

IMA News

Below are articles and summaries of magnesium related stories. IMA Member companies are asked to distribute the IMA News to their employees. IMA member company employees wishing to receive the monthly IMA News issues should send their email addresses to the IMA World Headquarters. We appreciate all member company press releases and announcements for inclusion in the monthly IMA News issues. Please send your news to info@intlomag.org.

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Gain Exposure at the IMA's Annual Magnesium Conference

Make plans now to exhibit at and/or sponsor the International Magnesium Association's 73rd Annual World Magnesium Conference. Reach a focused and qualified audience of magnesium industry professionals who are looking for equipment, services and answers to questions.

The IMA 2016 Annual Conference will feature a superior technical program focused on innovations and advances in the magnesium industry - and your company should be there. At the conference, delegates come prepared to ask questions, discuss problems and present challenges, so exhibitor personnel must be technically astute to take full advantage of this opportunity.

The IMA Expo gives you the chance to:

- Reach a global audience in one convenient place
- Showcase your technical know-how, innovations and products
- Demonstrate your company's commitment to the industry
- Generate awareness for your company's capabilities.

[Exhibit space](#) is limited... so don't delay! Space is assigned on a "first come, first served basis" so reserve your spot today!

[Sponsorships](#) are also an excellent way to promote your company and be identified as a proud supporter of the International Magnesium Association and the industry. Companies can take advantage of the opportunity to reach top industry executives by sponsoring the 2016 Annual Magnesium Conference. Be the focal point of the energy and excitement in Vancouver at an event that consistently delivers value to delegates. This year, we have four levels of Full Conference Sponsorship and two levels of Individual Event Sponsorship opportunities available.

The 2016 Annual Conference will be held at A. Roma Lifestyle Hotel, in beautiful Rome, Italy, May 15-17, 2016. Click [here](#) for more details on exhibiting and sponsoring at the IMA's 2016 Annual Magnesium Conference.

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2016 World Magnesium Conference - Call for Awards

Each year IMA honours industry professionals by presenting awards in several categories to those who have demonstrated excellence in the use of magnesium or for exemplifying the industry's commitment of environmental responsibility. Judged by a panel of peers, the IMA Awards for Excellence and the Environmental Responsibility Award are wonderful opportunities for participants in the magnesium industry to showcase outstanding magnesium products and innovative manufacturing technologies, as well recognizing those that have gone above and beyond in reducing the industry's carbon footprint.

In its 50th consecutive year, these awards provide international, industry wide recognition for the accomplishments of the magnesium industry's best and brightest.

In 2015 the Awards of Excellence competition was open to all companies demonstrating outstanding examples of magnesium's use, as well as magnesium products and manufacturing technologies in three categories: Design, Process, and Application. The Design Category includes subcategories for Cast and Wrought Products and the competition seeks unique, novel and creative designs and product developments. The winning entries in this category demonstrate design and engineering that is a significant advance over current practice. The Design Award in the subcategory for Cast - Automotive was awarded to Georg Fischer, GmbH & Co., KG for the third year in a row! Their work in this category has significantly impacted the industry in this market.

The Environmental Responsibility Award is based on the achieved and documented reduction of carbon dioxide equivalents (CO₂eq), and is intended to include all aspects of the magnesium industry from primary production through to end-user industries. The IMA Awards of Excellence highlight how the magnesium industry is continually working to improve the manufacturing process and companies that provide innovative and improved products made from lightweight magnesium. In 2015 the award was presented to Magnesium Elektron CZ, for their Innovative Solution for CO₂ emissions and Waste Reduction in a Mg scrap recycling plant which resulted in a significant environmental improvement in the magnesium scrap recycling process in the Czech Republic over the past 5 years.

