



SUMITOMO CHEMICAL

Creative Hybrid Chemistry  
For a Better Tomorrow

# Product Databook(Excerpt)

*High Purity Alumina - HPA*



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**<Important Notice for Users of this Databook>**

- (1) All data in this data book is typical and not guaranteed. The typical properties of all the listed products in this databook are subject to change without prior notice due to continual improvements.
- (2) Applications mentioned in this databook are examples without any guarantee. Fitness for any particular purpose should be verified by customers.
- (3) Please refrain from using products in this databook for medical and food applications.

### 3. High Purity Alumina - HPA

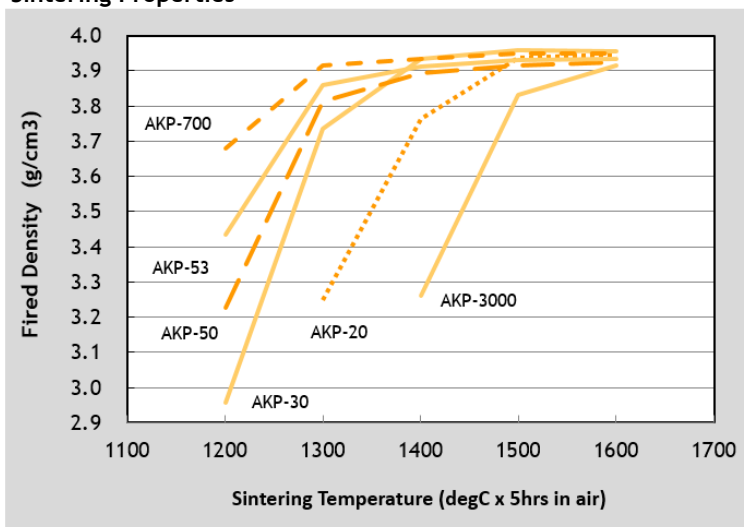
Sumitomo Chemical's High Purity Aluminas (HPA) are uniform fine powders characterized by highly pure and homogeneous crystal structure. We produce HPA by Aluminum Alkoxide Hydrolysis process.

#### AKP Series

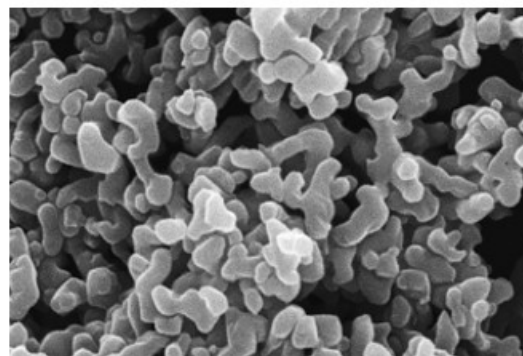
Typical Properties		Product	AKP-15	AKP-20	AKP-30	AKP-50	AKP-53	AKP-700	AKP-3000
Crystal Structure			α	α	α	α	α	α	α
Purity (Al <sub>2</sub> O <sub>3</sub> )	[%]		≧ 99.99	≧ 99.99	≧ 99.99	≧ 99.99	≧ 99.99	≧ 99.99	≧ 99.99
D50 (MT3300)	[μm]		0.60	0.42	0.26	0.20	0.17	-	0.67
Loose Bulk Density	[g/cm <sup>3</sup> ]		0.9	1.0	0.9	0.9	1.1	0.7	0.43
Tapped Bulk Density	[g/cm <sup>3</sup> ]		1.5	1.4	1.3	1.3	1.4	1.1	0.81
BET Specific Surface Area	[m <sup>2</sup> /g]		3.6	4.6	7.4	11.1	13.7	17.8	4.4
Impurity	Si	[ppm]	20	16	9	10	36	8	3
	Na		6	3	3	3	3	3	2
	Mg		3	3	2	2	6	1	1
	Cu		1	1	1	1	1	1	1
	Fe		2	2	2	2	3	3	2
Packing	PE Bag		20kg	20kg	20kg	20kg	20kg		10kg
	Pail Can							10kg	

