and free moisture. It has a very high reactivity to acid and alkali.
DH-65, DH-50P is manufactured by dehydrating free moisture from surface of WH-50. Its reactivity and solubility are the same as WH-50 but its state is dry, so the handling is easier and the mixing with an additive is simpler.

WH-50は自由水分を含んだ水酸化アルミニウムで酸·アルカリに対する反応性や溶解性が良いです.
DH-65, DH-50PはWH-50表面の自由水分だけを除去した水酸化アルミニウムで, 酸·アルカリに対する反応性や溶解性はWH-50と同じぐらいでありながら,ドライ品なので取り扱いやすく添加剤の混合などが簡単です.

WH-50은 3분자의 결정수와 자유수분을 함유한 수산화알루미늄으로 산, 알칼리에 쉽게 반응하여 용해합니다. DH-65, DH-50P은 WH-50 표면의 자유수분만을 제거한 수산화알루미늄으로 산, 알칼리에 대한 반응성이나 용해성은 WH-50과 동일하면서도 건조상태라 취급이 용이하고 첨가제 혼합 등이 간단합니다.

Specifications

Product Name		WH-50	DH-50P	DH-100
Form		Wet Powder	Dry Powder	Dry Powder
Chemical Properties	$Al(OH)_3$	MIN 99.6	MIN 99.0	MIN 99.0
	Na_2O (%)	MAX 0.25	MAX 0.40	MAX 0.40
	Fe_2O_3	MAX 0.015	MAX 0.012	MAX 0.012
	SiO_2 (%)	MAX 0.02	MAX 0.010	MAX 0.010
	Loss on Ignition (%)	34.5 ± 0.1	34.5 ± 0.1	34.5 ± 0.1
	Leachable Na_2O (%)	MAX 0.03	MAX 0.03	MAX 0.03
Physical Properties	Moisture (%)	MAX 10.0	MAX 0.3	MAX 0.3
	Dp50 (㎛)	55 ± 10	50 ± 10	100 ± 10
	Whiteness	MIN 85	MIN 90	MIN 90
	Solubility to Acid (%)	MIN 85	-	-
	pH	9.3 ± 0.3	9.5 ± 0.5	9.5 ± 0.5

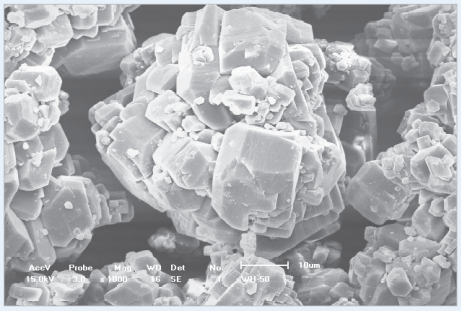
Note : Chemical compositions are for dried materials at 105°C, in percent.

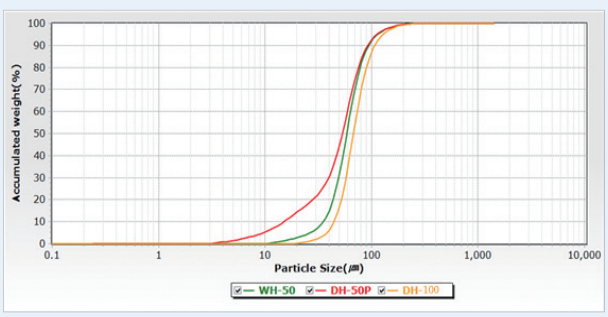
Uses

(1) Aluminum sulfate, Polyaluminum chloride, Sodium aluminate, Aluminum chloride, Aluminum salt
(2) Synthetic mullite, Refractory
(3) Fine Ceramic, Pigment
(4) Glass, Glass Fiber
(5) Flame Retardant for latex compounds and plastic
(6) Catalyst Carrier

Packaging

(1) Bulk
(2) Flexible Container Bag (1,000kg)
(3) Paper Bag (25kg)





Fine ATH (微粉製品)

Characteristics

SH-8K, SH-15K, SH-25B, KH-8R, KH-17R are fine aluminum hydroxide made through an additional process per the customer's request. They are used for flame retardant fillers because of their low viscosity. Being stable to 200℃, the are applied to flame retardant fillers for latex compounds, PVC, etc. As water molecules are emitted without generating toxic gas and dust, the resistance to electrical arcing and tracking is excellent and they are widely used for electrical insulating materials.

SH-8K, SH-15K, SH-25B, KH-8R, KH-17R はユーザーの要求により,
別途の工程で製造された水酸化アルミニウムの微粉製品で粘度が低いので充填剤として使われます.
熱的に200℃まで安定していることからゴム, プラスチックの難燃材として使われます.
難燃材として使われる場合, 温度が上昇するにつれ水分子だけが吹き出ます. 有毒性ガスや煤煙は出ません.
また耐アーク・耐トラッキング性が優れていることから電気絶縁材として広く使われます.

SH-8K, SH-15K, SH-25B, KH-8R, KH-17R는 고객의 요구에 따라 별도의 공정을 거친 수산화알루미늄 미분제품으로 점도가 낮아 충진재로 사용합니다. 열적으로 200℃까지 안정하므로 고무, 플라스틱의 난연재로 사용합니다. 난연재로 사용할 경우 온도가 상승하면서 물분자만 방출하므로 유독성 가스나 매연이 발생하지 않고, 내아킹성과 내트래킹성이 우수하여 전기 절연재로 널리 사용합니다.

