

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 $\text{Al}(\text{OH})_3$ or $\text{Al}_2\text{O}_3 \cdot 3\text{H}_2\text{O}$. 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 $\text{Al}(\text{OH})_3$ または $\text{Al}_2\text{O}_3 \cdot 3\text{H}_2\text{O}$ 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°C 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径を調整し, 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 $\text{Al}(\text{OH})_3$ 또는 $\text{Al}_2\text{O}_3 \cdot 3\text{H}_2\text{O}$ 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 _{μm}	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 _{μm}	High reaction with acid and alkali, High fluidity, Low dust rate,	Latex compound, Catalyst carrier, Flame-retardant filler, Glass fiber
	DH-50P	50±10 _{μm}		
	SH-8K	8±1 _{μm}	High reactive, High purity, High fluidity, Low viscosity.	
	SH-15K	15±3 _{μm}		
	SH-25B	25±3 _{μm}		
	SH-8R	8±1 _{μm}		
	KH-17R	17±3 _{μm}		
Superfine ATH	KH-101LP	1.7~2.5 _{μm}	Highly fine grain, High whiteness Low electrical conductivity	Flame-retardant filler, Pigment Catalyst carrier, Electrical wire coating
	KH-101LC	1.2~1.7 _{μm}		
	KH-101	0.8~1.2 _{μm}	Highly fine grain, High whiteness	
	KH-101HRT	1.5~2.0 _{μm}	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 ₂ O (%)	MAX 0,25	MAX 0,40	MAX 0,40
	Fe ₂ O 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 ₂ O (%)	MAX 0,03	MAX 0,03	MAX 0,03
Physical Properties	Moisture (%)	MAX 10,0	MAX 0,3	MAX 0,3
	Dp50 (μm)	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

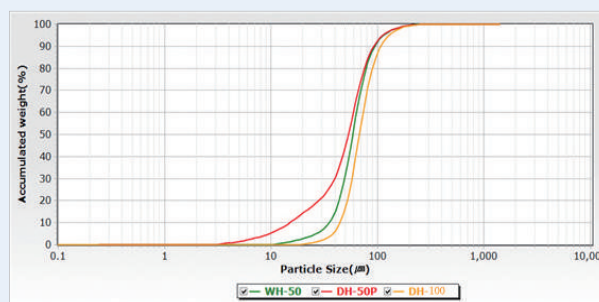
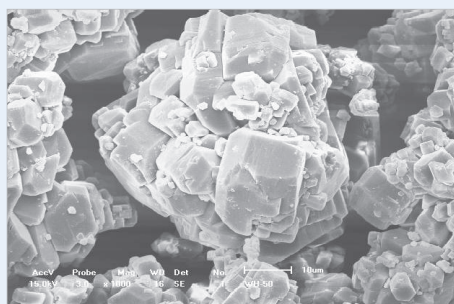
Note : Chemical compositions are for dried materials at 105°C, in percent.

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°C, they 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 충전제로 사용합니다. 열적으로 200℃까지 안정하므로 고무, 플라스틱의 난연제로 사용합니다. 난연제로 사용할 경우 온도가 상승하면서 물분자만 방출하므로 유독성 가스나 매연이 발생하지 않고, 내아킹성과 내트래킹성이 우수하여 전기 절연제로 널리 사용합니다.

Specifications

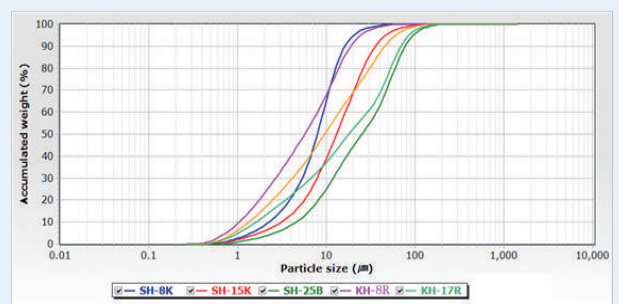
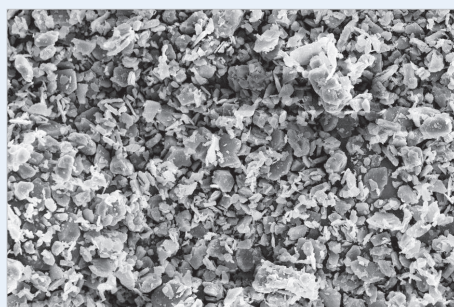
Product Name			SH-8K	SH-15K	SH-25B	KH-8R	KH-17R
Chemical Properties	Moisture	%	Max 0.3	Max 0.3	Max 0.3	Max 0.3	Max 0.3
	Al(OH) ₃	%	Min 99.0	Min 99.0	Min 99.0	Min 99.0	Min 99.0
	Na ₂ O	%	Max 0.40	Max 0.40	Max 0.40	Max 0.40	Max 0.40
	Fe ₂ O ₃	%	Max 0.012	Max 0.012	Max 0.012	Max 0.012	Max 0.012
	SiO ₂	%	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
	Leachable Na ₂ O	%	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. 난연재료 사용할 경우 온도가 상승하면서 물분자만 방출하므로 유독성 가스나 매연이 발생하지 않고, 내아킹성과 내트래킹성이 우수하여 전기 절연재료 널리 사용됩니다.

Specifications

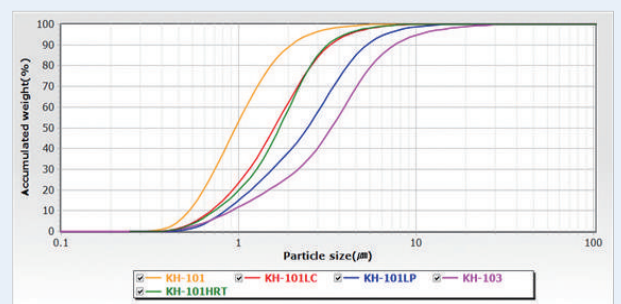
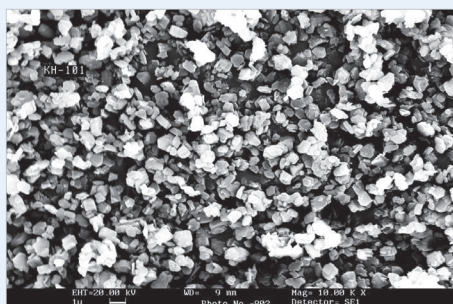
Product Name			KH-108	KH-101	KH-101LC	KH-101LP	KH-103	KH-101HRT
Chemical Properties	Moisture	%	MAX 0.50	MAX 0.40	MAX 0.40	MAX 0.40	MAX 0.40	Max 0.35
	Al(OH) ₃	%	MIN 99.4	MIN 99.4	MIN 99.4	MIN 99.4	MIN 99.4	Min 99.7
	Na ₂ O	%	MAX 0.40	MAX 0.45	MAX 0.45	MAX 0.45	MAX 0.45	Max 0.15
	Fe ₂ O ₃	%	MAX 0.015	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
	Leachable Na ₂ O	%	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
	Thermal Stability (Temp.at2%weightloss,5°C/min)	°C	-					≈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 retardant (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.

베ーマ이트 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 ₂ O (%)	MAX 0.15
	Fe ₂ O ₃ (%)	MAX 0.01
	Loss On Ignition (%)	17 ± 0.5
Physical Properties	Moisture (%)	MAX 0.35
	Dp50 (μm)	2 ± 1
	+45μm (% , 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)

