

Zirblast Zirshot



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Ceramic beads for impact surface treatments

- Enhanced work part quality and surface finish
- Lower production costs
- Support from a competent team

You'll be
Try them
convinced!

SEPR L7
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Zirblast and Zirshot for impact surface treatments

Société Européenne des Produits Réfractaires (SEPR) manufactures Zirblast and Zirshot ceramic beads for impact surface treatment applications by a unique fusion process of oxides at very high temperature. In addition to giving superior treatment quality with lower production costs, these beads offer enhanced operating conditions and greater versatility. They are equally effective whether used in air blast (dry or wet) or wheel-blast systems.

1/ Zirblast and Zirshot beads enhance work parts quality and surface finish

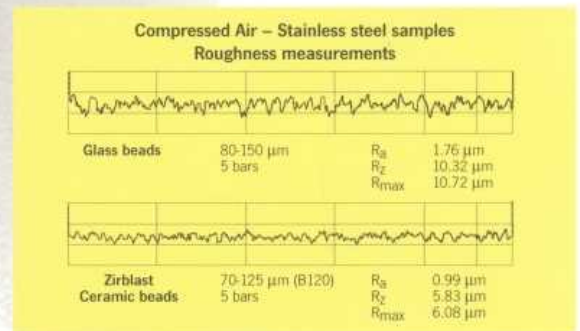
Three main factors contribute to these qualitative improvements:

1/ no contamination of treated surfaces

Ceramic beads do not contaminate treated parts by embedment of reactive particles. Their exceptional mechanical properties (toughness, impact resistance, hardness, elastic properties) allow them to maintain their initial shape without shattering and without being subject to strain hardening, even after being used for a long period of time.

2/ uniform, reproducible treatment quality

The results are uniform over the entire surface of the parts. Above all, treatment quality is consistent and reproducible, part after part. Surface finish is of consistent quality from one production run to the next.



Because of their elastic properties, ceramic beads rebound several times during the blasting process. This property makes them ideal for treating parts of complex geometry and areas that are inaccessible using conventional treatment media.

3/ no damage to the parts



Their relative density is optimal:

- higher than that of glass beads, for higher treatment intensity,
- lower than that of steel shot.

The high rate of coverage of ceramic media makes it possible to treat only the necessary surfaces with no damage to the rest of the part. For example, the edges and markings of glassmaking molds or the pattern of tire molds remain intact.

The finish condition (after cleaning, descaling or stress relieving of welds) is remarkable.

II/ SEPR ceramic beads reduce operating costs

Cost reduction is a key priority for production managers, and the feedback from our customers is unanimous: the use of SEPR ceramic beads drives down production costs significantly.

1/ consumption of ceramic media is one-tenth that of glass media

Because of their high toughness, ceramic beads do not break into small particles during use, thereby minimizing the use of the dust collection system. Moreover, the beads themselves can be recycled more times, extending their service life.

2/ enhanced working conditions boost operator productivity

Freedom from dust ensures excellent visibility inside or outside the blast rooms and keeps beads flowing smoothly. As a result, operators spend less time on each work piece and on machinery adjustments.

3/ equipment lasts longer

The dust generated by traditional media creates a highly aggressive environment for machinery. With ceramic media, the reduction or elimination of dust means longer service life for the equipment. Wear parts last longer, making for more streamlined maintenance programs.

Unlike steel shot, Zirblast and Zirshot beads keep their



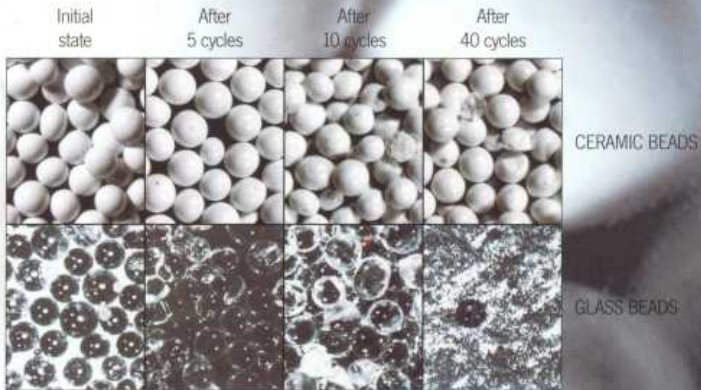
smooth, spherical shape during treatment. These stable properties help reduce wear on machinery and tooling, especially in wheel-blast systems.

4/ energy consumption is reduced

The low relative density and optimal effectiveness of ceramic beads, when delivered even at low velocities, allow the use of lower air pressure in air blast systems or a lower power requirement in wheel-blast systems. These savings are coupled with enhanced treatment quality and higher productivity.

5/ waste production is limited

This feature is the direct result of the lower bead consumption and reduced production of dust, which usually requires costly disposal.



