

Product Databook(Excerpt)

🗆 Aluminum Oxide - Alumina



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- <Important Notice for Users of this Databook>

 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.
- Applications mentioned in this databook are examples without any guarantee. Fitness for any particular purpose should be verified by customers. (2)
- (3) Please refrain from using products in this databook for medical and food applications.

2. Aluminum Oxide - Alumina

Sumitomo Chemical's Calcined Aluminas are produced in various levels of calcination level/soda content and supplied in both unground and ground shapes to satisfy diverse customer requirements.

ormal S						
Typical P	rope	rties	Product	A-21	A-26	A-210
	H2C)	[%]	0.04	0.1	0.04
alion	L.0	.I	[%]	0.05	0.1	0.05
nic Ssit	Fe2	03	[%]	0.02	0.02	0.02
npd	SiO	2	[%]	0.01	0.01	0.02
ъß	Na2	0	[%]	0.21	0.21	0.27
-	Al2	03	[%]	99.7	99.7	99.6
Specific Gravity D50 (MT-3300, Laser Diffraction)		[•]	3.95	3.90	3.95	
		[µm]	50	50	95	
α Crystal	Size		[µm]	2~4	<1	2~4
Green		Green	[g/cm3]	0.7	0.9	0.9
BUIK Den	isity	Packed	[g/cm3]	1.2	1.2	1.2
Packing		Big Bag			1,000kg	
		Paper Bag		25kg		

A-21 : High calcined. Used for initial buffing stages of stainless steel.

A-26 : Smaller α crystal size with lower calcination than A-21. Used as a reactive alumina when ground.

A-210 : High calcined. Low dust and good fluidity.



A-21



H A-26

20µm



20µm



A-210

20µm



AM-21





AM-210

Normal Soda / Ground

Typical P	roperties	Product	AM-21	AM-210-02	AM-210	AM-28B	AM-29B	AM-27
	H2O	[%]	0.06	0.05	0.06	0.05	0.05	0.1
alion	L.O.I	[%]	0.05	0.05	0.05	0.05	0.05	0.1
nic	Fe2O3	[%]	0.02	0.02	0.02	0.05	0.05	0.02
ner	SiO2	[%]	0.01	0.02	0.02	0.02	0.02	0.01
τg	Na2O	[%]	0.21	0.27	0.27	0.15	0.15	0.21
•	Al2O3	[%]	99.7	99.6	99.6	99.7	99.7	99.7
Specific Gravity [-]		[-]	3.95	3.95	3.95	3.95	3.95	3.90
D50 (MT-3300, Laser Diffraction)		[µm]	4.8	7.9	4.8	19	8.2	2.8
α Crystal	Size	[µm]	2~4	2~4	2 ∼4	2~5	2~5	0.3
Pulk Don	Green	[g/cm3]	0.7	-	0.7	0.6	0.6	0.6
DUIK Den	Packed	[g/cm3]	1.3	-	1.3	1.6	1.6	1.3
Oil Absor	ption Boiled Linseed Oi	l [ml/100g]	16	-	-	21	18	27
Green Density		[g/cm3]	2.26	-	2.26	-	-	-
Fire Density* [g/d		[g/cm3]	3.72	-	3.72	-	-	-
Packing	Big Bag		1,000kg					
	Paper Bag		25kg					

* Flux 4%, 49MPa(500kg/cm2), sample sintered at 1600 degC.

AM-21 / AM-210 : Ground high calcined alumina. Used for intermediate buffing stages of stainless steel.

AM-210-02 : A variation of AM-210 with bigger particle size and bi-modal particle size distribution. Used for both initial and intermediate buffing stages of stainless steel.

AM-27 : Finely ground for mirror surface buffing stages of stainless steel.

AM-28B/29B : Specially developed for intermediate buffing stages of stainless steel. Some of coarse particles crumble to fine particles.

Low Soda / Unground

Typical P	Properties	Product	AL-41-01	AL-43A	AL-44
	H2O	[%]	0.05	0.05	0.05
alion	L.O.I	[%]	0.05	0.05	0.05
nic. Sit	Fe2O3	[%]	0.02	0.02	0.02
ner of	SiO2	[%]	0.05	0.05	0.05
τı	Na2O	[%]	0.01	0.01	0.01
•	Al2O3	[%]	99.9	99.9	99.9
D50 (MT-3300, Laser Diffraction)		[µm]	50	50	50
α Crystal Size		[µm]	1~2 2~3 3~		
Packing Big Bag				1,000kg	

Molding density and firing shrinkage vary between these products due to α crystal size differences.

Low Soda / Ground

		Product				
Typical P	Properties		ALM-41-01	ALM-43	AL-41DBM-01	
	H2O	[%]	0.08	0.07	0.08	
le le	L.O.I	.I [%]		0.05	0.07	
sit	Fe2O3	[%]	0.02	0.02	0.02	
ner of	SiO2	[%]	0.05	0.05	0.05	
τg	Na2O	[%]	0.01	0.01	0.01	
•	Al2O3	[%]	99.9	99.9	99.9	
D50 (MT-3300, Laser Diffraction)		[µm]	2.2	3.7	1.3	
BET Spec	rific Surface Area	[m2/g]	1.8	1.2	2.6	
α Crystal	Size	[µm]	1~2	2~3	1~2	
Green D	ensity	[g/cm3]	2.23	2.27	2.23	
Fire Den	sity*	[g/cm3]	3.71	3.67	3.71	
Linear Shrinkage*		[%]	16 15		15	
	Big Bag		1,00	-		
Packing	Paper Bag		25kg			

*Flux 4%, 49MPa (500kg/cm2), sample sintered at 1600 degC.