Specifications

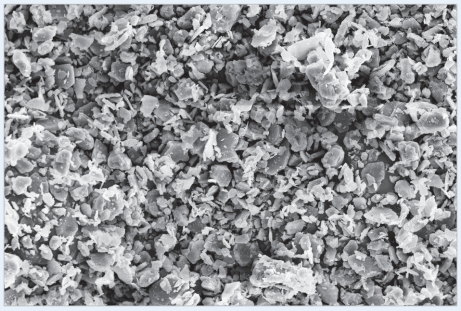
Product Name			SH-8K	SH-15K	SH-25B	KH-8R	KH-17R
Chemical Properties	Moisture	%	Max 0.3	Max 0.3	Max 0.3	Max 0.3	Max 0.3
	$Al(OH)_3$	%	Min 99.0	Min 99.0	Min 99.0	Min 99.0	Min 99.0
	Na_2O	%	Max 0.40	Max 0.40	Max 0.40	Max 0.40	Max 0.40
	Fe_2O_3	%	Max 0.012	Max 0.012	Max 0.012	Max 0.012	Max 0.012
	SiO_2	%	Max 0.010	Max 0.010	Max 0.010	Max 0.010	Max 0.010
	Loss on Ignition	%	34.5 ± 0.1	34.5 ± 0.1	34.5 ± 0.1	34.5 ± 0.1	34.5 ± 0.1
	LeachableNa_2O	%	Max 0.03	Max 0.03	Max 0.03	Max 0.03	Max 0.03
Physical Properties	Dp50	μm	8 ± 1	15 ± 3	25 ± 3	8 ± 1	17 ± 3
	Whiteness		Min 90	Min 90	Min 90	Min 90	Min 90
	DOP oil absorption	mℓ/100g	30 ± 3	25 ± 3	19 ± 3	22 ± 3	20 ± 3
	pH		9.5 ± 0.5	9.5 ± 0.5	9.5 ± 0.5	9.5 ± 0.5	9.5 ± 0.5

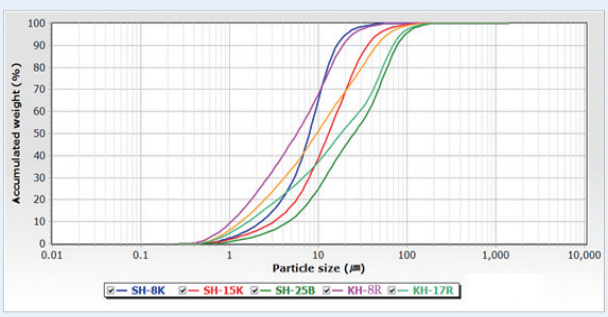
Uses

(1) Flame retardant fillers for latex compounds, PVC, Epoxy resin, Unsaturated polyester resin
(2) Paper coating filler
(3) Catalyst carrier
(4) China ceramic glaze
(5) Polyaluminum chloride, Sodium aluminate, Aluminum salt

Packaging

(1) Flexible Container Bag (1,000kg)
(2) Paper Bag (20kg, 25kg)





Super fine ATH (超微粉製品)

Characteristics

KH-108, KH-101, KH-101LC, KH-101LP, KH-103, KH-101HRT are super fine aluminum hydroxide made through an additional process per the customer's request. They have high whiteness, low electrical conductivity and low oil absorption. As water molecules are emitted without generating dust and toxic gas, the resistance to electrical arcing and tracking is excellent and they are widely used for electrical insulating materials.

KH-108, KH-101, KH-101LC, KH-101LP, KH-103, KH-101HRT ユーザーの要求により別途の工程で製造した水酸化アルミニウムの超微粉製品です. 高白色度, 低電気伝導度, 低吸油量の特徴があります. 難燃材として使われる場合, 温度が上昇するにつれ水分子だけが吹き出ます. 有毒性ガスや煤煙は出ません. また耐アーク·耐トラッキング性が優れていることから電気絶縁材として広く使われます.

KH-108, KH-101, KH-101LC, KH-101LP, KH-103, KH-101HRT은 고객의 요구에 따라 별도의 공정으로 제조한 수산화알루미늄 초미분제품으로 백색도가 높고 전기전도도가 낮으며 흡유량이 낮습니다. 난연재로 사용할 경우 온도가 상승하면서 물분자만 방출하므로 유독성 가스나 매연이 발생하지 않고, 내아킹성과 내트래킹성이 우수하여 전기 절연재로 널리 사용합니다.

Specifications

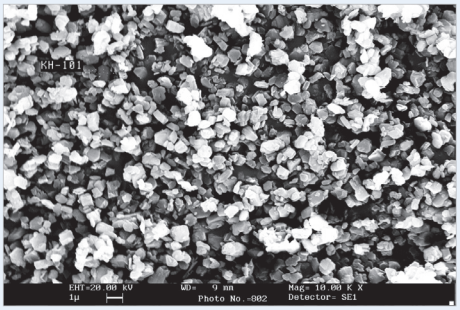
Product Name			KH-108	KH-101	KH-101LC	KH-101LP	KH-103	KH-101HRT
Chemical Properties	Moisture	%	MAX 0.50	MAX 0.40	MAX 0.40	MAX 0.40	MAX 0.40	Max 0.35
	$Al(OH)_3$	%	MIN 99.4	MIN 99.4	MIN 99.4	MIN 99.4	MIN 99.4	Min 99.7
	Na_2O	%	MAX 0.40	MAX 0.45	MAX 0.45	MAX 0.45	MAX 0.45	Max 0.15
	Fe_2O_3	%	MAX 0.015	MAX 0.02	MAX 0.02	MAX 0.02	MAX 0.02	Max 0.02
	SiO_2	%	MAX 0.02	MAX 0.02	MAX 0.02	MAX 0.02	MAX 0.02	Max 0.02
	Loss On Ignition	%	34.5 ± 0.1	34.5 ± 0.1	34.5 ± 0.1	34.5 ± 0.1	34.5 ± 0.1	34.5 ± 0.1
	LeachableNa_2O	%	MAX 0.013	MAX 0.05	MAX 0.05	MAX 0.05	MAX 0.05	Max 0.015
Physical Properties	Dp10	μm	-	-	-	-	Min 0.8	-
	Dp50	μm	0.6 ~ 0.8	0.8 ~ 1.2	1.2 ~ 1.7	1.7 ~ 2.5	2.5 ~ 3.5	1.5 ~ 2.0
	+45μm	%	MAX 0.02	MAX 0.02	MAX 0.02	MAX 0.02	MAX 0.02	Max 0.01
	Whiteness		MIN 95	MIN 96	MIN 96	MIN 96	MIN 96	Min 96
	SSA	m^2/g	6~10	5~9	3~6	2~4	1~3	2~4
	DOP Oil Absorption	ml/100g	-	45 ~ 55	40 ~ 50	35 ~ 45	30 ~ 40	30 ~ 40
	Electric Conductivity	μs/cm	-	-	MAX 60	MAX 60	MAX 60	Max 30
	ThermalStability (Temp.at2%weightloss,5℃/min)	℃	-					≈255