IMA believes that the best way to encourage advancement and change is to recognize those that are leading the way. IMA looks forward to seeing what amazing work has been done this year. The 2016 Awards of Excellence and the 2016 Environmental Responsibility Award will be presented at the IMA's 73rd Annual World Magnesium Conference. The Conference takes place in Vancouver, Canada, May 15-17, 2015. To nominate someone or for information please visit the [Awards](#) section of IMA's website, or contact info@intlomag.org.

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Reserve Your Room Now!

IMA's 73rd Annual Magnesium Conference will be held at A. Roma Lifestyle Hotel in beautiful Rome, Italy. A block of rooms is being held until February 12, 2016 for the special rate of €140,00/night, single or double, plus tax. After this date, group rates can no longer be guaranteed and rooms will be available on a space-available basis at the standard rate. Please [click here](#) to reserve your room today!

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IMA's 2016 Call for Abstracts

The IMA's Annual Conference is the premier international magnesium industry conference highlighting technological advances, innovative applications, and emerging developments in the global marketplace. This valuable conference will provide magnesium industry professionals with the latest information and advances on

magnesium processes, applications, technology and environmental concerns.

Be among the best and the brightest in the industry - share your expertise and knowledge by presenting a paper at the IMA Conference. You'll be helping to advance the industry and have an unparalleled opportunity to address magnesium professionals, industry leaders, and decision-makers, who seek cutting-edge information and problem-solving resources.

The IMA Program Committee is pleased to invite abstracts of no more than 150 words for a proposed presentation. Abstracts are invited from practitioners and researchers from in and around the magnesium extrusion industry.

How to Submit

Abstracts can be submitted in electronic format through the IMA online Abstract Collection Portal at www.imaworldconference.org. Abstracts are due no later than **December 18, 2015**.

For complete details, download the [Call for Abstracts](#) or go to www.imaworldconference.org and choose "For Authors".

The official language of the Conference will be English. ALL abstracts and final selected manuscripts need to be submitted in English.

Click [here](#) to submit your paper via the online portal.

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GALM Series

Automotive Lightweight Interiors: Cost Effective Material Application & Design Congress



27-28 January 2016 - Munich, Germany

The **Automotive Lightweight Interiors Congress** has been engineered to inform the industry of the opportunities for light weighting within the interior specifically, looking at key components such as seating, NVH content and electronics. This is the only event to focus specifically on lightweighting strategies for automotive interiors. Key speakers include **BMW, Maserati, McLaren & Lamborghini**

IMA members are entitled to an exclusive 15% Discount. [Register Now](#) & Use Promo Code: **GIMI15**

Modeling, Simulation and Crash Testing Of Automotive Lightweight Materials Summit



January 26-27, Detroit, Michigan

The 1st GALM summit on Modeling, Simulation and Crash Testing Of Automotive Lightweight Materials will come to Detroit, Michigan on 26-27 January 2016 and bring with it **20+ case studies from OEMs**, software developers and material experts.

Covering the most important areas from **cost efficiency and accuracy in modelling aluminum and composite properties to predicting lightweight material life-cycles and accurate crash simulation**, experts at the top of their fields assess the best practices for accurately and efficiently modeling and simulating lightweight materials.

Speakers include: **Ford, Toyota, Honda, General Motors, Renault** and **Tesla** & more.

IMA members are entitled to an exclusive 15% Discount. [Register Now](#) & Use Promo Code: **CIMI15**

Speaker Preview Interview:

GALM interviewed Steven Sheng, Formability Engineer, General Motors and Prof Xinran Xiao, from Michigan State University, who are speaking at the Modeling, Simulation and Crash Testing of Automotive Lightweight Materials Congress.

"To increase the use of composites in crash critical structures, we have to be able to predict the crash-worthiness of the structure as we do for metal parts. Good material models, robust and accurate safety simulations are critical to vehicle lightweighting." said Mr. Sheng. Read the complete interview [here](#).

