

# Saint-Gobain Launches High-Density Ceramic Peening Shot: Zirshot® HDC

**THE CONTINUOUS SEARCH** for performance enhancement and energy savings in the use of mechanical components drives many industries to employ harder and stronger metallic alloys, combined with the design of lighter parts and complex shapes.

Shot peening, one of the most efficient surface treatment processes to enhance mechanical strength and reduce weight, has evolved and adapted to these new generations of metallic alloys.

Saint-Gobain ZirPro has developed Zirshot® HDC, a new ceramic shot made from a very tough Zirconia-based material, which combines properties of a high density ( 6.2 g/cm<sup>3</sup> or 386 lb/ft<sup>3</sup>) together with an extreme degree of hardness (70 HRC or 1180 HV). This new peening media exhibits good roundness, very smooth surface, and narrow size distribution (Figure 1).

With these outstanding characteristics, Zirshot HDC will consistently transfer higher energy levels during each peening impact while improving the surface integrity of the treated parts (Figure 2).

As a result of the peening operations of hard steel and super-alloy components, Zirshot HDC provides high levels of compressive stress far beyond the capabilities of steel-based shot peening media. As shown on Figure 3, the stress profiles on spring steel peened with Zirshot HDC are outstanding,



Figure 1. Zirshot® HDC ZC900 ceramic shots

with the results on harder steel substrates exceeding the performance of the hardest steel cut wire.

Zirshot HDC can comfortably reach the whole range of Almen intensities on the A scale. In addition, Zirshot HDC has high recycling capabilities in both pneumatic nozzle and wheel turbine shot peening equipment.

As with standard Zirshot, there is no ferrous contamination on the surface of non-ferrous components.

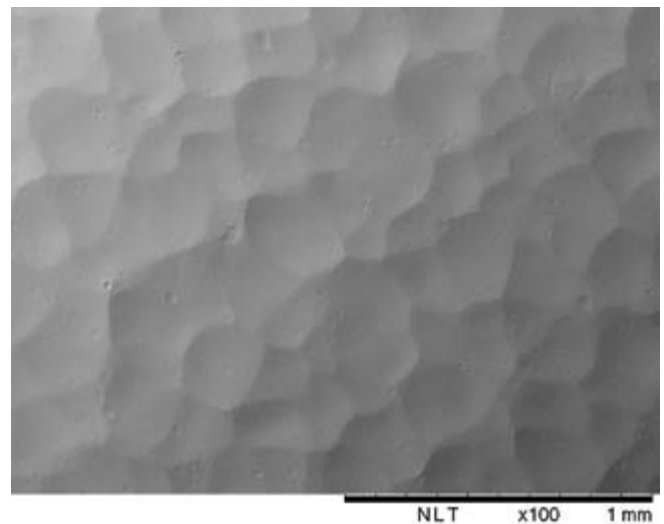


Figure 2. Steel surface peened with Zirshot® HDC



Figure 3. Stress on spring carbon steel peened surface

Zirshot HDC is manufactured by Saint-Gobain ZirPro in three regular size ranges:

- ZC400 (400-600µm)
- ZC600 (600-800µm)
- ZC900 (900-1100µm)

It is available from the ZirPro sales offices globally and also from ZirPro's authorized distributors.

Saint-Gobain research and development engineers presented a technical study on the Zirshot HDC media behavior in peening processes and their effects on steel substrates at the recent 13th International Conference on Shot Peening (Montreal, September 2017).

Saint-Gobain ZirPro has ongoing developments of Zirshot HDC in the automotive, aerospace and biomedical markets where deep peening intensities, and an improved surface finish are required. Furthermore, Zirshot HDC is currently being tested and is showing enhanced materials parameters of components manufactured by additive manufacturing. Applications could also be foreseen in peen forming with coarse size of Zirshot HDC.

Feel free to contact our sales and marketing offices for further information and for testing the new Zirshot HDC.

- North America: Jeff Girman (jeff.a.girman@saint-gobain.com)
- Asia, Europe and Rest of World: Renaud Hancy (renaud.hancy@saint-gobain.com) ●

#### About Saint-Gobain ZirPro

Saint-Gobain ZirPro is the leading manufacturer of ceramic peening and blasting media including the following product ranges:

- Zirshot®
- Zirblast®
- Microblast®
- Zirgrit®

They offer class leading technical support to assist customers in developing value added ceramic peening/blasting solutions from ZirPro Application Labs, located in Saint-Gobain Research and Development Centers.

For more information, visit [www.zirpro.com](http://www.zirpro.com).



*The Saint-Gobain Surface Treatment Application Lab*

# LAI International First to Earn Nadcap Additive Manufacturing Accreditation

**THE PERFORMANCE REVIEW INSTITUTE** is pleased to announce that LAI International, a leading contract manufacturer of precision-engineered finished parts, components and sub-assemblies for advanced industries, recently earned the first Nadcap Additive Manufacturing Accreditation.

LAI Director of Quality, Joe Beauchemin Jr, stated, "Having Nadcap Welding Additive Manufacturing Certification has improved LAI's sales opportunity and reduced operational cost. PRI provides the infrastructure, documentation, and support to help companies achieve certification."

The Additive Manufacturing checklist developed by the Nadcap Welding Task Group, used to get the Nadcap Accreditation, is based on Subscriber requirements and is specifically for laser and electron beam powder bed metallic components. It is available in eAuditNet via Resources/Documents/Audit Checklists/Welding.

Ian Simpson, Program Manager for Welding at PRI, would like to thank both LAI for their pro-active approach to becoming accredited, as well as the dedicated work by the sub-team led by Dr. Richard Freeman of TWI. Dr. Freeman developed the checklist and ensured its seamless introduction into the Nadcap program.

Any company who is interested in gaining Nadcap Additive Manufacturing Accreditation, or would like further information, should contact:

- Ian Simpson, Program Manager -Welding (isimpson@p-r-i.org tel: +44 1332 869272) or
- Staff Engineer, Gabe Kustra (gkustra@p-r-i.org tel: +1 724 772 8673) for more details.

#### About LAI

LAI is a premier provider of highly engineered, mission-critical components to a range of industries, primarily commercial aerospace, defense, industrial, power generation and medical. To find out more, please visit [www.laico.com](http://www.laico.com). ●