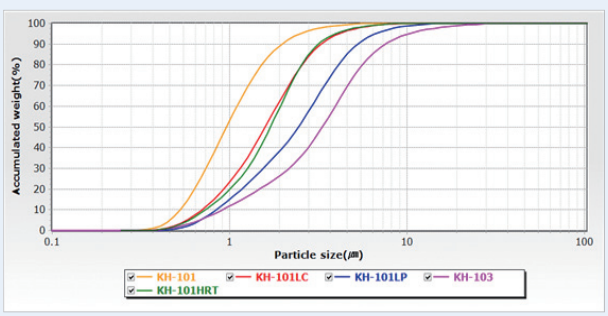
Uses

(1) Flame retardant fillers for latex compounds, PVC, Epoxy resin, Unsaturated polyester resin
(2) Paper coating filler
(3) Catalyst carrier
(4) Flame retardant fillers for rubbers, Electrical wire coating
(5) Pharmaceuticals, Tooth paste

Packaging

(1) Flexible Container Bag (1,000kg)
(2) Paper Bag (25kg)





Boehmite

Characteristics

KB-01D is super fine ATH processed through a special process per the End-user's needs. It is used as a Halogen free flame retandant (eco-friendly for high process temperature). Also, it doesn't generate toxic gas and exhaust gas, its resistance to electrical arcing and tracking is excellent. It can be specifically used for printed-circuit boards.

ベーマイト 製品である KB-01Dはユーザーの要求により、超微粉製品を特殊な工程で加工したものです。
高温加工の環境にやさしいハロゲンフリー難 燃材として使われ、毒性ガスや煤煙が発生せず、
耐アークと耐トラッキング性が優れています。 特に印刷回路基板に使われます。

Boehmite 제품인 KB-01D 제품은 고객의 요구에 따라 초미분제품을 특수한 공정으로 가공한, 고온의 가공 온도의 환경 친화적인 할로겐 프리난연제로 사용되며 유독성 가스나 매연이 발생하지 않고 내아킹성과 내트래킹성이 우수합니다. 특히 인쇄 회로기판에 적용 가능합니다.

Specifications

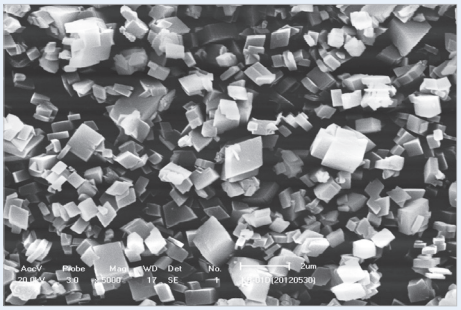
Product Name		KB-01D
Form		Dry Powder
Chemical Properties	Na_2O (%)	MAX 0.15
	Fe_2O_3 (%)	MAX 0.01
	Loss On Ignition (%)	17 ± 0.5
Physical Properties	Moisture (%)	MAX 0.35
	Dp50 (㎛)	2 ± 1
	+45㎛ (%, Sieve Analysis)	MAX 0.01

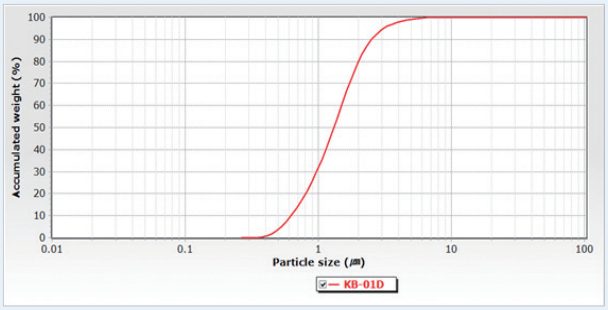
Uses

(1) Flame retardant fillers for latex compounds, PVC, epoxy resin, unsaturated polyester resin
(2) Flame retardant fillers for electrical wire coating
(3) Raw materials for printed circuit boards

Packaging

(1) Flexible Container Bag (385kg)





Calcined Alumina (CA)(焼成アルミナ)

Alumina, a white crystallized powder, is made by calcining aluminum hydroxide and the chemical formula is Al_2O_3. It is widely used typical α-Alumina (Corundum). It is commonly used for flame retardants, insulating materials, spark plugs, IC boards, abrasives, brighteners, etc. because of its high melting temperature, high mohs hardness, high electricity resistability, stable reactivity to acid and alkali.

白色の結晶性粉末であるアルミナは水酸化アルミニウムを焼成して製造される一番安定で広く使われる典型的なαアルミナ(Corundum)です. 化学式はAl_2O_3です. 高溶融温度, 高モース硬度, 高電気抵抗力, 酸·アルカリに安定していると言うことから, 耐火材, 絶縁材, スパークプラグ, IC基板, 研磨材, 光炉剤などに広く使われます.

