

## **South Africa pushing for African beneficiation framework to tap commodity boom**

**South Africa plans to use its position as the current convener of the Council of African Ministers of Industry to develop a common continental framework for extracting greater value from the prevailing minerals boom, Trade and Industry Minister Dr Rob Davies has revealed.**

The rise in the demand for natural resources, which has been accompanied by strong commodity price increases, is already attracting foreign investor interest. But Davies says that South Africa is also keen to use the upturn to stimulate greater investment into minerals beneficiation across the continent.

In a recent address at the University of Johannesburg, he described a possible initiative to realise greater value from the current resources cycle as “one project that all of Africa has in common”.

But foreign investment and minerals beneficiation are also important objectives within South Africa’s own New Growth Path (NGP) and the country’s industrial policy action plan (Ipap), a new version of which would be unveiled soon.

Davies reports that South Africa has already secured a “declaratory” commitment from China for “minerals beneficiation at source”. The commitment forms part of the comprehensive strategic partnership agreement, signed by Presidents Hu Jintao and Jacob Zuma, during Zuma’s State visit to Beijing in August last year.

“Now we have to follow that through,” Davies asserts, describing minerals beneficiation as an important driver of industrial development.

“What we are now working towards is a framework for extracting more value from these mineral products and exporting higher value-added products to other countries, including China.”

South Africa is already studying a range of value-addition projects, including one to turn mineral sands into titanium alloy. “At the moment, if you export titanium sands, you get \$400/t. If we were to export titanium alloy, we could receive \$100 000/t.”

Earlier, Economic Development Minister Ebrahim Patel revealed that South Africa was studying the feasibility of developing what he termed the world’s first integrated metals plant capable of “beneficiating” titanium, zirconium, vanadium, magnesium and silicon.

Should the project prove viable, it could involve an investment of R15-billion and create more than 7 000 jobs in construction, as well as in the operation of the plant. The probable location has not been disclosed, nor was the identify of the investors, or how power could be secured for the project.

Davies argues that South Africa and Africa is not alone in seeking such investment reciprocity, with Brazil having recently insisted that a Chinese firm invest in a steel mill in return for an iron-ore contract.

South Africa is, therefore, also likely to raise the prospect of greater beneficiation reciprocity with the Brazil, Russia, India and China (Bric) bloc, when it formally joins the grouping at a Bric

summit in April. "We are keen to use all of these new relationships to try to get investment in value-added activities," Davies says.

The NGP and Ipap were also geared towards boosting the attractiveness of South Africa as a destination for foreign direct investment into productive activities, rather than merely as a destination for portfolio flows.

Government is, therefore, concentrating on incentives, such as the R20-billion 12i tax scheme, improving the investment climate and seeking industrial spin-offs from its R846-billion public infrastructure programme.

A new public procurement system is currently being developed, which will incorporate 'fleet procurement' arrangements for everything from buses and locomotives to power plants, changes to the preferential procurement regime to encourage local production, and a revamped industrial offsets system to stimulate further investments in local manufacturing capacity.

"That work will come to a head this year," Davies reports.

Also being given priority is improvements to such basic mechanisms as company registration, which is currently managed less than optimally by the Companies and Intellectual Property Registration Office (Cipro).

From April 1, Cipro will fall away and become a component within the larger Companies and Intellectual Property Commission.

"We are also putting in new leadership into the running of the new commission in line with the Companies Act. But on the registration of companies, there is a degree of stability emerging and we expect that, once the new commission is in place, we will begin to turn the corner."

## **Kanthal® brand has new distributor in South Africa**

**Kanthal®, a world leader in the areas of industrial heating and ceramic and metallic resistance materials, has recently appointed Industrial Alloys (Pty) Ltd as its distributor in South Africa.**

The new company is headed up by Rudolph Pretorius, who has been involved in the industry and with the brand for a long time.

"Due to some strategic decisions taken by the Sandvik Group I have now acquired the rights to be the authorised distributor for the Kanthal® brand in South Africa" explained Pretorius.