Application	High-strength and High-density Ceramics, Translucent Ceramics, Composite Materials, Additives for non-Oxide Ceramics, Abrasives, Ceramic Filter, Resin Filler, etc.
	Insulation layer of Li-ion Secondary Battery

#### Sintering Properties



AKP-3000

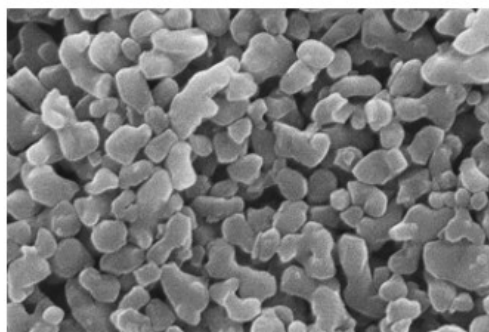


1μm

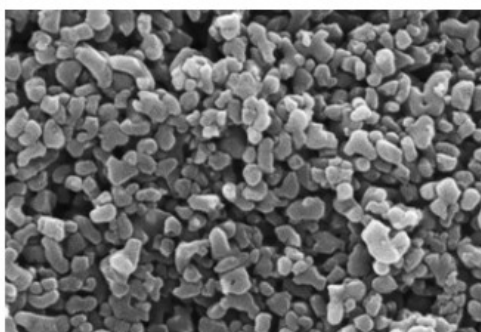