Find additional GALM Pre-Conference Interviews:

[Honda Discusses Multi-Material Joint Simulation for Lightweight Material Manufacture](#)

[Ford Discusses How Deep Orange 5 Will Redefine Automotive Interiors](#)

[Maserati's Discussion on Weight Reduction Strategies for Interiors](#)

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November CRM Alliance/ EU Policy Newsletter

- ARGUS European Light Metals 2015
- Demand Side Innovation Conference
- CRM Alliance up - date

ARGUS European Light Metals 2015

The ARGUS European light metals conference brought together traders, producers and consumers involved with light metals such as aluminium, magnesium, silicon metals and manganese to address the impact of these market developments, and the broader influence of the aluminium alloy industry.

The conference took place on 3-4 November in Duesseldorf, Germany. I had the honour to speak as President of the CRM Alliance and focused on the following topics:

- "Essential" alloying elements for Al alloys
- Critical Raw Material Assessment in the EU
- Advocacy of critical materials by the CRM Alliance

My main message to the aluminium industry was that alloying elements are essential for reaching competitive properties, such as strength, corrosion resistance and processing parameters. However, CRM policy is supposed to secure supply and substitution efforts can significantly weaken the aluminium industry. Primary alloying elements such as magnesium and silicon metal will most probably remain on the EU CRM list, and most of the common alloying elements are listed.

It is also essential that alloying elements require equal consideration when it comes to sustainable sourcing and resource efficiency as well as dependency in pre & post consumer recycling.

Interview Excerpt -

Chris Dagger, IMA/MEL interviewed on the podium by conference Chairman.

Q: What are the prospects of primary Mg production outside China?

A: Several projects on-going such as Nevada Clean/ScanMag and SilMag. The Iran plant and ESAN (Turkey), both Pidgeon plants, have just opened. The key to success is power cost. You have to be able to compete with the Chinese.

For more on Argus European Light Metals 2015, read the complete article [below](#).



DEMAND SIDE INNOVATION

Demand Side Innovation

A wide and heterogeneous set of policies is labelled as "demand side innovation policy", since the definition of the concept is still controversial both in the academic literature and among practitioners. There set of possibilities ranges from regulation to various types of innovative public procurement.

In general, government intervention is justified if the market outcome is inefficient and can be improved by the chosen policy. The first type of market failure is the patent and copyright systems, the most widespread policies for internalizing the positive externalities of R&D. The second type of market failure is related to problems in R&D funding due to asymmetric information.

[MMTA publication about CRM - Stuttgart event](#) [CRM Alliance website News - Stuttgart event](#)

CRM Alliance additional lobbying actions:

The member meeting confirmed two additional lobbying programs, one for REACH and other for TRADE, which will start beginning of next year.

[CRM news on Argus conference](#)

Up-coming events & meetings:

- 9-10.12.2015 Annual Conference of the European Innovation Partnership on Raw Materials, Brussels
- 11.12.2015 EU: Ad-Hoc Working Group on Raw Materials (closed meeting)
- 15-17.5.2015 IMA world Conference, Rome, www.imaworldconference.org

Visit www.criticalrawmaterials.org for the latest CRM Alliance Information & Events

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Argus Light Metals Conference, Dusseldorf, 3-4 November 2015

The ARGUS European light metals conference brought together traders, producers and consumers involved with light metals such as aluminium, magnesium, silicon metals and manganese to address the impact of these market developments, and the broader influence of the aluminium alloy industry. The conference took place on 3-4 November in Dusseldorf, Germany.

Martin Tauber, CRM Alliance President presented a paper on the **Criticality of Magnesium, Silicon and Manganese**, which focused on the three main topics; "essential" alloying elements for aluminum alloys, the Critical Raw Material Assessment in the EU, and advocacy of critical materials by the CRM Alliance. The main message to the aluminium industry was that alloying elements are essential for reaching competitive properties, such as strength, corrosion resistance and processing parameters. However, CRM policy is supposed to secure supply and substitution efforts can significantly weaken the aluminium industry. Primary alloying elements such as magnesium and silicon metal will most likely remain on the EU CRM list with most of the common alloying elements listed. It is also essential that alloying elements require equal consideration when it comes to sustainable sourcing and resource efficiency as well as dependency in pre & post-consumer recycling.

