



## W ABRASIVES, THE WINOA LEADER BRAND, ALL OVER THE WORLD



>>> W ABRASIVES, YOUR KEY SUCCESS FACTOR

## ICSP CONFERENCE & EXHIBITION



### What is ICSP?

The 11th International Conference on Shot Peening (ICSP11) was held in September in South Bend (Indiana, USA). This triennial conference is organized by the International Scientific Committee on Shot Peening and aims to promote research and disseminate the knowledge in the area of shot peening and allied processes.

This conference is the best opportunity for key players of shot peening field to meet, present their work and initiate collaborations. A majority of the attendees are from academics orga-

nizations, but more and more industrial players are taking part in the event: machine manufacturers, abrasive producers, service providers, and also end users. Beside technical presentations, there is an exhibition hall where industrial actors present their latest products and services.

### What's new in the Shot Peening Field?

Among many subjects that have been discussed during the conference, two recurring themes are especially worth mentioning:

- The development of numerical simulations of the shot peening process. The goal is to avoid time-consuming trials and costly developments by allowing a pre-selection of optimized peening parameters.

> **W Abrasives is working actively on this topic through collaborations with well-recognized universities in the Shot Peening field.**

- The development of advanced tools and innovative procedures to control the shot peening process (especially

coverage and velocity monitoring). This field of development is very promising as it is a response to the main weakness of Shot Peening process which is the absence of direct process control, Almen strips being an indirect measurement method. Nonetheless, this technique presents some interesting developments, especially the introduction of Almen mini-strips to verify shot peening intensity in areas that are too small and/or inaccessible with a standard-size Almen strip.

> **In addition with its own tools and services, W Abrasives is very attentive to any technology that could help its customers.**

### W Abrasives at ICSP

W Abrasives presented in its booth its new shot peening product range (dedicated products and solutions for industry, automotive and aeronautics) and its latest innovations in this field: HRS (high hardness media) and Ultra Fine Shots (from 45 to 180 µm). For further details, please see the shot peening section of our website, under "Special Peening".

[www.wabrasives.com](http://www.wabrasives.com)

Marmomacc is the biggest Marble and Stone Exhibition that took place in Verona from 21st to 24th September 2011.

The Winoa Group was present with its booth of 198 m2 advertising the main brands in Granite field (W Abrasives, Abrasivi Metallici, Winterstone).

The aim was to introduce to all our customers and visitors of this sector the wide range of tools for granite sawing. Our group, is the only one able to provide cutting tools useful from the quarry to the small laboratory.

In particular, the new solution "Cosmos" was strongly advertised as innovation and all its strength points highlighted by a wide screen TV transmitting an interview to our biggest customer (Antolini).

Furthermore, a fountain of Cosmos grit was working all day long giving a live proof of use.

Many visitors came to our booth and their interest was great and at the top of our attention.

**CUTTING SOLUTIONS**

**cosmos**

Optimize your cutting operations.  
More slabs, higher quality, better cost efficiency.

**COSMOS is the best solution of W Abrasives dedicated to granite cutting.**

You can add an extra value to your cutting operation with granite grits, obtaining more slabs for each block.

**COSMOS is the latest news for granite cutting, combining in an exclusive blend, a system giving more productivity and our technical support for process optimization.**

**COSMOS offers various benefits: productivity, cost efficiency, higher slabs quality and an environmental friendly system.**

W Abrasives®  
your key success factor

FENAF 2011 - October 4th to Friday 7th - São Paulo Capital Industry Equipments producers in general, Raw materials Foundry suppliers  
**A STAND FOR IKK DO BRASIL, a Winoa company**

FENAF Fair is the most important Foundry fair of South America and a good opportunity for IKK Do Brasil to launch its new brand W Abrasives. During the exhibition the sales team highlights the Premium products range through video, posters and leaflets and presented the last innovations of the group.

More than one hundred customers visited the stand. It was a very positive exhibition and IKK Do Brasil makes appointment with his customers next year in Joinville - South Brazil.



