

High Purity Alumina

■ HIGH PURITY ALUMINA PRODUCTS RANGES

Baikalox®

CMA® CONTROLLED MORPHOLOGY ALUMINA

■ BAIKOWSKI® PRODUCTS PROPERTIES

> Thanks to the 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)
- High chemical purity (3N, 4N)
- Crystalline phase
- Specific surface area (wide range of SSA offer)
- Morphology

■ BAIKALOX® PRODUCTS RANGE

Process route		Alum route													
Baikalox® products (Typical values)		A	GE		CR			BA		BRA		GEA	CRA	BMA	SMA
Products name		A125	GE30	GE6	CR125	CR30F	CR6	BA20	BA15	BRA105	BRA15	GEA6	CRA6	BMA15	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	105	26	6	21	15	95	15	6	5	16	6
Ultimate Particle Size (nm) TEM		20	300	400	20	300	400	150	150	20	150	200	200	125	200
PSD (μm) Sedigraph	d ₂₀	2.5	3.0	4.0	0.1	0.2	0.4	6.0	2.0	0.1	0.2	5.0	0.2	0.1	0.2
	d ₅₀	6.0	8.0	9.0	0.3	0.4	0.6	11	10	0.3	0.4	8.0	0.5	0.2	0.2
	d ₉₀	10	17	19	0.7	1.6	1.4	20	19	0.8	2.0	18	1.5	0.9	0.6
Bulk density (g/cm ³)		0.2	0.3	0.4	0.1	0.3	0.6	0.3	0.3	0.2	0.4	0.3	0.9	0.9	1.0
Tapped density (g/cm ³)		0.3	0.6	0.7	0.2	0.5	0.8	0.5	0.5	0.3	0.6	0.4	2.2	1.3	1.2
Chemical Composition (ppm)	Na	10	12	12	10	12	13	14	13	12	13	13	13	12	12
	Si	12	14	20	13	20	22	8	12	8	15	18	20	10	10
	Fe	4	4	4	4	4	5	5	5	4	4	4	4	6	6
	Ca	2	1	2	2	2	2	2	2	2	3	2	2	2	2
	K	20	20	17	16	17	23	14	18	16	20	12	20	20	20
Examples of applications		Bioceramics, Technical Cutting Tools, Wire Bonding, PCA, Sapphire for LEDs, Car Polishing Compounds													



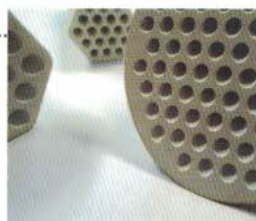
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Process route		Bayer Modified route							Aluminium Hydrolysis route			Internal processing route		
Baikalox® products (Typical values)		HP & HPT		TCP & TCPT				LS DBM	SA			CB		
Products name		HP DBM	HPT DBM	TCP DBM	TCP-LS DBM	TCPT DBM	TCPT-LS DBM	LS DBM	SA80	SA8 DBM	SA5 DBM	CB10CR	CB20CR	CB50CR
Chemical Purity		3N+	3N+	3N	3N+	3N	3N+	3N	4N+	4N+	4N+	3N	3N	3N
Crystalline phase		α							Transition	α		α/γ		
Specific Surface Area (m ² /g) BET		8	4	7	9	3	5	3	80	8	5	10	20	49
PSD (µm) Laser diffraction Horiba LA950	d ₁₀	0.2	0.6	0.2	0.2	0.5	0.5	0.8	11.4	0.2	0.6	0.8	0.8	2.5
	d ₅₀	0.4	0.8	0.4	0.4	0.8	0.8	1.2	20.6	0.4	0.8	1.3	1.5	3.4
	d ₉₀	0.6	1.1	0.6	0.6	1.0	1.0	2.5	38.3	0.6	1.1	5.4	4.7	4.4
Green density (g/cm ³)		2.2	2.3	2.2	2.2	2.2	2.2	2.3	-	2.2	2.2	-	-	-
Fired density (g/cm ³)		3.9	3.8	3.9	3.9	3.5	3.8	3.8	-	3.9	3.8	-	-	-
Shrinkage (%)		17.4	15.5	17.3	17.5	14.0	16.3	15.4	-	17.4	15.6	-	-	-
Chemical Composition (ppm)	Na	25	40	571	26	425	89	173	2	4	7	450	450	450
	Si	22	35	12	18	253	19	342	10	12	13	300	300	300
	Fe	47	36	75	81	105	89	87	3	3	3	70	70	70
	Ca	23	31	45	45	97	23	379	0	2	2	390	390	390
Examples of applications		Ceramic Membranes for Ultrafiltration, Bioceramics, Technical Cutting Tools, Wire Bonding, PCA Sapphire for LEDs, Car Polishing Compounds												



> Baikalox® enhances:

- **Thermal properties** (conductivity, dielectric strength...)
- **Mechanical properties** (as a filler in a coating for wear resistance, or in a ready to use polishing solution thanks to alumina intrinsic hardness)
- **Optical properties** (visible & IR)
- **Sintering properties** (high reactivity at low temperature)

PRODUCTS DESIGN

Baikowski® products can be delivered in:

- Powder: agglomerated, deagglomerated
 - Jet Mill (-CR)
 - Ball Mill (-DBM)
 - Wet Mill (-PS)
- Spray dried powder (-W), with binders system (-WL)
- Slurry
- Feedstocks & Beads
- Green & Fired tape cast



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