There were also three additional presentations dealing with magnesium. Steve Thistlethwaite from Magnesium Elektron gave a presentation on **The Magnesium Alloys in Aerospace**. This presentation was focused on regulations preventing the use of magnesium in aircraft interiors, what effect will a change in regulations have on magnesium usage in the aerospace industry, and how this will alter the future demand for magnesium alloys. Per Bakke from SilMag gave a presentation on **European Magnesium Alloys and Metal Markets** which focused on the European magnesium markets and how to react to changing markets, supply/demand balance and the outlook for future prices, and the future markets for magnesium and magnesium alloys. A paper on the **Chinese Exports of Light Metals** was given by Alain Dery from Standard Resources. This focused on the trade flows of Chinese magnesium, silicon metal and manganese metal, VAT implications and considerations on light metals exports, and how anti-dumping duties affect the global markets.

Also in attendance representing the IMA was Chris Dagger, IMA European Chair, Karl Kainer, Past President, and Christian Payn, IMA European Representative. During a "fireside chat", Chris Dagger was interviewed. Below is the Q&A from his interview

Q: What are the prospects of primary Mg production outside China?

A: Several projects ongoing such as Nevada Clean/ScanMag and SilMag both in Norway. The Iran plant and ESAN (Turkey), both Pidgeon plants, have just opened. The key to success is power cost. You have to be able to compete with the Chinese. The Pidgeon process, even if the CO2 footprint is higher than the electrolysis, cannot be dismissed yet. There is still room for improvements and low capex is a great advantage compared to electrolytic processes.

Q: What are the new developments for Mg in aircraft?

A: Magnesium alloy Elektron 43 approved for retrofit (9g test) in commercial aircraft. New seat structure developed together with Geven. The seat is also scheduled for a 16g test to be used in new aircrafts. The competition could come from carbon fibres and not from titanium, which is used only for small fixation parts in this kind of seat.

Q: New developments in the Mg industry?

A: Twin roll casting for Mg has been developed for commercial Mg sheet production (POSCO). Magna is using a new sheet alloy produced by MEL.

Q: Any prospects for Mg in electric vehicles?

A: Covers/boxes for batteries are obvious solutions. At the moment it is not possible to say if Mg can be used inside batteries.

Q: Mg in Smart phones?

A: Samsung is launching its new smartphone 7S with a pressed Mg sheet cover.

Q: Other interesting development in Korea?

A: Big R&D programs backed by the government. Korea will be an interesting area in the near future.

Q: Mg recycling?

A: Magnesium Elektron in Czech Rep. has developed a process to take out the Mg from sludge and use the remainder as fertilizer.

Q: Can we expect improved price stability?

A: This is a commercial barrier. The idea of Magnesium being quoted on the LME has been discussed in the past. The Mg market may be too small and also there will be a need of special warehousing designed for Magnesium storage.

In addition, attendees benefited from participation in the only event to offer a unique chance to identify opportunities across the Aluminium, Magnesium, Silicon metal and Manganese metal industries. They received key information from senior decision makers, enabling delegates to make informed business decisions. Roundtable sessions, in an intimate and informal setting, gave delegates the opportunity to pose contextual questions to an industry thought-leader. Insights on the issues affecting the aluminium alloy consumers, and how they will have a knock on effect on their businesses were given. Delegates also learned about new developments in consumption markets, which will affect the supply and demand balance of Light Metals.