AKP-20

AKP-30

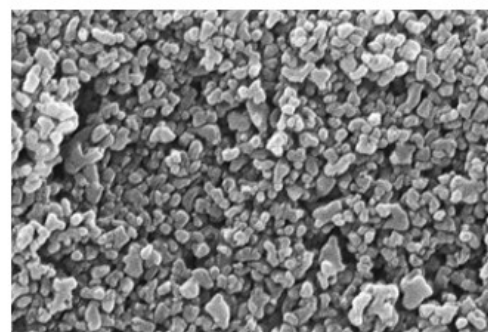
AKP-50



1μm



1μm

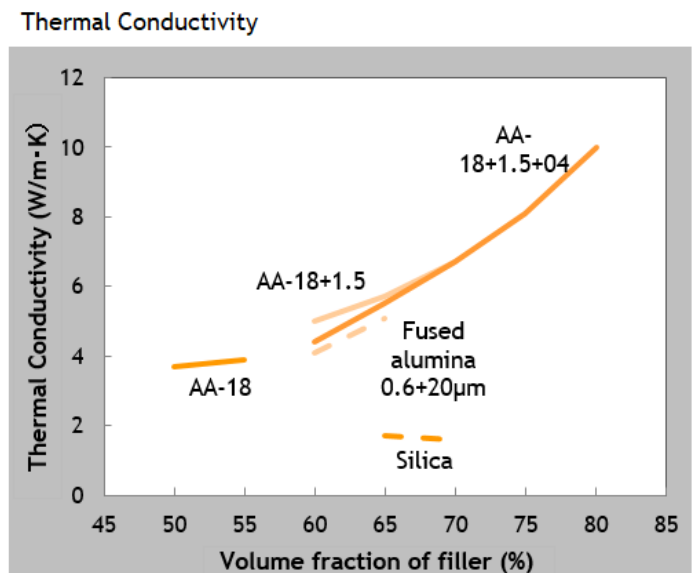
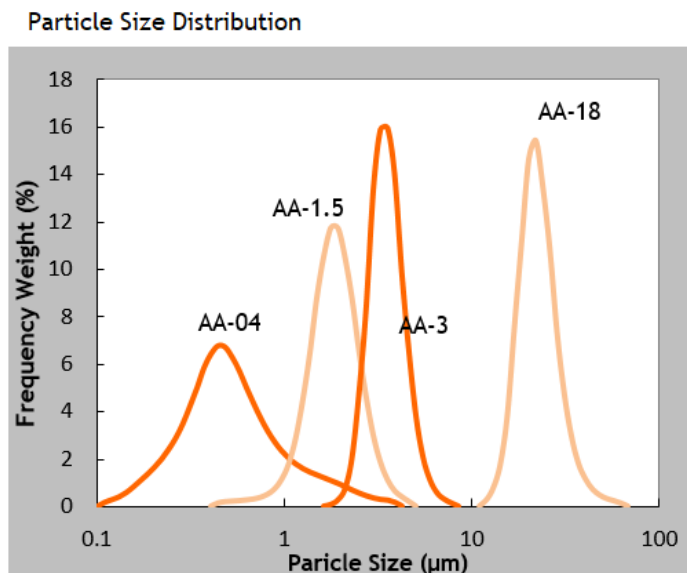
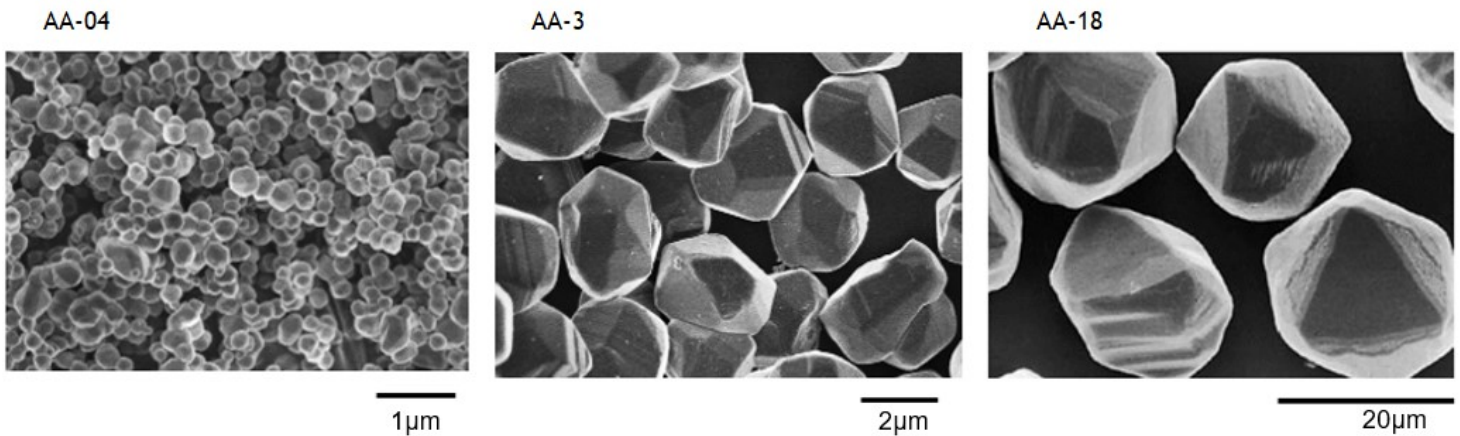


1μm

Advanced Aluminas are  $\alpha$ -alumina single crystals with precisely controlled particle size distribution and almost-spherical polyhedral shape.