백색 결정성 분말인 알루미나는 수산화알루미늄을 소성하여 제조하며 기본 화학식은 Al_2O_3이고, 가장 안정하면서 널리 사용되는 전형적인 알파알루미나(Corundum)입니다. 용융 온도가 높고 모스경도가 높은 편이며 전기저항력이 높고 산, 알칼리에 안정하므로 내화재, 절연재, 점화플러그, IC기판, 연마재, 광택재 등에 널리 쓰입니다.

General Physical Properties

Mineral name	Corundum
Specific gravity	3.98
Melting temperature	2053°C
Refractive index	1.76
Mohs hardness	12
Vicke's hardness	2300
Young's modulus	4.8 10^5V / ㎝

KC Part

Product Name		Dp50(㎛)	Na_2O(%)	SSA(㎡/g)	Unit crystal size(㎛)	Use
CA	CA-83F	60 ± 10	0.30	0.3 ~ 0.7	3 ~ 5	Spinel, Fused Alumina, Mullite, Refractories, Castable
	CA-50F	50 ± 10	0.35	0.3 ~ 0.7	3 ~ 5	Spinel, Fused Alumina, Mullite, Refractories, Castable
	SA-50D	55 ± 10	0.30	3 ~ 7	0.5 ~ 1.0	Sintered Alumina, Mullite, Ceramic Fiber, High-Alumina
Fine CA	CA-5M	4 ± 1	0.35	-	3 ~ 5	Insulator, Crucible, Spinel, Welding Rod, Lapping Filler,

KA Part

Product Name		Dp50(㎛)	Na_2O(%)	SSA(㎡/g)	Unit crystal size(㎛)	Use
KSA Series	KSA-S	50±10	Max 0.30	3~5	<1	Sintered Alumina, Mullite, Castable Refractory, Ceramic Fiber, Glass Etc.
	KSA-SC	65±5	Max 0.27	4~6	<1	
	KSA-CF	50±10	Max 0.30	0.3~1.0	2 ~ 4	
	KMS-100	90±10	Max 0.28	4~6	<1	
	KHS-100	90±10	Max 0.35	4~6	<1	
KLS Series	KLS-C2	65±5	Max 0.05	1~2	1 ~ 2	Spark Plug, Electronic Parts, Fine Ceramics, Pocelain, Glass, Grinding Tool Etc.
	KLS-1N	55±5	Max 0.05	1~5	0.5 ~ 2	
	KLS-5		Max 0.05	0.9~1.1	1 ~ 3	
	KLS-100	90±10	Max 0.05	1~2	1 ~ 2	
KES Series	KAM	2.5~5.0	Max 0.30	0.9~1.5	2 ~ 4	Refractory, Porcelain Prevalent Alumina Refractory, Porcelain, Castable Ic Board, Cutting Tool, Ceramics Polishing Material Etc.
	KES-N1	0.6~1.0		4~7	<1	
	KES-N2	1.1~1.4		3~5	0.5 ~ 4	
	KES-M1	0.5~1.0	Max 0.20	3~7	<1	
	KLS-51	1.5~1.8	Max 0.05	1.9~2.2	1 ~ 3	
	KES-101LC	1.1~1.4	Max 0.35	4~6	1 ~ 2	

Calcined Alumina (焼成製品) KC Part

Characteristics

As CA-83F, CA-50F are calcined Alumina of a hexagonal structure, they are widely used for refractories, ceramics, abrasives, etc. The fine particle content is lower than others and the unit crystal size is 3~5㎛. SA-50D is used for manufacturing sintered alumina or spinel. The unit crystal size is 0.5~1.0㎛. CA-50M is the normal fine product made by milling calcined alumina. It is widely used for refractories, abrasives, fine ceramics. Its unit crystal size is 3~5㎛.

CA-83F, CA-50Fは六方晶系の焼成アルミナ製品で耐火物, セラミック, 研磨材などに使われます. 微粉の含量が少なく, 単位結晶は3~5㎛です. SA-50Dは, 焼結性に優れていることから焼結アルミナまたはスピネル製造に使われます. 微粉の含量が少なく, 単位結晶は0.5~1.0㎛です. CA-5Mは, 焼成製品を粉砕した一般的な微粉製品であり, その大きさは単位結晶に近く3~5㎛です. 主に耐火材や研磨材及びファインセラミックスに使われます.

CA-83F, CA-50F는 육방정계 결정구조의 소성알루미나 제품으로 내화물, 세라믹, 연마재 등에 가장 일반적으로 사용합니다. 미분함량이 적고, 단위결정 크기는 3~5㎛입니다. SA-50D는 소결용제품으로 소결성이 우수하여 소결알루미나 또는 스피넬 제조에 사용합니다. 미분함량이 적고, 단위결정 크기는 0.5~1.0㎛입니다. CA-5M은 소성제품을 분쇄한 일반적인 미분제품으로 단위결정 크기와 유사하며 주로 내화재나 연마재 또는 파인세라믹스에 사용합니다. 단위결정 크기는 3~5㎛입니다.

