

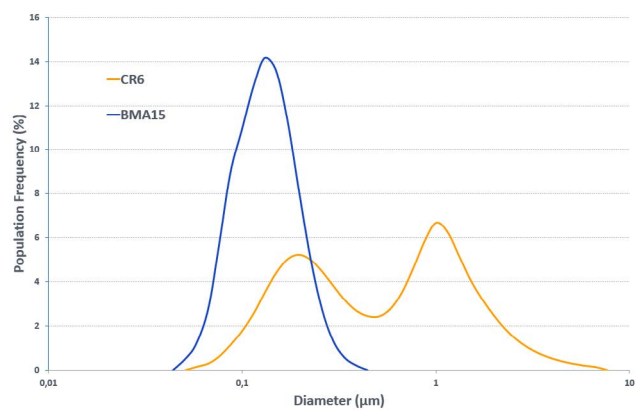
BAIKALOX®

Characteristics

> Thanks to our use of three different Baikowski® process routes (Alum, Bayer Modified and Aluminium Hydrolysis), all our High Purity Alumina products are **controlled in:**

- Particle size & particle size distribution (PSD)
- Chemical purity (3N, 4N and beyond)
- Crystalline phase
- Specific surface area (wide range of SSA available)
- Morphology

> Example of particle size distributions



Baikalox® range

Process route		Alum route													
Baikalox® products (Typical values)		A		GE		CR				BA		BRA	BMA	SM	SMA
Product name		A125	GE30	GE6	GEA6	CR125	CR30F	CR6	CR1	BA20	BA15	BRA105	BMA15	SM8	SMA6
Chemical Purity		4N													
Crystalline phase (%) γ/α		100/0	20/80	0/100		100/0	20/80	0/100		3/97	0/100	90/10	0/100		
Specific Surface Area (m ² /g) BET		106	25	6	6	105	26	6	3	21	15	95	15	10	7
PSD (µm)	d ₅₀	2.0	4.5	8.0	8.0	1.0	0.2	0.5	1.0	4.5	4.5	1.0	0.1	0.2	0.2
Bulk density (g/cm ³)		0.2	0.3	0.4	0.3	0.1	0.3	0.6	0.6	0.3	0.3	0.2	0.8	0.8	0.9
Tapped density (g/cm ³)		0.3	0.6	0.7	0.4	0.2	0.5	0.8	1.0	0.5	0.5	0.3	1.1	1.1	1.3
Elemental Analysis (ppm) ICP		Na	10	12		12				13		12	10	13	
		Si	12	18		20				12		15	5	22	
		Fe	4	4		4				5		4	5	6	
		Ca	2	2		2				2		2	4	4	
		K	20	18		20				18		20	15	11	

*This is only an overview of the existing range.
Please contact our sales department for more information.*



Process route		Bayer Modified route									Aluminium Hydrolysis route		
Baikalox® products (Typical values)		HP		TCP				LS	PB		SA		
Product name		HP DBM	HPT DBM	TCP DBM	TCP-LS DBM	TCPT DBM	TCPT-LS DBM	LSDBM	PB8 DBM	PB12 DBM	SA80	SA8 DBM	SA5 DBM
Chemical Purity		3N									4N		
Crystalline phase		α									Transition	α	
Specific Surface Area (m ² /g) BET		8	4	7	9	4	4	3	8	12	80	8	5
PSD (μm)	d ₅₀	0.4	0.8	0.4	0.4	0.8	0.8	1.2	0.3	0.3	20.6	0.3	0.8
Green density (g/cm ³) (Uniaxial pressing at 350 bar)		2.2	2.3	2.2	2.2	2.3	2.3	2.3	2.2	2.0	-	2.2	2.2
Fired density (g/cm ³) (Sintered at 1510°C for 2h)		3.95	3.85	3.90	3.90	3.85	3.85	3.80*	3.95	3.92	-	3.94**	3.82
Linear Shrinkage (%)		17.5	16.0	17.5	17.5	16.0	16.0	15.4	18.5	20.7	-	17.4	15.6
Elemental Analysis (ppm) ICP	Na	30		600	30	600	90	175	43		5		
	Si	30		15		25		340	10		15		
	Fe	40		80				90	80		3		
	Ca	25		45				380	50		3		

This is only an overview of the existing range.
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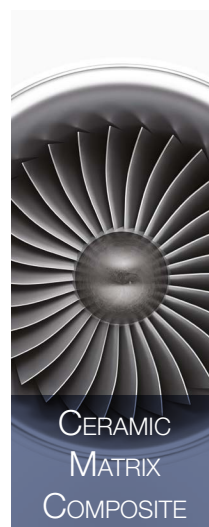
*Sintered at 1620°C
for 1.5h

** With MgO addition
(500ppm)

Applications

> Baikalox® is designed for:

- **Thermal** conductivity
- **Dielectric** properties
- **Mechanical** properties (as a filler in a matrix, or in a ready to use polishing solution thanks to alumina intrinsic hardness)
- **Optical** properties (visible & IR)
- **Sintering** properties (high reactivity at low temperature)