**"NanoPeening", a new nanostructuring technique for high performance metallic surfaces**

Winoabrasives India Pvt. Ltd. | T. Muller, T. Prézeau, J. Samuel | [www.nanopeening.com](http://www.nanopeening.com)

**Abstract**

Nanocrystallization is expected to greatly enhance the mechanical properties but as opposed to other solutions without changing the chemical composition and shape of materials [1]. In recent years, surface nanocrystallization has been achieved for various metals by near surface severe plastic deformation. Many processes are proposed at laboratory scale to produce ultrafine-grained materials such as equal channel angular pressing [2], high pressure torsion [3] or ultrasonic shot peening [4]. However most of these techniques, though interesting for experimental purposes, do not present the required characteristics to be implemented at an industrial scale because of limitations in terms of kinetics or adaptability to complicated geometries.

WINOA has developed and patented an innovative technique called NanoPeening® able to produce rapidly a thick layer of nanosized grains on many kinds of metallic surfaces. A number of experiments on different grades was realized with the new technique, alone or before thermo-chemical treatments or PVD deposition. The microstructure and mechanical or chemical properties obtained in these different conditions will be presented and discussed.

Microstructural analyses, nano-indentation and hardness tests have shown a top surface region with very high hardness and a deeper work-hardened layer with a more progressive hardness profile. Many different properties such as abrasive wear, fretting corrosion, chemical efficiency, coating scratch resistance, were improved after a NanoPeening® treatment.

**Principle**

Thermo-Chemical Treatment

Microstructure

Hardness

► In situ transformation of the treated metallic surface in a layer of several tens of microns to nanosized grains.

► Improvement of mechanical and chemical performances without the addition of new material (coating, powder, nanoparticles).

► Increased anti-pollution action.

**Results on AISI 304L**

Microstructure

Hardness

► **Benefit:** - affected depth by the treatment = 200 microns  
- surface hardness = 100% in less than 1 min  
- very rapid formation of a nanostructured layer (> 100 microns in 5 min)

**Hardening effect on different steels**

Reference | NanoPeening®

304L (AISI) | 307CrNiMo-2 | 309CrNiMo-2

► **CONCLUSIONS**

► The present results show the possibility to significantly improve mechanical and atomic diffusivity properties of engineering materials by the generation of a well-controlled nanostructured surface layer.

► The adaptability and productivity of this new technique opens very promising possibilities in many engineering fields, for the automotive industry or extensive tool-using processes such as forging or extruding.

## EUROMAT CONFERENCE & EXHIBITION

### What is EUROMAT?

The 12th European Congress and Exhibition on Advanced Materials and Processes (EUROMAT 2011) has been held in September in Montpellier (France). Held every two years since 1989, EUROMAT Conferences gather academics and researchers from the industry with a large scope on Materials Science and Technology and their applications.

This conference is a well opportunity for key players of the following fields - Functional materials, Structural materials, Processing, Characterization and Modeling, Energy and related applications, Healthcare applications - to meet, present their work and initiate collaborations.

The 1500 participants were able to follow the technical presentations and poster sessions made during this event.

### Focus on Structural and Advanced Metals

Among many subjects that have been discussed during the conference, one topic is worth mentioning:

*Ultrafine-grained Materials processed by Severe Plastic Deformation.* Over the past decades, ultrafine-grained materials have attracted considerable scientific interest, since nanostructured materials are known to possess superior mechanical, physical or chemical properties compared to conventional coarse-grained materials. Surface nanocrystallization has been achieved for various metals by near surface severe plastic deformation through several processes proposed at laboratory scale such as equal channel angular pressing, high pressure torsion or ultrasonic shot peening. However most of these techniques, though interesting for experimental purposes, do not present the required characteristics to be implemented at an industrial scale because of limitations in terms of kinetics or adaptability to complicated geometries.

