

# V Strength

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## Vanitec Launches Energy Storage Committee

Recognizing the role of vanadium in the growing energy storage market through the Vanadium Redox Battery, Vanitec has begun a new Energy Storage Committee (ESC) and will hold an inaugural kickoff meeting 11 October 2016 in London, UK.

The Vanitec Energy Storage Committee (ESC) will report to the Market Development Committee and will oversee developments in the energy industry market for vanadium. Its focus will be on identifying the future global vanadium supply and demand, the quality required and the health, safety and environment guidelines surrounding electrolyte production and distribution. The Committee, chaired by Vincent Algar of Australian Vanadium, will be composed of interested parties with a vision to assist the global advancement of the technologies using vanadium products. These may come from all component parts including producers, chemical processors, researchers, and battery technology companies.

Vanadium's role in the growing energy storage market is expected to increase dramatically over the coming years. Large scale deployments of vanadium redox flow batteries are underway around the globe. Ensuring a strong supply of quality vanadium products will be key to the uptake of energy storage for large amounts of power over extended periods.

The ESC will seek to create and foster an understanding of the common issues facing participants including: developing and sharing an understanding of the HSE issues, understanding the demand profile and growth expectations, sharing where possible chemical and technical information, and developing an understanding of the minimum standards for vanadium products used in energy storage products.



Those who join the ESC will receive all membership benefits of Vanitec including access to senior level industry participants; subcommittees for market development, projects & promotions, and HSE; quarterly reporting on worldwide production and consumption; access to our network of scientists and researchers; and the ability to contribute and share the development of the vanadium industry.

Interested parties have received a complimentary invitation to attend the inaugural ESC meeting on 11 October, 2016 held as part of the 91st Vanitec Meeting near London's Heathrow Airport. Participants are invited to stay for a reception and speaker on Energy Storage followed by the 91st Vanitec Dinner. Those who join Vanitec are welcome to stay for our second day of meetings on 12 October to hear presentations from our committees and receive member-only vanadium production and consumption statistics for the first and second quarters of 2016.

Invitations can be requested by contacting Vanitec at [info@vanitec.org](mailto:info@vanitec.org).



“A great thank-you to our hosts, Pangang Group, for their wonderful hospitality during the 90th Vanitec meeting held in Chengdu, China. I look forward to seeing all our members and guests in London in October.”

- John Hilbert, CEO

## Vanitec Hosts Annual Meeting in China

The 90th Vanitec Meeting, hosted by Pangang, Group, took place in Chengdu, China at the beautiful Jinjiang Hotel 19&20 April, 2016.

The meeting kicked off with an informative presentation on the Technological Progress and Development of Steel Products in China presented by the Central Iron & Steel Research Institute. A variety of partners and companies engaged in the development of Non-QT steels for automotive use in China also made presentations the first evening.

On the second day the Health, Safety & Environment Committee kicked off our meetings with an update on worldwide regulatory pressures and our own research projects. In the Market Development Committee Vanitec members learned of the latest updates on our technical research projects, promotional activities, and had a lengthy discussion on how to approach the threat of QT rebar usage in China (see below). The day ended with a tour of the panda reserve and a wonderful dinner at the hotel provided by our hosts, the Pangang Group.

The 91st meeting will take place 11&12 October in London, UK near Heathrow Airport and includes the inaugural Vanitec Energy Storage Committee meeting.



## Vanadium Technology Centre Rebar Success

Vanitec-CISRI partnership scores major success with recently revised Chinese Rebar Standard.

Hot-rolled rebar is the single variety which consumes the most vanadium in China. In 2014, 165 million tons of high strength rebar was produced in China accounting for 33,000 tons of vanadium. Preliminary surveys conducted by the VTC early in 2016 indicated that with the improvement of equipment capacity and requirement of cost reduction of steel companies, a large amount of rebars were now produced by rapid cooling process after hot rolling since 2015 rather than with vanadium-containing rebar. Since 2015, the vanadium consumption in hot-rolled rebar has declined as a result.