Specifications

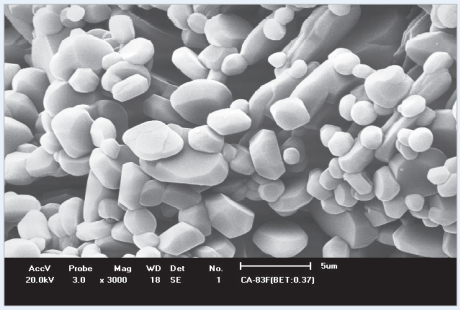
Product Name		CA-83F	CA-50F	SA-50D	SA-50DS	SA-SCS	CA-5M
Chemical Properties	Al_2O_3 (%)	MIN 99.6	MIN 99.6	MIN 99.6	MIN 99.6	MIN 99.2	MIN 99.6
	Na_2O (%)	MAX 0.30	MAX 0.35	MAX 0.30	MAX 0.30	MAX 0.27	MAX 0.35
	Fe_2O_3 (%)	MAX 0.025	MAX 0.025	MAX 0.025	MAX 0.30	MAX 0.30	MAX 0.025
	SiO_2 (%)	MAX 0.02	MAX 0.02	MAX 0.02	MAX 0.10	MAX 0.30	MAX 0.02
	Loss on Ignition (%)	MAX 0.10	MAX 0.10	MAX 0.10	MAX 0.10	MAX 0.2	MAX 0.10
Physical Properties	Moisture (%)	MAX 0.10	MAX 0.10	MAX 0.10	MAX 0.10	MAX 0.40	MAX 0.2
	Dp50 (㎛)	60 ± 10	50 ± 10	55 ± 10	55 ± 10	MIN 55	4 ± 1
	+45㎛ (%)	MIN 60	MIN 40	MIN 50	MIN 50	-	MAX 0.5
	Alpha phase (%)	MIN 95	MIN 95	MIN 95	MIN 95	-	MIN 95
	Specific surface area (㎡/g)	0.3 ~ 0.7	0.3 ~ 0.7	3 ~ 7	3~4	6.5~7.5	-
	Angle of Repose (°)	48 ~ 53	50 ~ 55	38 ~ 43	-	-	-

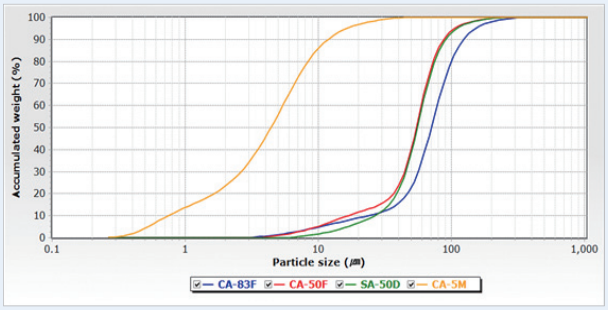
Uses

(1) Fused Alumina, Mullite, Spinel
(2) Refractory Brick, Castable
(3) Sintered Alumina, Ceramic Fiber
(4) High Alumina Ceramics, Whiteware
(5) Abrasives

Packaging

(1) Bulk
(2) Flexible Container Bag (1,000kg)
(3) Paper Bag (25kg, CA-50F and CA-5M Only)





KSA Series (焼結用焼成アルミナ) KA Part

Characteristics

KSA series is the crystallized α-Alumina calcined in a rotary kiln at high temperature. Sintered alumina is manufactured by shaping, dehydrating, sintering, milling after mixing KSA series Alumina in blender. KSA series is manufactured in an intensively controlled system because the difference of shape density appears by specific surface area, sintering specification varies by α-size. α-size of this series is less than 1㎛ in size and its specific surface area is 3~5㎡/g. Due to its excellent durability, it is essential material for the industry of ceramics and refractory. There are 3 kinds of products in the Dp50 size (KAS, KAS-SC).

水酸化アルミニウムをロータリーキルンで高温焼成し，αアルミナとして結晶化した製品です．焼結アルミナは当社のKSA series アルミナにバインダーを混合して成型後，乾燥・焼結・粉砕して製造します．当製品は粒度分布と比表面積により成型密度の差が生じ，またα−sizeにより焼結特性が変化するので，厳密な焼成管理の下で製造されています．製品はα−size 1㎛以下，BET 3～5㎡/g であり，耐久性に優れているのでセラミックス及び耐火物産業に原料として利用されています．ＫＳＡ−Ｓ，ＫＳＡ−ＳＣ 粒度別に分けて生産 しています．

수산화알루미늄을 Rotary Kiln에서 고온 소성하여 α−알루미나로 결정화한 제품입니다. 소결알루미나는 당사 KSA series 알루미나에 바인더를 혼합하여 성형 후 건조 소결, 분쇄하여 제조하므로 입도분포, 비표면적에 따라 성형밀도 차가 발생하고, 또 α−size에 따라 소결특성이 변화하므로 철저한 소성관리 하에 제조하고 있습니다. 제품은 α−size 1㎛이하, 비표면적 3~5㎡/g 이며 내구성이 뛰어나 세라믹스 및 내화물 산업에 필수적으로 사용되며 입도별로 KSA-S, KSA-SC 로 구분되어 생산합니다.

Specifications

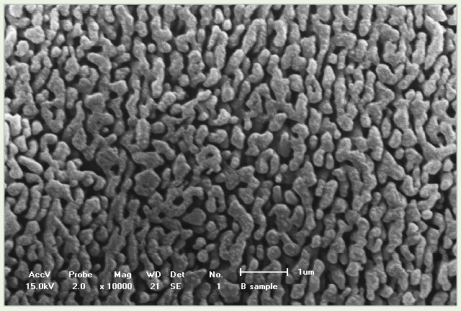
Product Name		KSA-S	KSA-SC	KSA-CF	KMS-100	KHS-100
Chemical Composition	Al_2O_3 (%)	MIN 99.6	MIN 99.6	MIN 99.6	MIN 99.6	MIN 99.6
	Na_2O (%)	MAX 0.30	MAX 0.27	MAX 0.30	MAX 0.28	MAX 0.35
	SiO_2 (%)	MAX 0.03	MAX 0.03	MAX 0.03	MAX 0.03	MAX 0.03
	Fe_2O_3 (%)	MAX 0.02	MAX 0.03	MAX 0.02	MAX 0.02	MAX 0.02
	Loss of Ignition	MAX 0.10	MAX 0.10	MAX 0.10	MAX 0.10	MAX 0.10
Physical Properties	Dp50 (㎛)	50±10	65±5	55±5	90±10	90±10
	Size of α-crystals (㎛)	<1		2~4	<1	
	Specific Surface Area (㎡/g)	3~5	4~6	0.3~1.0	4~6	