The two day agenda covered the individual metal markets supply and demand balance and future outlook, key drivers and challenges in the markets, as well as the future of consumption for light metals. Some of the agenda highlights included:

- Aluminium alloys in the automotive industries
- Magnesium alloys in the aerospace industry
- The global aluminium market - a macroeconomic look at trade flows and the current market outlook
- Aluminium alloy consumption changes and how these affect the demand for light metals
- The Chinese magnesium market and exports into Europe
- Current developments in Silicon production outside of China
- The future of Manganese metal consumption and the knock on effect on manganese price
- The aluminium recycling market and how scrap movement affects primary aluminium production

Magnesium was well represented with the IMA logo being on the Argus marketing banners and also with the IMA banner and literature on a small stand in the networking and refreshments area immediately outside the Conference room. The event was very successful for the IMA in promoting our material and the industry Association, and raising the IMA profile in Europe.

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Member Authors Needed!

Calling all writers!! IMA needs your help. We are looking for IMA Members to submit articles for the IMA newsletter. Content can be about any industry topic or event - so long as it relates to Magnesium! The IMA wants to know what you think, what you're working on, or what you would be interested in reading about. Whether it's an update for the member news section, or an article on the effects of the climate change on magnesium production, we are happy to have your input. For more information, please contact us [here](#) for more information. IMA is Listening!

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News in Japan

Domestic Magnesium Market September, 2015

Shinba Iron Works started mass-producing magnesium frames for power assist devices

(Source: "Chunichi Shinbun", 20th Oct., 2015)

Shinba Iron Works Corporation which produces mufflers for two-wheeled vehicles at Kakegawa City started mass-producing of frames for power assist devices used at job sites of commodity distributions and constructions by using their technology of magnesium processing.

Their frames were applied to "Assist Suit AWN-03" produced by Activelink Co., Ltd., manufacturer for power assist devices at Nara City. It is used by putting on the body and it lightens the load by operating the motors at the waist when a luggage is transported. The weight of the suit being 6 kg, it can reduce the load by 15 kg.

"We do consistently from the design and the development to the mass-production within the company", said the president of Shinba Iron Works. The company is involved in "The research group of magnesium business commercialization at Hamamatsu area" hosted by Hamamatsu Agency for Innovation. The company purchases welding wires from a participant company and the surface treatment is carried out by another participant company. The price of "Assist Suit AWN-03" is about 1 million yen, and the company aims at the sales of 1,000 machines per year.

Japan Fine Steel puts magnesium cable for loudspeaker into commercial use

(Source: "Rare Metal News", 24th Oct., 2015)

Japan Fine Steel Co., Ltd., a special-wire manufacture, will put magnesium cable for loudspeakers into commercial use within this year. Using this cable makes the sound of speaker clear and high definition. Magnesium's excellent vibration damping property depresses the vibration of the cable that is a cause of noise.

This wire has clad structure of pure magnesium (99.99%) as the center conductor with oxygen-free copper as the covering material. The wire is produced by twisting one fine magnesium wire with 6 oxygen-free copper wires. The company succeeded in setting the materials concentrically by applying their wire twisting technology which has been accumulated for long year. The component ratio of this wire is 20% magnesium and 80% copper in area ratio. The vibration damping property increases as the used amount of magnesium, but the amount of copper is kept this high level to keep conductivity. The cable is produced at their main plant. Pure magnesium and oxygen-free copper are purchased as the rod-form from outer companies, and these rods are drawn to fine wire before twisting. The detail of the price will be considered, but it must be several thousand yen per meter, a little higher than copper wires.

Hishinuma Machinery appeals the fascination of magnesium

(Source: "Die-cast Shinbun", 30th Oct., 2015)

Hishinuma Machinery Co., Ltd. displayed their die-cast products made by their magnesium hot-chamber machines for the first time at "Materials for Lightweight and High-strength Exhibition N-Plus" held at Tokyo Big Site on 30th Sept. to 2nd Oct. They set up a booth at the exhibition in which people related to resin gather, and aim at bringing the people interesting in resin to the attention of magnesium die-casting.