Vanitec and the VTC immediately went into action to investigate the real status in the marketplace and to hold a series of meetings and seminars with representatives from



Vanitec, the China Vanadium Association, China National Steel Construction Steel Quality Supervision and Test Centre, China Metallurgical Information and Standardization Institute, and others. All involved realized that a change to the HRB rebar standard was required in order to avoid

substitution with RRB rebar which is known to have inferior properties.

On 22-23 August, 2016 a review meeting on the Hot rolled rebar standard was held in Beijing. 70 representatives from more than 20 enterprises were invited to attend. Professor Yang Caifu of the VTC made a presentation on a new suggested standard and answered the questions of the expert committee. As a result, the expert committee approved our suggestion revisions to GB1499.2!

With the new standard if the cross section macrograph of the rebar shows a “closed” hard layer in the surface it will NOT qualify as HRB rebar. If the hard layer is “unclosed” it will undergo additional testing and will be judged by a hardness examination or a microstructure examination of the cross section.

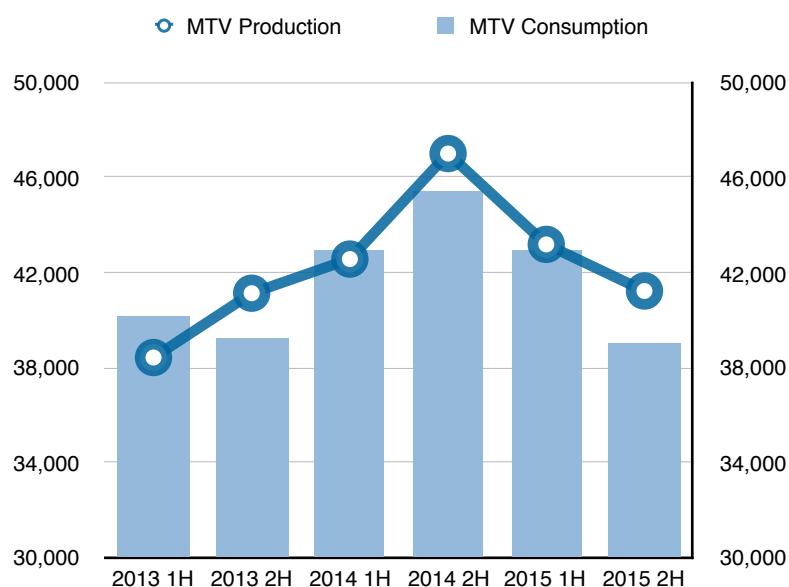
Once formally approved by the government, Vanitec and the VTC will work to promote and ensure enforcement of this important revision.

# 2015 V Production & Consumption Lower

In its reporting, Vanitec defines vanadium production as MTV in all oxides produced, plus MTV in other V-compounds not produced via oxide route, plus MTV FeV not produced via V<sub>2</sub>O<sub>5</sub>-route.

The data is not disseminated by Vanitec nor used for any purpose other than compiling overall statistics for the vanadium industry.

Detailed information such as individual region production, consumption and specific consumption rates are available to Vanitec members only. If you are interested in joining Vanitec as a full or associate member please contact us at [info@vanitec.org](mailto:info@vanitec.org).



## Vanitec to Begin Quarterly Statistical Reporting in '16

The Directors of Vanitec Ltd recently approved a change in reporting of production and consumption statistics. Beginning in 2016 Vanitec will now collect statistical reporting on a quarterly basis in order to get more timely information to the marketplace. Due to antitrust concerns the data will still be embargoed for a 90 day period after the end of each quarter. Vanitec is in the process of collecting the data for the 1st & 2nd quarters and will release 1Q data as soon as possible. In addition, the Directors approved breaking out consumption data into the following categories: Steel; Titanium; Chemicals & Catalysts; and Energy Storage. As in the past, detailed information on regions and the breakouts of consumption are available to Vanitec members only.

## Members

AMG Vanadium, Inc.