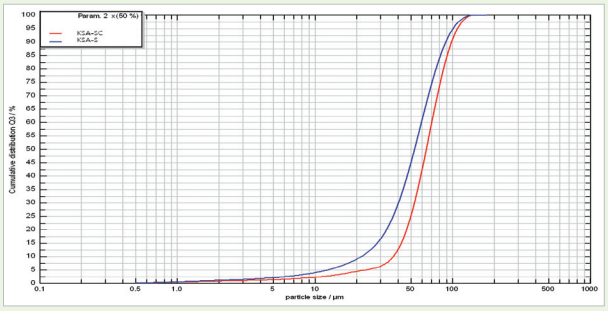
Uses

(1) Glass
(2) Tabular Alumina, Fused Alumina
(3) Castable Refractory
(4) Continuous Casting Refractory
(5) Ceramics

Packaging

(1) Flexible Container Bag (1,000kg)





KLS Series (低ソーダアルミナ) KA Part

Characteristics

KLS series is the crystallized α-alumina produced from aluminum hydroxide through the process of calcination, removing caustic soda in a rotary kiln, With under 0.05% of caustic content, 1~4㎛ of α-size, they are usually used for alumina ceramics, spark plugs, electric insulating material and the raw material for high quality ceramics. 3 kinds of products are available according to BET and α-size,

水酸化アルミニウムをロータリーキルンで焼成及び脱ソーダ工程を経て安定なα　アルミナとして結晶化した製品です。ソーダ含有量が0．05％以下でα　サイズが１～４㎛、主にア ルミナセラミックス，スパークプラグ、電気絶縁製品に、また電気絶縁性に優れているのでセラミックスの原料として利用されています。当社はBET、α　サイズにより３種類を生産しています。

수산화알루미늄을 Rotary Kiln에서 소성 및 탈소다 공정을 거쳐 안정적인 α-알루미나로 결정화한 제품입니다. 소다함량이 0.05% 이하로 α-size가 1~4㎛의 알루미나로 주로 알루미나 세라믹스, 점화플러그, 전기절연제품에 사용되며 전기절연성이 우수하여 세라믹스의 원료로서 사용되어집니다. 당사는 BET, α-size에 따라 총 3종류를 생산하고 있습니다.

Specifications

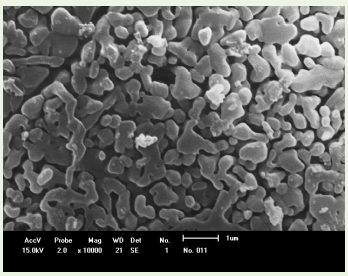
Product Name		KLS-C2	KLS-1N	KLS-5	KLS-100
Chemical Composition	Al_2O_3 (%)	MIN 99.7	MIN 99.8	MIN 99.8	MIN 99.7
	Na_2O (%)	MAX 0.05	MAX 0.05	MAX 0.05	MAX 0.05
	SiO_2 (%)	MAX 0.30	MAX 0.15	MAX 0.10	MAX 0.30
	Fe_2O_3 (%)	MAX 0.03	MAX 0.02	MAX 0.03	MAX 0.03
	Loss of Ignition	MAX 0.10	MAX 0.10	MAX 0.10	MAX 0.10
Physical Properties	Dp50 (㎛)	65±5	55±5		90±10
	Size of α-crystals (㎛)	1~2	0.5~2	1~3	1~2
	Specific Surface Area (m^2/g)	1~2	1~5	0.9~1.1	1~2

Uses

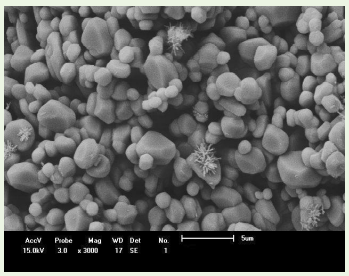
(1) Spark Plug
(2) Electronic Parts
(3) Fine Ceramics
(4) Grinding Tool
(5) Mechanical Parts
(6) Special Refractories
(7) Catalyst Carriers
(8) Glass

Packaging

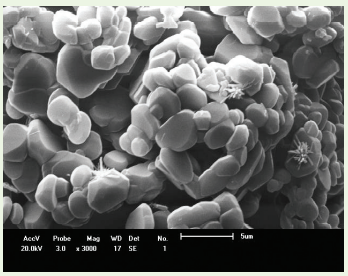
(1) Flexible Container Bag (1,000kg)



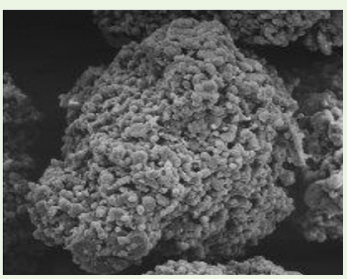
KLS-1N

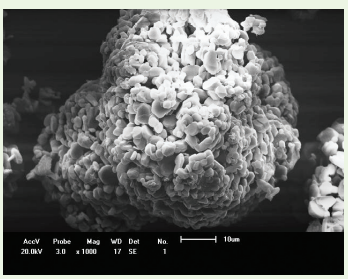


KLS-C2



KLS-5





KES Series (超微粒機能性アルミナ) KA Part

Characteristics

KES series means super fine functional alumina and easily sintered alumina. The raw materials are calcined alumina for sintering and low caustic soda alumina. After the milling process, it is classified into three grades: low, medium and normal caustic soda content. They are widely used for alumina ceramics in the electro-ceramics industry because of its characteristics of heat-resistance, chemical stability, hight strength, abrasion-resistance, electro-insulation, etc.