The mold clamping forces of the hot-chamber "CXMG" series of the company are 4 types, 60 ton, 150 ton, 350 ton and 600 ton. Enabling long-time and high-cycle

continuous casting is the advantage of the machine, and the maximum injection speed in dry-shot can be achieved to 6 m/s.

JMC makes also a strong effort to sand casting

(Source: "Die-cast Shinbun", 30th Oct., 2015)

"Orders for prototypes are increasing due to domestic regression of manufactures" said JMC, a manufacture (Yokohama City) producing prototypes by 3D printer, and aluminum and magnesium products by precise sand casting. The company was established in 1992, and has grown by bringing the views of service business into the manufacturing business. They would like to show a concept of material industries of the 21 century by accumulating know-hows which cannot be followed up by the other companies and by providing new services.

They have succeeded in getting both external appearance (including accuracy of dimensions) which closes in on die-casting and plaster casting, and internal qualities. Quick delivery is carried out by integrated manufacturing form producing of molds to machining within the company. The casting of ADC12 and Magnesium Elektron's alloys are available as well as the commonly-used alloys. They adopt the alloy for sand casting developed by Magnesium Elektron in the field of magnesium casting to which they make a strong effort.

Fuji Light Metal makes wheelchairs made of KUMADAI magnesium alloy for athletic sports

(Source: "Web Site of Fuji Light Metal", 4th Nov., 2015)

Fuji Light Metal Co., Ltd. started to sell on orders of wheelchairs for athletic sports made of KUMADAI heat-resistant magnesium alloy which had been jointly developed by three members of Advanfit Co., Ltd. and Mr. Yukifumi Yamamoto (advisor of Kumamoto Kinoh Hospital). They applied KUMADAI magnesium alloy to the forks due to becoming overload on the parts of the front wheels. Taking the advantage of very light weight and high strength, this alloy is applied to the wheelchairs for athletic sports.

Advanfit sells on orders of them as the distribution source. These will be available from 2nd Nov., 2015.

Bioko Lab. increases the production of "Mag Hydrogen", the capacity will be triple

(Source: "Altopia", Nov. Issue)

Biocoal Lab. Co., Ltd., an entrepreneurial venture of developments for environmental technology, will increase the capacity of the production of "Mag Hydrogen" (MgH₂), which has been developed by their own technology, to triple of the current capacity (3000 kg) within a year. They will relocate and expand the factory in Shizuoka Numazu.

The company succeeded in industrial production of magnesium hydride for the first time in the world. High purity "Mag Hydrogen" (hydrogen derived from magnesium hydride) with maximum 12.5% purity can be supplied by hydrolyzing the magnesium hydride. It is not only light weight, but also chemically stable.

High purity hydrogen can be safely and economically stocked, transported and supplied because of its tablet or powder shape. The purity is 92%.

When you want to generate hydrogen, it is enough just to pour water or acid. It is applicable to hydrogen water, bath additives and hot-spring bath additives as consumer use. And, they are developing new use for hair dressing and beauty with cooperative firms. It is possible to use them in batch type reactors, electric generation by magnesium hydride, small transport planes, and storing and transporting of hydrogen as industrial use.

STYLE-D displayed a small electric car with on-board magnesium battery

(Source: "Rare Metal News", 16th Nov., 2015)

STYLE-D, a manufacture of very small mobility (Seki City, Gifu), displayed the very small electric twin-seater vehicle "Piana" which can mount magnesium primary battery at Tokyo Motor Show for the first time in the world. The electricity generated by magnesium battery can charge up the main lithium ion battery (LIB) as the emergency power source when the trouble of dead battery. It will not need to charge up the main battery by external power source for one month. The magnesium battery on "Piana" was developed by New Japan Battery Development Co., Ltd (Nakakyo-ku, Kyoto). The main power source is 2 LIB with 50Ah, 72V. The driving distance is 120km. Maximum speed is 75km/h. They will be launched in 2017.