"Last year in May Kanthal® changed from being a Sandvik company operating under its own name to a Sandvik brand. The move represented a decision to clearly show that the Kanthal® products are part of Sandvik and to strengthen Kanthal® as a brand for heating technology products and services" explained Pretorius.

"For customers, the change is marginal. As has previously been the case, customers were able to order Kanthal® products though Sandvik. However now they will order them through Industrial Alloys" continued Pretorius.

"I have been in the industry for seven years and dealing with the Kanthal® products for all that time so I know that Kanthal® is the industry leader" said Pretorius.

“Kanthal was acquired by Sandvik in 1997 to supplement Sandvik's knowledge and range of products in stainless steels and high-alloyed materials with products for industrial heating and ceramic and metallic resistance materials.”

Kanthal® products include wire and strip, resistors, bulk ceramic non-inductive resistors, high energy density capacitors for backup power, furnace products and heating systems including heating elements, metallic heating elements, MoSi<sub>2</sub>-based heating and SiC-based heating elements, heating modules, prefabricated heating modules with electric heating elements and fiber or dense ceramic insulation, heating cassettes for heating of air or gases, diffusion cassettes for production of crystalline silicon wafers for solar cells and semiconductors, single-ended recuperative gas burners (SER-burners), extruded tubes made from Kanthal FeCrAl-alloys for gas-heated or electrically heated furnaces, electrical heating systems for primary aluminium production, wire, strip, tube and bar for manufacturing of furnace furniture and other furnace accessories, furnace rollers for heat treatment furnaces, resistance heating wire and strip for manufacturing of electric heating elements, ceramic supporting materials for electrothermal components and wire, ribbon and strip for thermocouples, extension leads and compensating cables.

Key application areas include the primary aluminium production, processing of secondary aluminium, production of traditional and functional ceramics and ceramics used as engineering materials, diffusion and LPCVD furnaces for manufacturing of crystalline silicon wafers, production of float glass, flat glass, container glass, fiberglass, glass tubing and art glass, furnaces for heat treatment of steel and other metallic materials and home appliances.

The contact details for Industrial Alloys are Unit 4 - The Wolverhampton's, 6 Wolverhampton Street, Apex, Benoni, Gauteng.

For further details contact Rudolph Pretorius on TEL: 011 420 1582 or email [info@industrialalloys.co.za](mailto:info@industrialalloys.co.za) or visit [www.industrialalloys.co.za](http://www.industrialalloys.co.za)

## **SME management software developed for the local foundry industry**

**There are many proprietary software products on the market that can help SMEs in the management of their day to day operations. However those dedicated to a specific industry, such as the local foundry industry, are hard to find or adapt.**

“The efficiency of a foundry by streamlining your day to day processes can reduce the cost of your operations substantially” says developer Pedro De Carvalho of Lykin Developments.

“I was contracted by local foundry Casting and Machining Services three years ago to develop a tailor made solution for their operation. As you know a foundry can have many variables when making a casting, so the challenge was to develop a system that took everything into account from the scrap metal delivery to the statement” continued Pedro.

“My background stems from developing a management software solution for the panel beating industry which also has a number of variables and unknowns to consider.”

“What we have developed is not a high end PLM or casting design product but rather one that will allow the foundry owner or designated person to effectively have control of the business and obtain detailed information about their assets, their production process and costing situation. This will ultimately allow them to apply informed, strategic and tactical decisions beneficial to the whole performance of the business.”

“The all-in-one fully customizable software covers order processing (purchasing and sales), stock control, management of materials and production, capacity and quality control. Common foundry procedures have been considered as the input masks adjust themselves automatically according to the order. Functions include interfaces to data transmission and accounting for finance and labour.”

“We have included the elements such as material being used, box sizes, sand, moulding, melting time, fettling, shot blasting and heat treatment, all elements that will ultimately allow the foundry to accurately quote on each specific request.”

“The added functions include invoicing, delivery notes, statements which can be emailed to a client, track and tracing and various reports such as age analysis, sales, production, maintenance requirements as requested by management.”

“The software has been developed so that it is easily adaptable to each individual business and is constantly evolving to meet the various requirements.”

