

## **$\beta$ - SYALON**



### The different SYALON forms:

**Syalons / Sialons** are alloys, based on silicon nitride as the solvent. Because  **$\beta$ -Syalon** has the same atomical arrangement, its mechanical and physical properties are almost similar to those of silicon nitride. Chemically, it has some of the features of alumina,  $Al_2O_3$ .

Our standard product range is based on beta silicon nitride. Clearly *Syalons* can also be made that are based on alpha silicon nitride and on oxynitride each of which has a different crystallographic structure. These different forms have traditionally been denoted by the notations  $\alpha$ -prime,  $\beta$ -prime or O-prime, also known as  **$\alpha$ -Syalon**,  **$\beta$ -Syalon** or O-Sialon.

O-Sialon is based on silicon oxynitride; it is not as strong or as hard as  **$\beta$ -Syalon**. It is not cheaper than other SiN/*Syalon*/Sialon types unless it is produced by some novel processing techniques which are more and more common for the production of O-Sialon. Such techniques involve carbothermal reduction in which cheap raw materials such as coke and sand are converted to a Sialon by heating in nitrogen.

Our standard material is a hundred percent  $\beta$ -quality (no other, probably cheaper components are added). We fire our  **$\beta$ -Syalon** at 2000° C (!) meanwhile most O-types are fired at 1200 - 1300° C. The higher temperature results into a material which is absolutely gastight with zero porosity.