Australian Vanadium

Bear Metallurgical Company

Beijing Zhongkaihongde  
Technology Company

Chengde Iron & Steel Group Co  
Ltd

China Iron & Steel Research  
Institute Group

Evrax NTMK

Evrax Vametco

Evrax Vanady Tula

Glencore plc

Gulf Chemical & Metallurgical  
Corporation

Largo Resources Ltd.

Mustavaaran Kaivos Oy

New Zealand Steel Ltd.

Panzhuhua Iron & Steel Group

Treibacher Industrie AG



## UPCOMING EVENTS

### 90th Vanitec PPP & 1st ESC Meeting

London, UK  
11 October 2016

### 91st Vanitec Meeting

London, UK  
12 October 2016

### 32nd International Ferroalloys Conf.

Prague, Czech Rep.  
6-8 November 2016

### 1st International Conference on Automotive Steel

Chengdu, China  
16-18, November 2016

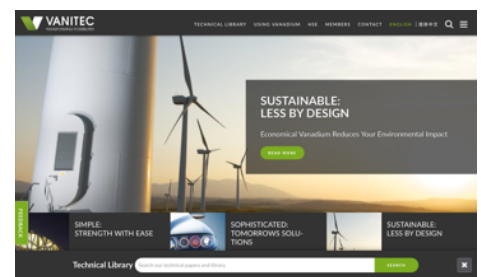
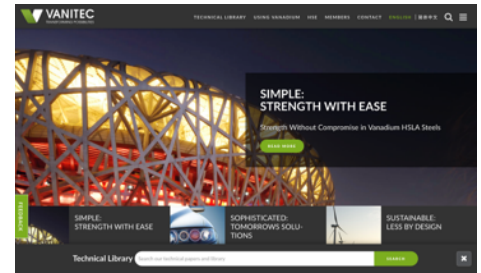
# Vanitec Completes Major Upgrade to Website & Logo

The new website [www.vanitec.org](http://www.vanitec.org) went live this summer and offers tools to promote and better understand the uses of vanadium, a library of technical resources, and information on our research, HSE activities, and our members. A Chinese version is included.

The new logo and tagline "Vanitec: Transforming Possibilities" is intended to invoke the transformative ability of vanadium to make a product stronger, lighter, and more powerful. The website highlights how vanadium is simple, sophisticated, and sustainable all at the same time.

Summaries exist on 25 different uses of vanadium including detailed information where applicable. The technical library contains over 200 papers and is searchable and sortable by area of expertise. An HSE library is also included.

Members of Vanitec have access to a members-only area of the website to gain access to our confidential quarterly statistical reporting and meeting presentations, minutes and materials.



## Vanadium Award Presented in London



The Vanadium Award for 2015 was won by several Japanese authors, Naoya Kamikawa, Kensuke Sato, Goro Miyamoto, Mitsuhiro Murayama, Nobuaki Sekido, Kaneaki Tsuzaki and Tadashi Furuhashi for their outstanding paper titled "Stress-strain Behavior of Ferrite and Bainite with Nano-precipitation in Low Carbon Steels", which was published in Acta Materialia.

The authors systematically investigated stress-strain behavior of ferrite and bainite containing nano-sized carbides

in a low carbon steel with a chemical composition of Fe-0.10%C-0.22%Si-0.83%Mn-0.014%P-0.014%S-0.003%N-0.001%Ti-0.288%V. They demonstrated that sufficient ductility is maintained in both ferrite and bainite steels, despite the high strength, due to increase of work hardening and uniform distribution of dislocations achieved with fine VC precipitation. The award was presented at the Institute of Materials, Mining and Minerals (IOM3) Premier Award Dinner in London on 12<sup>th</sup> July 2016.



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Vanitec is a technical and scientific committee (The Vanadium International Technical Committee), which brings together representatives of companies and organisations involved in the mining, processing, manufacture, research and use of vanadium and vanadium-containing products.

The objective of Vanitec is to promote the use of vanadium bearing materials and thereby to increase the consumption of vanadium across the range of steel, titanium and chemical applications.

Vanitec strives to provide those with a vested interest in Vanadium – users, educators, students, producers – convenient access to research, events, resources and publications regarding Vanadium.