### Advanced Alumina (AA)

Product		AA-03F	AA-03	AA-04	AA-05	AA-07	AA-1.5	AA-2	AA-3	AA-5	AA-18
<b>Typical Properties</b>											
Crystal structure		$\alpha$	$\alpha$	$\alpha$	$\alpha$	$\alpha$	$\alpha$	$\alpha$	$\alpha$	$\alpha$	$\alpha$
Purity( $\text{Al}_2\text{O}_3$ )	[%]	$\geq 99.99$	$\geq 99.99$	$\geq 99.99$	$\geq 99.99$	$\geq 99.99$	$\geq 99.99$	$\geq 99.99$	$\geq 99.99$	$\geq 99.99$	$\geq 99.99$
D50 (MT3300)	[ $\mu\text{m}$ ]	0.26	0.40	0.47	0.58	0.88	1.7	2.2	3.5	6.6	20.3
Loose Bulk Density	[ $\text{g}/\text{cm}^3$ ]	1.1	0.5	0.5	0.6	0.6	0.6	0.7	0.7	1.3	1.9
Tapped Bulk Density	[ $\text{g}/\text{cm}^3$ ]	1.4	0.9	1.0	1.1	1.2	1.5	1.5	1.5	2.0	2.4
BET Specific Surface Area	[ $\text{m}^2/\text{g}$ ]	6.2	5.6	4.6	3.2	2.2	1.3	1.1	0.6	0.4	0.2
Impurity	Si [ppm]	14	4	4	4	4	9	11	22	22	17
	Fe [ppm]	4	2	2	2	2	3	2	3	2	2
	Na [ppm]	3	3	3	3	3	3	3	3	3	3
	Mg [ppm]	1	1	1	1	1	1	1	1	1	1
	Cu [ppm]	1	1	1	1	1	1	1	1	1	1
Packing	PE Bag	20kg	20kg	20kg	20kg	20kg	20kg	20kg	20kg	20kg	
	Pail Can										20kg
Application	High-strength and High-density Ceramics, Translucent Ceramics, Resin filler(Thermal Conductive Materials), Plasma Spray, Ceramic Filter, etc.										



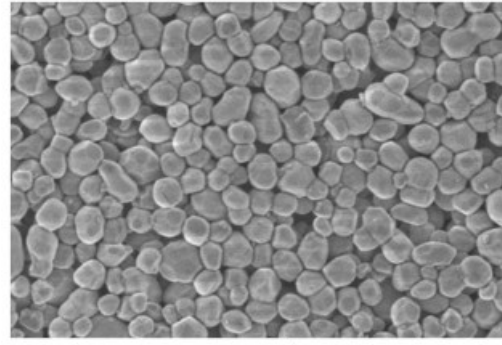
NXA is almost-spherical fine  $\alpha$ -alumina crystals with excellent dispersion.

### NXA Series

Typical Properties		Product	NXA-100	NXA-150
Crystal structure			$\alpha$	$\alpha$
Purity( $\text{Al}_2\text{O}_3$ )	[%]		$\geq 99.99$	$\geq 99.99$
D50 (MT3300)	[ $\mu\text{m}$ ]		0.21	0.23
Loose Bulk Density	[ $\text{g}/\text{cm}^3$ ]		1.0	1.0
Tapped Bulk Density	[ $\text{g}/\text{cm}^3$ ]		1.3	1.3
BET Specific Surface Area	[ $\text{m}^2/\text{g}$ ]		10.8	9.7
Impurity	Si	[ppm]	12	17
	Fe	[ppm]	3	5
	Na	[ppm]	< 3	< 3
	Mg	[ppm]	2	3
	Cu	[ppm]	< 1	< 1
Packing	AL Laminated Bag		20kg	20kg

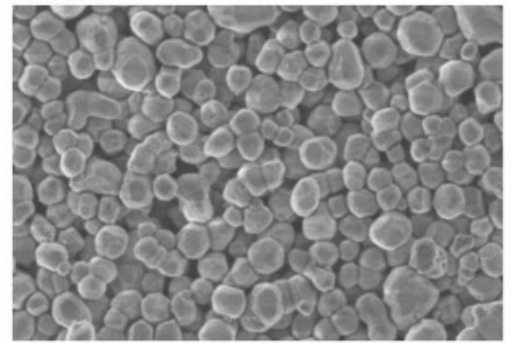
**Application**  
High-strength and High-density Ceramics, Translucent Ceramics, Resin Filler (Thermal Conductive Materials), Precision Abrasives, etc.