BAIKALOX[®] POLISHING SLURRIES

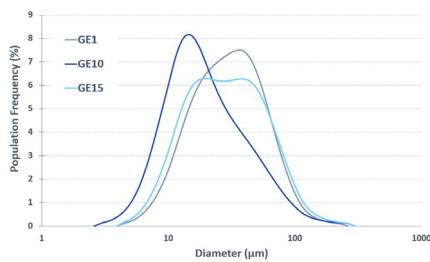
Characteristics

Standard Polishing Slurries (Typical values)	GE1S	GE6S	GE15S	CR1S	CR6S	CR15S	CR30S
Suspension code	3.0	1.0	0.3	3.0CR	1.0CR	0.3CR	0.1CR
Finish	Standard			Scratch-free			
Polishing step	Rough	Rough	Inter.	Rough	Rough	Inter.	Final, 1 step
Nominal particle size (µm)	3.0	1.0	0.3	3.0	1.0	0.3	0.1
pH	7 - 8	7 - 8	7 - 8	7 - 8	7 - 8	7 - 8	7 - 8
Slurry density (g/cm ³)	1.2	1.2	1.2	1.2	1.2	1.2	1.2
PSD (µm)	d ₅₀	13	8.0	4.5	1.0	0.5	0.2

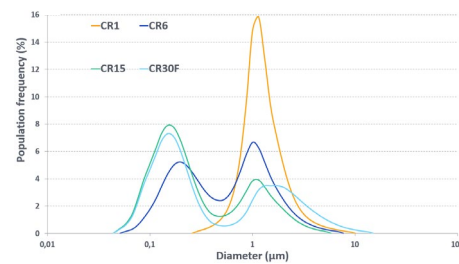
- > Baikalox[®] polishing slurries are **water based suspensions**
- > Baikalox[®] slurries characteristics include:
 - Control in Particle Size & Particle Size Distribution (PSD)
 - High Chemical Purity
 - Miscible with water
 - Non-irritating to the skin thanks to its neutral, nontoxic base
 - Standard or scratch-free finish

We advise to use these products within six months after reception and store it in standard conditions of temperature and pressure, ideally under agitation.

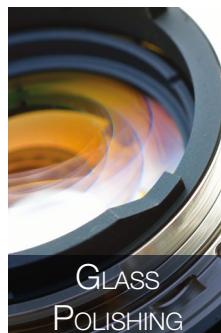
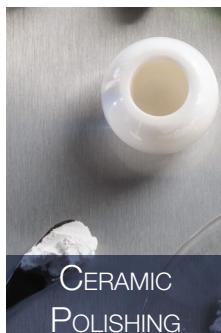
> Particle size distribution of the GE range



> Particle size distribution of the CR range



Applications



Looking for a polishing solution with advanced characteristics? Try BaikoPolish. Baikowski[®] also delivers slurries for other applications.

We customize :

- Chemical composition and purity
- Physical characteristics
- Shape and formulation



CMA[®] CONTROLLED MORPHOLOGY ALUMINA

Characteristics

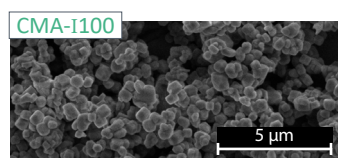
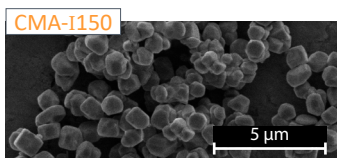
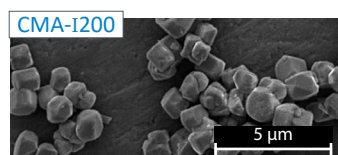
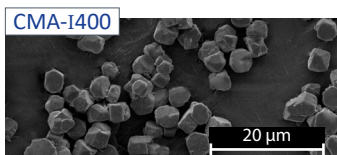
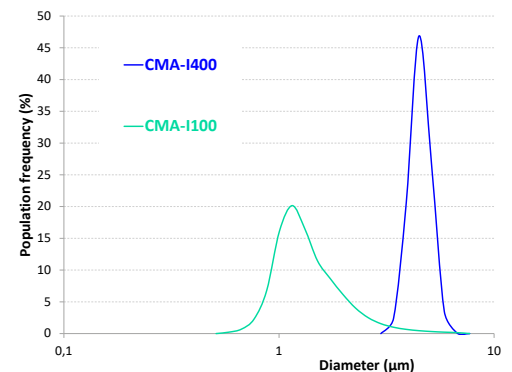
Standard CMA [®] products (Typical values)		CMA-I400	CMA-I200	CMA-I150	CMA-I100
Crystalline phase (%)		100% α			
Specific Surface Area (m ² /g) BET		0.7	1.8	2.0	3.1
PSD (μ m)	d ₅₀	4.0	2.0	1.5	1.0
Bulk Density (g/cm ³)		1.0	0.7	0.6	0.6
Tapped Density (g/cm ³)		1.9	1.3	1.2	1.0
Elemental Analysis (ppm) ICP	Na	14	14	14	14
	Si	350	250	150	150
	Fe	4.0	4.0	4.0	4.0
	Ca	40	40	44	42
	K	15	15	15	15

> CMA[®] Controlled Morphology Alumina characteristics include all the Baikalox[®] specifications, plus:

- Shape and Morphology control: **Icosahedral form**
- Monomodal distribution
- Range of mean particle size from 0.5 to 5 μ m
- High crystallinity
- Low viscosity



> Particle Size Distribution



Applications

> CMA[®] range has a **high sintering reactivity at low temperature** thanks to its high tapped density, icosahedral form and its tight PSD.