超微粒機能性アルミナは微粒アルミナ及び易焼結性アルミナとも言い，当社で厳密な焼成管理のもとに生産されたアルミナを原料とし，粉砕工程を経て生産されています．当製品はソーダ含有量によって低ソーダ·中ソーダ·普通ソーダに分けられ，また粒度分布により製品群を分けて生産しています．
耐熱性，化学的安定性，高強度，耐摩耗性，電気絶縁性などの特長を持っているので電子セラミックスからアルミナセラミックスまで幅広く利用されています．

초미립 기능성 알루미나는 미립 알루미나 및 이소결성 알루미나를 말하며 당사에서 생산되는 소결용 소성알루미나와 저소다 알루미나를 원료로 하여 분쇄공정을 거쳐 소다함량에 따라 저소다, 중간소다, 보통소다 초미립 기능성 알루미나로 나누어지며 입도분포에 따라서 제품군을 나누어 생산합니다. 내열성, 화학적안정성, 고강도, 내마모성, 전기절연성 등의 특징을 갖추기 때문에 전자세라믹스 분야에서 알루미나 세라믹스로 다용도로 사용이 되고 있습니다.

Specifications

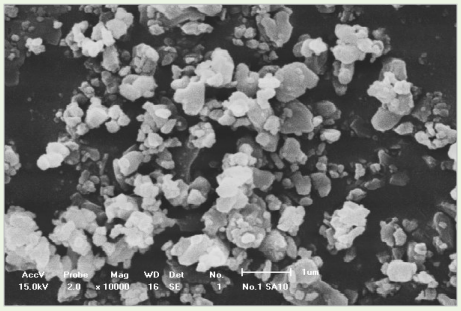
Product Name		KES-N1	KES-N2	KAM	KES-M1	KLS-51	KES-101LC
Chemical Composition	Al_2O_3 (%)	MIN 99.6	MIN 99.6	MIN 99.6	MIN 99.7	MIN 99.8	MIN 99.6
	Na_2O (%)	MAX 0.30	MAX 0.30	MAX 0.30	MAX 0.20	MAX 0.05	MAX 0.35
	SiO_2 (%)	MAX 0.03	MAX 0.03	MAX 0.03	MAX 0.10	MAX 0.10	MAX 0.03
	Fe_2O_3 (%)	MAX 0.02	MAX 0.02	MAX 0.02	MAX 0.03	MAX 0.03	MAX 0.02
Physical Properties	Dp50 (μm)	0.6~1.0	1.1~1.4	2.5~5.0	0.5~1.0	1.5~1.8	1.1~1.4
	Size of α-crystals (μm)	<1	0.5~4	2~4	<1	1~3	1~2
	Specific Surface Area (m^2/g)	4~7	3~5	0.9~1.5	3~7	1.7~2.0	4~6

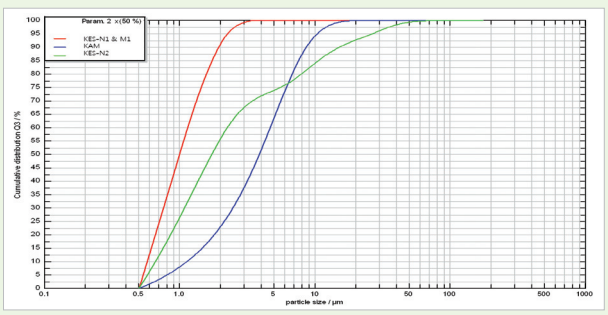
Uses

KAM : Refractory, Porcelain
KES - N, M, 101LC Series
(1) High-Density and High-Strength Alumina Porcelain
(2) Industrial Machine Pads
(3) Special Refractories
(4) Electronic Parts
(5) Cutting Tools
(6) Catalyst Support
(7) Polishing Material

Packaging

(1) Flexible Container Bag (1,000kg)
(2) Paper Bag (25kg)





Fused Alumina (電融アルミナ) KC Part

Characteristics

Fused Alumina, white-fused Alumina with high-purity, is a product with high hardness and heat-resistance made using the process of milling, distributing, refining ager recrystallizing at the furnace from calcined alumina. With the perfect Corundum crystal and chemical and physical stability, it has excellent corrosion-resistance and high strength at high temperatures.

焼成アルミナを溶融炉の2100℃で溶融し再結晶した後, 粉砕·分給·精製した製品で高い強度と耐熱性を持っている高純度白色の電融製品です. 完璧なCorundum結晶であり, 化学·物理的に安定され耐食性と高温強度が優れています.

용융알루미나는 소성알루미나를 용융로에서 2100℃로 용융하여 재결정한 뒤 분쇄, 분급한 뒤 정제한 제품으로 높은 강도와 내열성을 지니고 있는 고순도 백색 용융제품입니다. 완벽한 Corundum 결정으로 이루어져 있으며, 화학적 물리적으로 안정하고 내식성과 고온강도가 우수합니다.