NXA-100



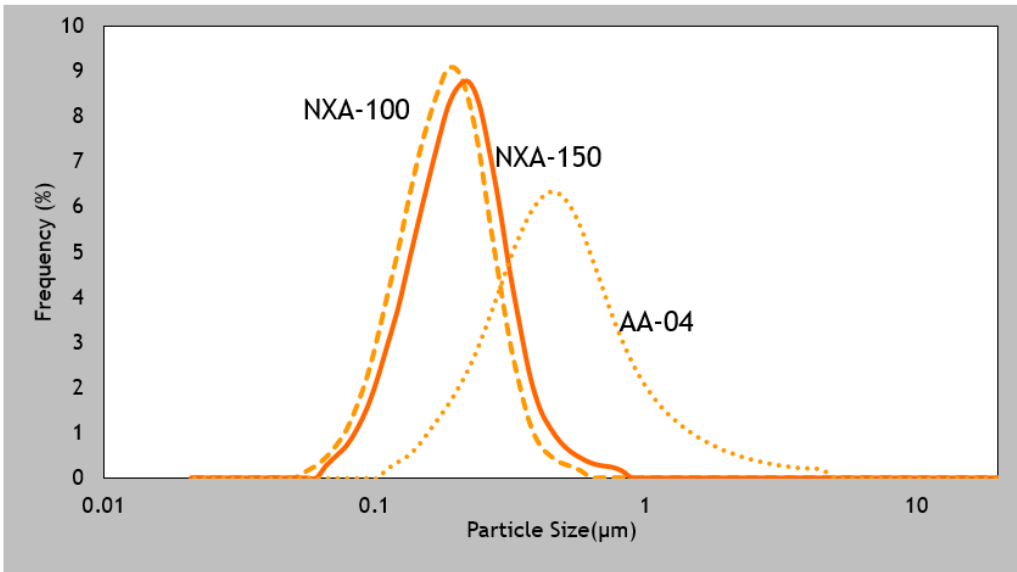
1.0 $\mu\text{m}$

NXA-150

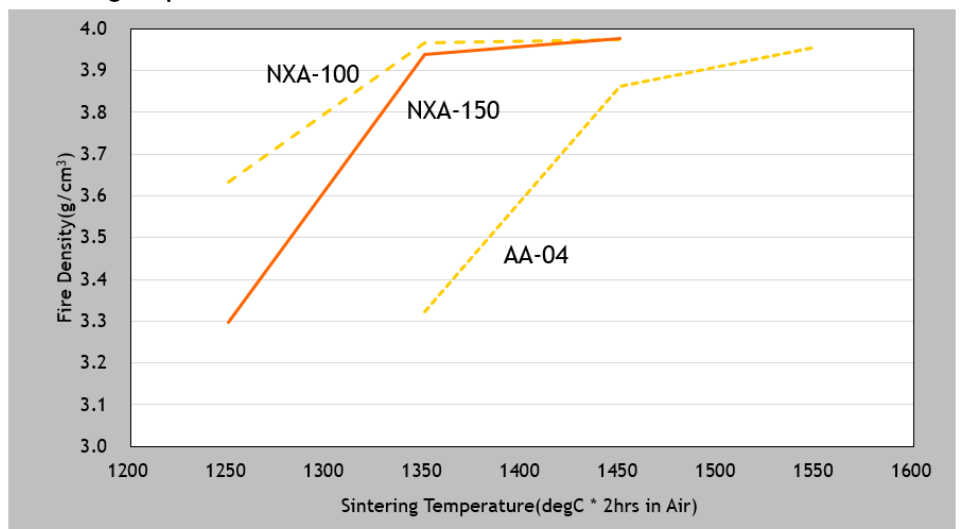


1.0 $\mu\text{m}$

### Particle Size Distribution



### Sintering Properties



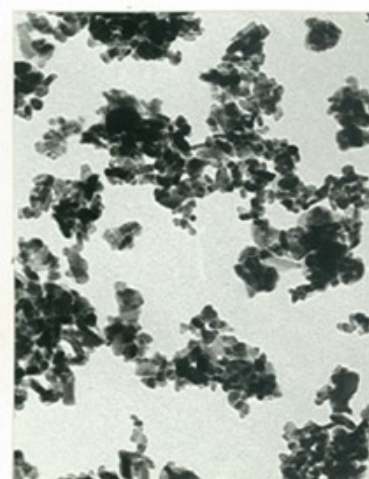
## Gamma HPA

Typical Properties		Product	
		AKP-G07	AKP-G15
Crystal Structure		θ	γ
Purity(Al <sub>2</sub> O <sub>3</sub> )	[%]	≧ 99.99	≧ 99.99
Loose Bulk Density	[g/cm <sup>3</sup> ]	-	0.13
Tapped Bulk Density	[g/cm <sup>3</sup> ]	0.3	0.16
BET Specific Surface Area	[m <sup>2</sup> /g]	79.9	164
Impurity	Si	[ppm]	3
	Na	[ppm]	3
	Mg	[ppm]	1
	Cu	[ppm]	1
	Fe	[ppm]	4
Packing		20kg Cardboard Box	10kg Cardboard Box
Application		Resin Filler, Catalyst, etc.	