“The software that an SME uses must be considered as an asset in the business. When management is able to have control and obtain detailed information, they will improve operational and staff efficiency and ultimately the bottom line.”

For further details contact Pedro De Carvalho of Lykin Developments on his cell number 083 454 2098

## **AfriMold trade fair to highlight local tooling, die and moulding expertise for South African industries**

**Major local industries such as automotive and packaging are spending millions of Rand on local design, engineering and manufacturing equipment and services - only to have the tooling, dies and moulds manufactured overseas instead of in the local economy.**

This is a situation that the second AfriMold Exhibition from 27-29 September at the Sandton Convention Centre, aims to address. Exhibition managing director Ron MacLarty comments that tooling, dies and moulds made overseas can be less expensive if they are correctly made, BUT if they are wrong it becomes a very expensive experience.

“AfriMold 2011 is a very focused and specialised opportunity for local tooling, die and mould makers to meet local manufacturing companies so that they can do business together in South Africa. Also, for South African based industries that need such services to meet highly skilled and competent tooling, die and mould making companies in this region.

“The exhibition is a vehicle for local tooling, die and mould makers to get into the market and find selective work which suits a particular toolroom,” added MacLarty. “It has been proven as an excellent means of showing local capability and expertise. Last year business worth R6.5-million was concluded and two agencies were acquired within the three days of the show itself. Significant other business was concluded in follow-ups after the show.”

The organisers are confident that this year’s exhibition, already 60 percent sold, will be double the size of the inaugural event last year and possibly even exceed this by trebling.

Increasing focus is falling on computer-aided engineering (CAE) and a shift from conventional machinery to computer numerical control (CNC) machinery. Manufacturers can make plastic parts using highly cost-effective 3-dimensional printers which allow trial manufacture and customisation of parts before the final production tool is made.

MacLarty points out that every part made has to go through the comprehensive “design cycle and product development” and AfriMold expects to have exhibitors representing each step in the cycle, which runs from design, materials, simulation, visualisation, engineering / CAE, virtual reality, CAD and CAM, rapid prototyping and tooling, pattern making and prototyping, mould making and tooling, tools, machine tools, quality assurance and automation and finally to processing and finishing.

“One of our major objectives is to encourage the South African tooling industry to adopt and invest in the technologies that make up the product development design cycle. The more innovative and competitive they are the more major local industries will be encouraged to place their tooling, die and mould requirements locally. Tooling is a R6-billion industry in SA yet the local share of that is just R1.2-billion with the remainder of the work being placed overseas. In essence, we are importing more than 60 percent of the tools we are using in manufacturing.”

A plan to address this situation is the National Tooling Initiative Programme (NTIP) within which there is also a Gauteng Tooling Initiative (GTI) involving the implementation of a re-orientation programme and apprenticeship curriculum to be completed by 2014.

“AfriMold is an instrument that not only draws attention to this situation but provides a platform for positive developments to address the problems the tooling industry faces,” said MacLarty. “We are confident that AfriMold 2011 will build significantly on the successes of the inaugural show last year.”

For further details contact Ron MacLarty at AfriMold on cell 072 353 6699 or visit [www.afrimold.com](http://www.afrimold.com)

## **AfriMold Foundry Conference**

AfriMold, together with The National Foundries Technology Network (NFTN), The South African Institute for Foundrymen (SAIF) and The Aluminium Federation of South Africa (AFSA), have pleasure in announcing a Call for Papers for the one day foundry conference to run concurrently with the AfriMold conference, which takes place during the second AfriMold Exhibition from 27-29 September 2011 at the Sandton Convention Centre.

The theme for the 2011 conference is Metal Casting, Moulds and Dies for Foundries – from design to first-of samples and includes the following sub themes:

- Design for Energy Efficiency
- Utilisation of CAD/CAM and other computational technologies
- Shortening the off-tool sample lead time
- Agility, flexibility and responsiveness to market needs

Both local and international speakers are invited to submit possible papers with the title of their talk, a brief paragraph about the topic, and speaker contact information to [info@afrimold.co.za](mailto:info@afrimold.co.za). All submissions will be acknowledged within two weeks of receipt by the conference organisers. Speakers attend the conference and exhibition at no charge.