ALM-41-01 / ALM-43 : Ground down close to $\alpha\,$ crystal sizes.

AL-41DBM-01 : PSD of ALM-41-01 shifted to smaller side. Used for LTCC and thermal conductive fillers.





SU1510 12.0kV 12.0mm x10.0k SE 2016/09/23

AL-41DBM-01

5µm

Low Soda / Ground (for Functional Fillers)

Product Typical Properties			AL-M73A	AL-S43B	AL-32B
	H2O	[%]	0.07	0.07	0.04
la la	L.O.I	[%]	0.05	0.05	0.04
nica	Fe2O3	[%]	0.02	0.02	0.02
npc	SiO2	[%]	0.05	0.05	0.05
τg	Na2O	[%]	0.01	0.01	0.01
•	Al2O3	[%]	99.9	99.9	99.9
D50 (MT-3300, Laser Diffraction) [µm]		[µm]	3.0	3.1	3.4
BET Surfa	ace Area	[m2/g]	1.5	1.3	1.6
+45µm		[%]	0.0	0.0	0.0
α Crystal Size [μn		[µm]	2~3	1.5~2.5	3~4
Packing Paper Bag			20kg	25	kg

AL-M73A : Top-cut version of ALM-43.

AL-S43B: PSD of ALM-43 narrowed.

AL-32B : Big α crystal size, and easy to mix with resins.





AL-M73A

5µm



5µm



AL-S43B

10µm

Normal Soda / Easy Sintering (Reactive)

Typical F	Properties	Product	AMS-5020F	AMS-90B		
_	H2O	[%]	0.1	0.1		
al	L.O.I	[%]	0.1	0.3		
nic. sit	Fe2O3	[%]	0.02	0.02		
ne od	SiO2	[%]	0.02	0.02		
5 5	Na2O	[%]	0.27	0.27		
Ŭ	AI2O3	[%]	99.6	99.6		
Specific Gravity		[-]	3.95	3.90		
D50 (MT-	-3300, Laser Diffraction)	[µm]	3.2	0.7		
α Crystal	Size	[µm]	0.3~4	0.3		
Green De	ensity*	[g/cm3]	2.44	2.07		
Fire Density*		[g/cm3]	3.40	3.82		
P. I.I.	Big Bag		1,000kg			
Packing	Paper Bag	Paper Bag		25kg		

* No flux added, 29.4MPa (300kg/cm2), sample sintered at 1600 deg C.

AMS-5020F : Enables high filling ratio because of bi-modal and broad particle size distribution. Typically used for castable plasticizer and low shrinkage ceramics.

AMS-90B : Mono-modal particle size distribution, ground down to $0.7 \mu m.$





AMS-90B

5µm

Low Soda / Easy Sintering (Reactive)

Product Typical Properties		AES-12	AES-11	AES-11C	AES-11H	AES-23	
	H2O	[%]	0.1	0.1	0.1	0.1	0.1
c	L.O.I	[%]	0.1	0.2	0.1	0.2	0.1
cal itio	Fe2O3	[%]	0.02	0.02	0.02	0.02	0.02
in so	SiO2	[%]	0.04	0.04	0.03	0.04	0.04
Ϋ́ς μ	Na2O	[%]	0.04	0.04	0.05	0.04	0.03
្តទួ	MgO*	[%]	-	0.11	0.05	0.04	-
	Al2O3	[%]	99.9	99.9	99.9	99.9	99.9
D50 (MT-3300, Laser Diffraction)		[µm]	0.44	0.43	0.54	0.39	2.2
BET Spec	cific Surface Area	[m2/g]	6.9	6.7	6.3	5.5	3.4
α Crystal	Size	[µm]	0.3	0.3	0.3	0.3	0.3~4
Green Density		[g/cm3]	2.22	2.22	2.20	2.20	2.57
Fire Density**		[g/cm3]	3.88	3.93	3.94	3.87	3.77
Linear Shrinkage** [%		[%]	17	17	18	17	12
Packing Paper Bag					25kg		

* MgO is an additive and not considered as an impurity in Al2O3. **No flux added, 29.4MPa (300kg/cm2), sample sintered at 1600 deg C.

AES-11/11C : Sub-micron size particles. Used for fine ceramic applications requiring 99% purity or higher.

AES-11H : Contains less re-agglomeration than AES-11 / 11C, and it makes slurry dispersion easier.

AES-12 : MgO not added. Also used as a sub-filler of thermal interface materials.

AES-23 : Thixotropic and low viscosity.





4.00 AES-11C 3.90 3.80 Fire Density (g/cm3) AES-11 3.70 AES-11H AES-12 3.60 AES-23 3.50 3.40 1450 1500 1550 1600 1650 Sintering Temperature(degC x 2hrs)



Plant & Office Location / Contact





Aluminum Hydroxide as a flame retardant for CCL.



Aluminum Hydroxide as a filler for solid surface.

CONTACTS for Sales and Technical Information

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