> WINOA has developed and patented an innovative technique called NanoPeening® able to produce rapidly a thick layer of nanosized grains on many kinds of metallic surfaces.

### WINOA at EUROMAT

WINOA presented through a poster the obtained results after the NanoPeening® treatment and showed the possibility to significantly improve mechanical and atomic diffusivity properties of engineering materials by the generation of a well-controlled nanostructured surface layer. The adaptability and productivity of this new technique opens very promising possibilities in many engineering fields, for the automotive industry or extensive tool-using processes such as forging or extruding.



## CORCON-Corrosion Conf. & Expo, 2011 September 28th-October, 1st, 2011 at Mumbai, India Organized by NACE International Gateway India Section

NACE International Gateway India Section has organized CORCON-2011 from September 28th-1st to October, 2011 at Hotel Intercontinental-The Lalit, Mumbai. Corcon 2011 included :

- Technical Symposia for the presentation of Contributory papers including keynote talks
- Open sessions for discussion of Corrosion related issues
- Talks by eminent Scientists and Professionals, distinctive technical papers
- Expo for display of products and services

Corcon 2011 has provided Winoabrasives India a unique opportunity for a meaningful interaction between owners, suppliers, service providers, consultants and academics. Winoabrasives India took this opportunity and supported the Corcon-2011 by presenting a paper in the Surface Preparation area in Symposium - Paint Coating & Lining. The paper presentation consisted mainly of Blasted surface - Cleanliness, Roughness, Peak count, Conductivity level, Coverage, Dust level beside focus on the Air Blasting System and main influencing factors playing an important role in achieving requested surface conditions, e.g.: Type of Abrasive, Grain size of abrasive, Blasting pressure, Blasting distance, Blasting Angle, Nozzle type and Abrasive flow rate.

NACE International is recognized around the world as the premier authority for corrosion control solutions. National Association of Corrosion Engineers was founded in Texas, USA in 1943 by 11 engineers. NACE International is involved in every industry and area of corrosion prevention and control - from chemical processing and water systems to transportation and infrastructure protection. NACE International Gateway India section was established in 1992 headquartered at Mumbai. It has now become 3rd largest and most active sections of NACE International through its significant contributions for the promotion of corrosion awareness in India.

There were nearly 1000 delegates and almost 200 papers were presented in the Expo. Almost 50 exhibitors from India & Overseas came from Coating & Surface Preparation fields displaying large variety of product lines with applications in Oil & Gas, Chemical & fertilizer, RCC & Infrastructure, Marine, Transport & Automobiles, Power Generation, and Defence, etc.

Winoabrasives is considered as a major reliable Steel shots & Steel Grits supplier in Indian Surface preparation market especially to Pipe coating companies customers like PSL Ltd, Jindal Saw, Man Industries, Ratnamani, Welspun, Topworth, Jindal India, Maharashtra Seamless and shipyards like ABG & Pipavav.

The 2-corner 24 Square meter stall was the centre of attraction for visitors with nicely presented 50th anniversary of Winoabrasives along with a specially made twist tower for sample display such as Profillum. Many visitors have appreciated and showered praise as the best stall of the fair. It has attracted quality discussions with many customers and opinion makers especially in the Air Blasting field including subjects such as Loose Abrasives (Copper slag /Garnet) Vs Steel Abrasives and Phenics. The Corcon is likely to give a good presence to Winoabrasives, especially in the Surface preparation area as a total solution provider.



## NEXT EVENTS >> IN THE NEXT FEW MONTHS, W ABRASIVES WILL BE PRESENT IN MANY FAIRS AND EXHIBITIONS. YOU WILL BE WELCOME ON OUR BOOTH ALL OVER THE WORLD.



November 14/17th 2011 • Chicago (USA)



May 28/31th 2012 • Moscou (RUSSIA)



April 17/20th 2012 • Columbus (USA)



September 26/29th 2012 • Verona (ITALIA)



May 23/25th 2012 • Nanjing (CHINA)



December 13/15th 2012 • San Francisco (USA)