



Atomization On Demand Or How To Fine Tune Steel Particles

Break-through technologies for an innovative service

World leader in metallic abrasives Wheelabrator Allevar (WA) proposes its new service: Atomization On Demand (AOD). Based on a recognized know-how and break-through production techniques issued from the latest researches, this innovative service brings to the customer an environmental-friendly and cost-efficient supply solution for high quality steel particles.

It allows to propose specific products with customized properties, responding to the most specific and unmet customers needs in terms of chemical composition, size distribution, shape and density...

In other words the era of fine tuned steel particles has arrived!

The process

In its cutting-edge research centres, WA constantly develops innovative production techniques. Combined with

its 50 years experience in steel particles processing, WA wishes through this service to bring to the customers its latest developments and its expertise to jointly develop the most suitable and the more economical solution.

The AOD offer is based on an existing network of production plants and research centres worldwide. Nevertheless, a dedicated medium-scale plant based in particular on a dual atomization technology has been developed by WA research teams in order to meet the most specific requests. This break-through atomization process allows to obtain specific qualities of the metallic particles by joining the cost-efficiency of water atomization with the high quality of rotary atomized particles, especially in terms of roundness and density.

Particles obtained after atomization can eventually be crushed to generate angular particles if required by the final application.

Furthermore, the products can be heat treated (under standard or inert atmo-

sphere) to adjust their microstructure and hardness thus obtaining adequate properties for each need.

Size distribution can be fine-tuned with special sieving equipment. Optimal shape is obtained through adapted atomization conditions, separation tools or conditioning. This last treatment can also be used to convey other properties especially a very high level of surface cleanliness (absence of oxidation, shiny aspect) as well as a high mechanical resistance.

To guarantee to the customer a fully dedicated product without any risk of contamination, WA has pushed the precautionary principle to its limits: first of all by not using any hazardous substances in its processes but also by a deliberate equipment design and operating strategies aiming at suppressing cross-contamination between different product types.

The advantages in comparison to the traditional offer

Unlike the traditional standard production which proposes standard quality products, the AOD service has been developed to quickly respond to very specific and unmet needs of customers. Dedicated production units can produce specific batches of particles from about 100 μm to 10 mm, within a wide range of alloyed steel and iron compositions. WA can provide test or regular production batches from a few hundred kilograms to hundreds of tons, with the possibility to upscale to thousands.

Customers can count on the confidential aspect of the process. Close cooperation with potential partners starts at the very beginning, and the respect of confidentiality and careful understanding of customers needs, guarantee a truly customized solution.

The cost-efficient production processes enable WA partners to develop new technologies which were not accessible before due to product cost limitations. For instance, AOD can provide millimetric steel balls with a far lower



One of the atomizing systems of AOD offer





Science Update



Heat transfer particles



High-Chromium grit for specific blasting operations



Tool steel particles for hard-facing

cost than forged balls produced in the bearing industry.

More than just a standard supplier, WA wishes to provide added-value to its customers by bringing both customized and cost-efficient solutions.

The applications

The idea of customization can be observed within the scope of WA's traditional core business.

WA is well known for its standard product range for typical blasting applications such as desanding, descaling, surface preparation, shot peening or stone cutting. A premium steel abrasives range dedicated to these applications comes on top of the standard range, developed to meet specific needs of each application. WA can go even further in the optimization of the blasting and cutting media by offering individual solutions.

Out of these traditional applications, there are practically no limits to the applications of tailored steel particles. They can be used in many industrial fields, for instance as iron-based reactives for chemical or environmental applications, as precise alloying elements for the steel and metallurgical industries, as well as specific welding powders, metallic coating particles, heat transfer particles, non-toxic substitutes to lead ammunition, vibratory finishing steel media and much more...

Summary

The customers who will develop the AOD reflex, such as proposed by WA, will be satisfied to find both a partner and a committed supplier with an out of the standard product, finely tuned for their needs. They will be able to rely on world leader's quality, flexibility and reactivity. Cost efficiency and optimisation answer to the ever growing customers demand to get the best value for their money.

To go further in this customized approach, WA continues to invest in cutting-edge production equipment. One of the major steps for the year 2011 will be toward the production of even

finer particles with the launch of a new industrial line, based on a proprietary technology and able to produce perfectly spherical particles from 40 to 100 μm .

As AOD can fulfil requirements of countless domains which need high quality engineered steel particles, imagination seems to be the only limit...

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Inert atmosphere heat treating of steel balls