Bead behavior during use.
Under identical operating conditions, glass beads are destroyed after 40 treatment cycles (turned into dust), while nearly all ceramic beads remain intact.

The use of ceramic beads (left) vs. steel shot (right) leads to a significant difference in abrasive wear on bakelite specimens.

TIMER | h0m1 s0
I a=5 ,5 1:0:0 :57

TIMER | h0m1 s0
I a=3 ,9 1:0:0 :49

Power consumption (amperage) can be reduced while still improving treatment effectiveness.

III/ Technical support: a vital component of the SEPR offering

The use of SEPR ceramic beads in an existing installation or a new machine is preceded by trials to determine the most appropriate operating conditions. SEPR provides technical support during pilot (pre-production) testing to determine the main settings and parameters. The user is then given a copy of the testing procedure or can arrange to have assistance on site.



If necessary, full-scale tests can be conducted at the SEPR showroom, in the company's plant near Avignon at Le Pontet (France).

- the customer or potential user may send a representative to attend the testing and thus acquire all information and data needed for the use of ceramic beads in his application, or
- tests can be conducted according to a program defined jointly with the customer, to be followed up by the issuance of a test report and recommendations for use.

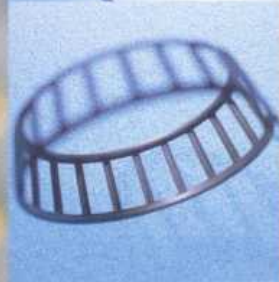
Backed by its experience in the field of impact surface treatment, SEPR has a highly selective testing policy, formulating proposals only for tests likely to prove technically successful and pave the way for economic progress.

SEPR also offers the support of a Research Center where the technical means are concentrated: scanning electronic microscope, microprobe...

IV/ Zirblast and Zirshot: a wide range of applications

Electrofused ceramic beads are now used in many sectors of industry, such as:

- Vessel construction: specially for stainless steel and aluminum components and assemblies for the textile, food, nuclear, chemical and other industries. The beads are used for:
 - cleaning and finishing of surfaces
 - stress-relieving of welds
 - shot-peening of reactor vessels to prevent and reduce the spread of cracks as well as stress corrosion
- Glass-making, tire-making and extrusion of lightweight alloys or plastics. Beads are used to clean molds, dies and tools.
- Foundry:
 - deburring of thin and fragile parts
 - cleaning of molds, core boxes and tools
 - finishing of parts made of metal alloys
 - treatment of hard-to-reach zones (i.e., engine block cooling circuits)
- Cryogenic deburring of plastic parts, compacting of plasma coatings, cleaning, surface preparation of mechanical parts, aluminum cylinder heads, surgical instruments, medical prosthesis, eyeglass frames.
- Automotive industry:
 - scale-removal: universal joints, welds, etc.
 - polishing or repair of surfaces: alloy wheels
 - refurbishment: alternators
 - shot peening: springs, pinion gears



V/ Ceramic beads for both air-blast and wheel-blast systems

Zirblast and Zirshot ceramic beads enhance the performance of each projection systems:

Wheel-blast systems

When introduced into the center, the media is first accelerated by an auxiliary turbine then distributed through a control cage to the main blades. The beads are then accelerated by centrifugal force, and move along the blades to the end, where they are hurled against the parts. Optimal performance of Zirblast and Zirshot ceramic beads is achieved using a low delivery velocity coupled with the right media flow rate, and the smallest bead size possible.

Benefits: the use of a high flow rate of small beads at a low projection velocity increases the number of impacts per unit of surface area (coverage), thereby improving the quality of the surface treatment while reducing the energy requirement.

Ceramic beads can be used with most existing wheel-blast systems, including relatively old models. The best performance can be achieved using recent models designed with tight tolerances, especially when using the smallest diameter beads.



Air-blast systems

Dry process with direct pressure systems
(sandblasting-type system)

The media is channeled through a pipe and then accelerated through a nozzle. There is a wide adjustment range for the media flow rate, which is fairly independent of the compressed air pressure.

Benefits: by increasing the nozzle and pipe diameters and reducing pressure to ensure a constant rate of air consumption, the bead flow rate is increased substantially, leading in turn to higher productivity. Wear is also reduced because the bead delivery velocity is lowered.

Dry process with venturi guns (Giffard suction effect)

After fluidization in an air stream, the beads are sucked up into a pipe at the nozzle inlet, then accelerated through the nozzle. There is little possibility of adjusting the media flow rate because it is directly correlated to the air injection pressure.

Benefits: the small size and smooth surface of SEPR ceramic media reduce wear of the air injector and nozzle components and allows an increase of the throughput.



Zirblast and Zirshot are trademarks
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Visit the BGP web site
<http://www.seprbgp.com>

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