AKP-G15

0.1μm

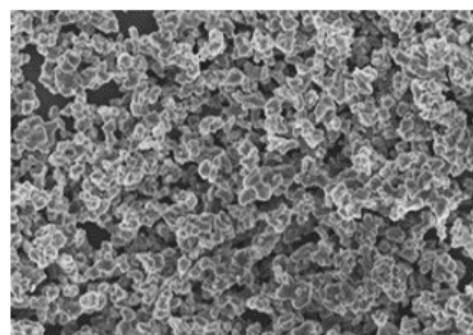


AKP-G07

0.1μm

## HIT Series

Typical Properties		Product	
		HIT-60A	HIT-100
Crystal Structure		α	α
Loose Bulk Density	[g/cm <sup>3</sup> ]	0.8	0.9
Tapped Bulk Density	[g/cm <sup>3</sup> ]	1.1	1.2
BET Specific Surface Area	[m <sup>2</sup> /g]	12.5	36.1
Packing		15kg PE Bag	20kg Pail Can
Application		Abrasive, etc.	



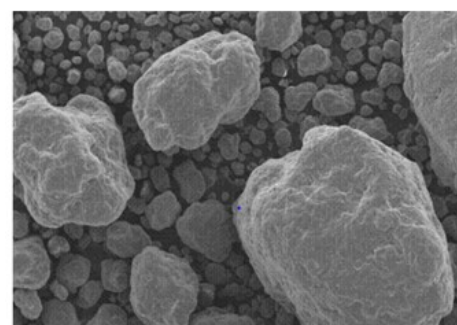
HIT-60A

1μm

HIT-100

## High Bulk Density for Single Crystal

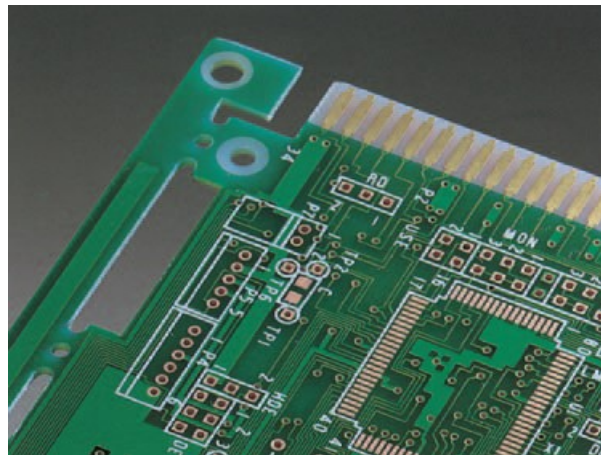
Typical Properties		Product	
		AKX-5	
Crystal Structure		α	
Purity(Al <sub>2</sub> O <sub>3</sub> )	[%]	≧ 99.99	
Loose Bulk Density	[g/cm <sup>3</sup> ]	1.8	
Tapped Bulk Density	[g/cm <sup>3</sup> ]	-	
BET Surface Area	[m <sup>2</sup> /g]	1.1	
Impurity	Si	[ppm]	9
	Na	[ppm]	3
	Mg	[ppm]	1
	Cu	[ppm]	1
	Fe	[ppm]	3
Packing		100kg Fiber Drum	
Application		Single Crystal	



AKX-5

1mm

# Plant & Office Location / Contact



Aluminum Hydroxide as a flame retardant for CCL.



Aluminum Hydroxide as a filler for solid surface.

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