



INTERNATIONAL  
**Syalons**

## ADVANCED SILICON NITRIDE CERAMICS

### Company Profile

**International Syalons** are a leading manufacturer of advanced engineering ceramics, supplying materials solutions to a wide range of industrial applications, to the four corners of the earth.

Originally established in the early 1980's, **International Syalons** are now based in the North East of England, and are the UK's leading producer of sialon and silicon nitride based ceramics.

**Syalon advanced ceramics** are used in a vast range of industrial applications such as **non-ferrous molten metal handling**, the **oil and gas industry**, **friction and wear applications** and the **chemical and process industry**.

In addition, **International Syalons** now also offer a range of advanced **alumina**, **zirconia** and **silicon carbide** ceramics which complement our **sialons** in a range of industrial wear applications.



### History

Sialon was originally discovered in the early 1970s at Newcastle University and was the first known man-made ceramic alloy.

This attracted great interest because at the time the only way to fabricate dense silicon nitride based ceramics was by hot pressing, which is very limited in the shapes that can be made.

Sialons could be pressureless sintered and therefore shaping methods such as pressing and slip casting could be utilized.

The material and its fabrication were developed further during the 1970s and early 1980s by Lucas Industries, who had financed the original University work. A company, Lucas Syalon Ltd, was then set up to commercially exploit this technology.

The business has grown steadily through the 1990s to the present day and is now known as **International Syalons (Newcastle) Ltd**.



### Capabilities

**International Syalons** produce advanced ceramics using the latest fabrication, machining and sintering technologies.

These include powder preparation via ball milling and spray drying, isostatic and uniaxial pressing, drain and pressure casting, state of the art CNC green machining, vacuum sintering furnaces and precision diamond grinding, all controlled and monitored under the company ISO 9001 quality system. In addition, we have in-house mechanical testing, X-ray diffraction (XRD) and X-ray fluorescence (XRF) facilities.

Clean room manufacturing conditions during the powder preparation and component fabrication stages reduce the chances of contamination, thus minimizing the likelihood of strength reducing flaws and defects.

Adherence to the quality system allows International Syalons to produce high quality engineering ceramics with the best chance of meeting your requirements.

International Syalons also regularly work in collaboration with customers to develop new state of the art solutions to challenging applications.



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