## **18th World Conference on NDT in Durban, South Africa 16 - 20 April 2012**

**Now is the time to start planning your involvement in the 18th World Conference on NDT which takes place in Durban, South Africa 16 - 20 April 2012, only about a year from now.**

You may want to sponsor one of the events, promote your business in the large exhibition, present a paper, organise a workshop, participate in the conference, take your companion with you for the social programme, or book a holiday alongside the conference. In every case, the sooner you make your plans the better!

The 18th WCNDT will be a “once in a working lifetime opportunity” for many of us to take part in a major NDT event in Africa. The World Conference is organised every four years and moves around the globe with ICNDT members from Europe, Asia-Pacific, Pan America, and Africa bidding for the privilege so arguably Africa’s next turn will not come before 2028.

The conference theme “NDT IN SERVICE OF SOCIETY” reminds us of why our discipline is so important and why we need to share our knowledge, technology and experience for the benefit of all. ICNDT therefore want to do everything possible to maximise the benefits of this opportunity to the whole African NDT community.

ICNDT is planning with the conference organisers a number of ICNDT events to be held during the conference:

1. Open Session in the conference on IAEA projects in the NDT field
  - to allow IAEA to showcase its work
  - to promote discussion on future projects
2. Workshop for Regulators designed to inform regulators of the value of NDT and how to ensure its reliable delivery
3. Workshop on Qualification and Certification of NDT personnel including the proposed ICNDT Multilateral Recognition Agreement
4. ICNDT Workshop for new/fledgling NDT Societies and Certification Bodies
  - meet “buddy” societies willing to be mentors
  - meet Certification Bodies willing to be partners
  - website shell scheme
5. ICNDT Research workshop

- Opportunities to meet researchers from large international laboratories

For further details on the SAINT conference visit [www.wcndt2012.org.za](http://www.wcndt2012.org.za). There you will find the first announcement and the Sponsorship prospectus. On-line registration opened in March.

### **South African company develops supercleaning method for superalloy scrap**

**South African superalloy producer Avalloy has developed a world-leading method, which it has named Avacleanse, of cleaning and decontaminating used superalloy components, allowing them to be melted down and re-used to make new superalloy products.**

“Avacleanse took us approximately two years to develop,” reported Avalloy CEO Alan Bissell. “It is an ongoing process. We developed it on three alloys and we are now extending it to other alloys. It is not one process. It is a suite of processes, dependent on the material supplied, its condition and the specification we have to deliver to.” The processes involved are mechanical, chemical and pyrometallurgical.

Superalloys are so-called because they are extremely resistant to high temperatures, high stresses, fatigue and deformation (known as creep), and are used in high-technology applications, such as to manufacture high pressure turbine blades for jet engines.

They can be based on nickel, cobalt or iron, but typically will include from eight to 30 component materials. They come in two forms: cast and wrought.

“The modern aerospace industry would be impossible without superalloys,” he highlighted. “It is not an accident that they are called super.”

To achieve the desired performance, superalloys must be very pure, with incredibly low levels of contaminants and impurities. “A one atom [of impurity] in a bucket of metal kind of thing,” as Bissell put it.

Aeroengines and gas turbines are extremely hostile environments, and their superalloy components pick up a lot of contamination from, for example, the fuel and the combustion of that fuel.

Hitherto, when the time came for them to be scrapped, they could not be simply melted down and recycled as superalloys – the contaminant and impurity levels are far too high. This greatly reduced their scrap value.

Now, however, Avalloy’s new approach means that these scrap components can be reliably cleaned to such a degree that they can be recycled to produce new superalloy components. “We believe that Avacleanse will drive our business forward dramatically,” he observed.

Superalloys are employed in the aerospace, automotive, biomedical, industrial and marine gas turbine, and specialist engineering sectors. AVALLOY, based at Pelindaba, west of Pretoria, is the only superalloy manufacturer in Africa and one of a small number around the world. One of its shareholders is renowned UK engine manufacturer Rolls-Royce, and AVALLOY superalloys are incorporated in Rolls-Royce aeroengines.