It enables **maximized powder stacking** by reducing intergranular spaces.

Thus, **the porosity** of your ceramic parts and your coatings can be **well controlled**.



Baikowski[®] can also design CMA[®] upon request with other shapes, close to ideal structures:

- Spherical (CMA-S)
- Ellipsoidal (CMA-E)



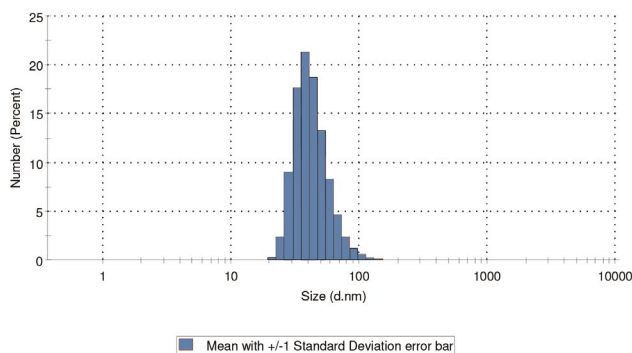
SLA | BAIKALOX[®] ALUMINA SLURRIES

Characteristics

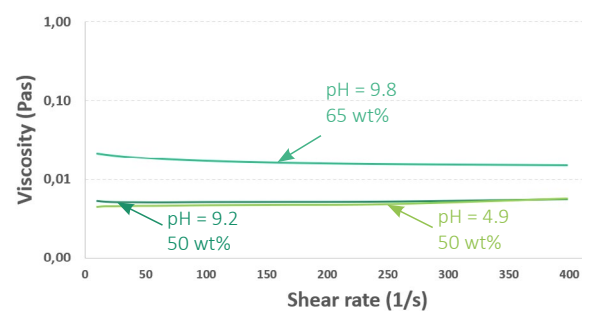
> SLA products are high purity alumina slurries featuring **submicronic particles**. The SLA range has the particularity to offer **customized** characteristics:

- Controlled particle size and size distribution
- pH (acidic or basic)
- Solid loading
- Viscosity
- Crystalline phase (α , γ)
- Chemical purity (3N, 4N and beyond)
- Specific surface area (wide range of SSA available)

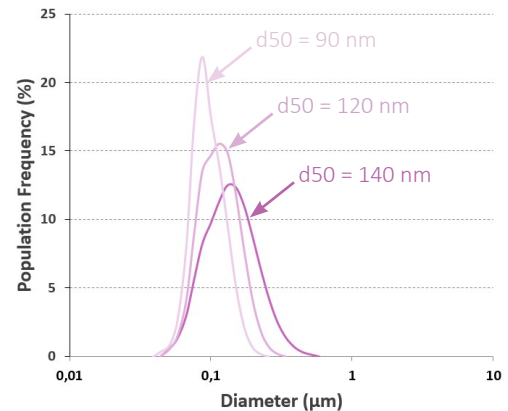
> Particle size distribution of a **gamma alumina slurry** (DLS)



> Example of viscosity curves for **alpha alumina slurries**



> Particle size distribution of **alpha slurries** (Horiba)



Applications

> Baikowski[®] is able to design fine alumina slurries upon request to match your application needs & process such as:

- Chemical compatibility (pH...)
- Viscosity
- Particle Size Distribution (PSD)
- Doping
- Crystalline phase



Any particular process issue? Looking for an acidic or basic slurry with low viscosity & high solid loading? Let us know your requirements and we will design, together, the best solution for your needs.



Your solution partner for fine minerals



Baikowski® 

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Baikowski® SA
France | Poisy | ☎ +33 4 50 22 69 02

Mathym® SAS
France | Lyon | ☎ +33 4 78 83 72 93

Baikowski® Malakoff Inc.
USA | Malakoff (TX) | ☎ +1 903-489-1910

Baikowski® International Corp.
USA | Charlotte (NC) | ☎ +1 704-587-7100

www.baikowski.com
sales@baikowski.com



Follow us:    

Sales Representative in China
China | Shanghai | ☎ +86 21.6289.2883

Baikowski® Korea Co, Ltd.
Korea | Seoul | ☎ +82 255.281.97

Baikowski® Japan Co, Ltd.
Japan | Chiba | ☎ +81 474.73.8150

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