INTERNATIONAL Syalons

HIGH PERFORMANCE ADVANCED CERAMICS

Sialon Powders

International Syalons manufacture a range of sialon powders. These include **21R Polytype**, **Beta-Sialon** and **Alpha-Sialon**.

21R Polytype

21R Polytype is one of the sialon structural modifications of aluminium nitride (AlN). It is a refractory material which is predominately used in sialon formulations. Its principle advantage over AlN is that it is stable in aqueous environments, unlike AlN, which hydrolyses very rapidly in water. This allows sialon formulations containing 21R Polytype to be processed by aqueous slip casting or spray drying, for example.

The table below shows the typical composition and particle size for 21R Polytype, which is available in two grades, standard 21R and fine 21RF:

21R Polytype			21RF Polytype		
Property	**Value**	**Unit**	**Property**	**Value**	**Unit**
21R Polytype	> 90	%	21R Polytype	> 90	%
Aluminium Nitride (AlN)	< 10	%	Aluminium Nitride (AlN)	< 10	%
Iron (Fe)	< 0.10	%	Iron (Fe)	< 0.10	%
Calcia (CaO)	< 0.02	%	Calcia (CaO)	< 0.02	%
Oxygen (O)	9.3	%	Oxygen (O)	10.3	%
D_{50}	< 5.50	µm	D_{50}	< 2.50	µm

β–Sialon and α-Sialon

β-Sialon is a pressureless sinterable powder, which under the right conditions can be sintered to a fully dense β-Sialon body, with physical properties equivalent to those of **Syalon 101**. While **α-Sialon**, is a pressureless sinterable powder, which under the right conditions can be sintered to a fully dense α-Sialon body, with physical properties equivalent to those of **Syalon 050**. These powders are available in a spray dried ready to press form, containing binders, or a slip castable form, without binders.

The table below shows the typical composition and particle size for spray dried β-Sialon and spray dried α-Sialon:

β-Sialon			α-Sialon		
Property	**Value**	**Units**	**Property**	**Value**	**Unit**
Silicon Nitride (Si_3N_4)	90	%	Silicon Nitride (Si_3N_4)	80	%
Aluminium Nitride (AlN)	1	%	Aluminium Nitride (AlN)	12	%
Yttrium Oxide (Y_2O_3)	6	%	Yttrium Oxide (Y_2O_3)	6	%
Aluminium Oxide (Al_2O_3)	3	%	Aluminium Oxide (Al_2O_3)	2	%
D_{50}	< 1.0	µm	D_{50}	< 1.0	µm
Spray dried D_{50}	90	µm	Spray dried D_{50}	90	µm

Typical property data obtained under test conditions. The values given only apply to the test bodies on which they were determined, and therefore can only be recommended values.

Technical Support

Our technical specialists are available to discuss your sialon powder requirements in detail and to assist in exploiting the significant advantages which our powders have to offer.

Certificate No. 930359

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