Specifications

Product Name		FR-53	FR-31	FR-10	FR-05	220F	325F
Chemical Properties	Al_2O_3 (%)	99.6	99.6	99.6	99.6	99.6	99.6
	Na_2O (%)	0.25	0.25	0.25	0.25	0.30	0.30
	Fe_2O_3 (%)	0.04	0.04	0.04	0.04	0.04	0.04
	SiO_2 (%)	0.02	0.02	0.02	0.02	0.02	0.02
Particle Size Distrbution	5.60㎜ (%)	0					
	4.75㎜ (%)	6					
	4.00㎜ (%)	25	0				
	3.35㎜ (%)	63					
	2.80㎜ (%)	96	5				
	2.00㎜ (%)		39				
	1.40㎜ (%)		79				
	1.00㎜ (%)		99	1			
	710μm (%)						
	500μm (%)			41	0		
	250μm (%)			73	42		
	180μm (%)					0	
	125μm (%)			90	75	2	0
	90μm (%)					8	
	75μm (%)				88	17	
	63μm (%)			97			
	45μm (%)						5
	20μm (%)						41
	10μm (%)						67
	5μm (%)						82

Uses

(1) Refractory for steel manufacturing
(2) Raw material for furnace and kiln
(3) Filler for high temperature
(4) Abrasive material

Packaging

(1) Flexible Container Bag (1,000kg)
(2) Paper Bag (25kg)

Scarlet (スカーレット)

Characteristics

Scarlet is the red powder dehydrated and milled from the by-products of Alumina. It is an inorganic product with the ideal quality for various applications.

アルミナの精錬の副産物を乾燥·粉砕した赤色の粉末です. 品質が均一で, 多様な用途として使える無機質の製品です.

알루미나 제련 부산물을 건조하여 분쇄한 적색분말로 품질이 균일하여 다양한 용도로 사용할 수 있는 무기질 제품입니다.

Specifications

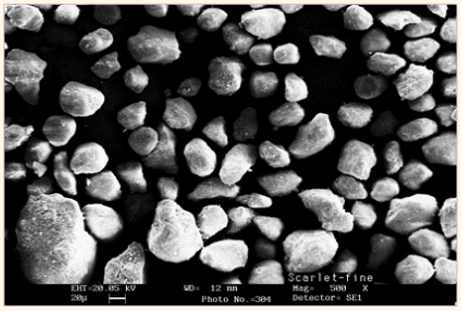
Product Name		SPN	SPF
Chemical Properties	Al_2O_3 (%)	10 ~ 30	10 ~ 30
	SiO_2 (%)	5 ~ 20	5 ~ 20
	Fe_2O_3 (%)	30 ~ 50	35 ~ 50
	TiO_2 (%)	5 ~ 15	5 ~ 15
	Na_2O (%)	0 ~ 10	0 ~ 10
	CaO (%)	0 ~ 10	0 ~ 10
	Loss on Ignition (%)	5 ~ 15	5 ~ 15
Physical Properties	Moisture (%)	MAX 10	MAX 10
	+45㎛ (%, Wet sieve)	MAX 40	MAX 20
	Specific gravity (g/㎤)	3.0 ~ 4.0	3.0 ~ 4.0
	Appearance porosity (%)	0.8 ~ 1.2	0.3 ~ 0.7
	pH	10 ~ 12	10 ~ 12

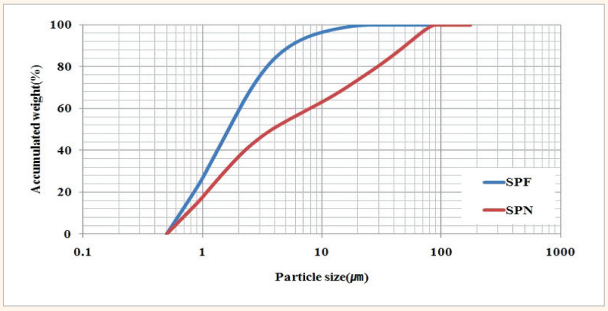
Uses

(1) Building Material, Pigment, Raw Concrete Material
(2) Catalyst Carriers, Inorganic Flocculant for Water
(3) Plastic Filler

Packaging

(1) Flexible Container Bag (500kg, 1,000kg)





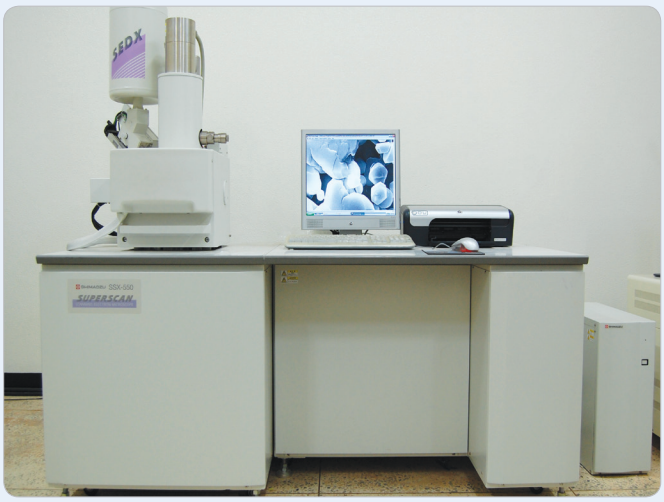
Product Analysis Methods (分析方法)

Item	Aluminum Hydroxide	Alumina
Moisture	105°C Dry oven for 2 hrs	105°C Dry oven for 2 hrs
Loss on Ignition	100-1100°C hold 1 hr	300-1100°C hold 1 hr
Na_2O, Fe_2O_3, SiO_2	ICP, XRF	ICP, XRF
$Al(OH)_3$, Al_2O_3	100-(Na_2O+Fe_2O_3+SiO_2)	100-(Na_2O+Fe_2O_3+SiO_2)
Leachable Na_2O	Titration after hot water boiling	-
Mean particle size	Particle sizer (Laser type)	Particle sizer (Laser type)
pH	30% Slurry for 2 hrs	30% Slurry for 2 hrs
Whiteness	Photoelectric powder whitenessmeter	Photoelectric powder whiteness meter
Specific surface area	Nitrogen gas absorption method (BET)	Nitrogen gas absorption method (BET)
Oil absorption	Quantity of oil dropped into 10g powder	Quantity of oil dropped into 10g powder
Electrical conductivity	30% slurry for 2 hrs	30% slurry for 2 hrs

<ICP>

<XRF>

<SEM>



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