It is regarded that the electric vehicle mounting magnesium battery is in experimental stage, but if this vehicle is put to practical use, it will be the world's first vehicle. STYLE-D is an entrepreneurial venture established in March of this year.

Asahi Soft Drinks supply vending machines with magnesium air battery for emergency

(Source: "Nikkei Shinbun", 14th Nov., "Light Metal Tsushin", 17th Nov., 2015)

Asahi Soft Drinks Co., Ltd. will supply vending machines with magnesium air battery for emergency for the first time in the world. The company has been participating in "project for installation of magnesium air batteries into vending machines" conducted by Tatsumi Central Management Lab. Co., Ltd. (Tokyo) and Recyclable Energy Tohoku (Miyagi), and the machines will be supplied for emergency. This project is to secure electricity in case of emergency from the vending machines with magnesium air battery placed in evacuation site. They will place 100 machines at main evacuation sites such as schools and hospitals in Fukushima prefecture from January 2016, and will make a study on placing them at the designated evacuation sites outside of Fukushima prefecture after 2017.

This magnesium air battery can generate so large volume of electricity that it can supply electricity for 72 hours which is assumed to be required time for restoration of lifeline. In addition to supplying electricity to vending machines, it enables using PCs, mobile phones, TVs, and it can be used as the infrastructure for lights, information and communications which is needed for disaster areas. The sides of this air battery are 1.9m tall, 0.65m wide and 0.80m long.

The latest information of PCs

(Source: "Mainavi News", 15th and 29th Oct., 2015)

Japan HP announced the new model "HP EliteBook Folio 1020 Bang & Olufsen Limited Edition" and "HP EliteBook 725 G3 Notebook PC" as the business note PC for companies.

The machine presents upscale texture and secures reliable toughness by applying aluminum and magnesium alloy to the body.

Dell announced the new 13.3 type mobile note PC "XPS 13" and 15.6 type note PC "XPS 15". These PCs pursue the smallness of horizontal and vertical sizes and the attractiveness among many note PCs of which the thinness is the selling point. Machined aluminum is used to top and bottom case of "XPS 13" and "XPS 15". They achieve the thinness, the toughness and the attractiveness by using composite material including carbon fiber to the upper body and by using magnesium to the inner frame.

Domestic Magnesium Market - September 2015

(Source: September issue of Import/Export Statistics (customs clearance basis) of METI - Compiled by The Japan Magnesium Association)

Import

Based on Import/Export Statistics of September 2015, magnesium metal import was 2,290.3 tons (13.8% decreased from the same month the year before), magnesium powder 409.7 tons (62.2% increased), and other products 135.1 tons (10.0% decreased). Metal and the other products decreased and powder increased on a year-to-year basis.

The metal category consisted of 1,794.0 tons of pure magnesium (20.7% decreased), high purity magnesium 4.2 tons, 485.3 tons of die-casting alloys (25.7% increased). As for the die-casting alloy, the import from Israel was 19.7 tons for the first time in half year. Magnesium alloys for casting was 6.8 tons (14.5% decreased).

The average import price of magnesium metal, which hovered around 260 yen per kg, increased 6.7 yen per kg (2.5% increased) in September compared with August.

The average price of magnesium alloy was 305.7 yen per kg (19.2 yen per kg, 5.9% decreased month-to-month basis) because the price of them from China was 300.1

yen per kg (24.8 yen per kg, significantly decreased).

As for the total amount of import from January to September 2015, magnesium metal was 23,750.3 tons (2.0% increase from the same period the year before), magnesium powder was 3,230.1 tons (0.9% increased), and the other was 1,582.9 tons (6.8% decreased). But all categories seemed to be on a gradual recovery trend, magnesium powder marked a positive in the past 5 months from April, and only the other category shows negative from the same period the year before.

Export

In September 2015, export of pure magnesium was zero again, and export of magnesium alloy was 108.6 tons (13.1% increased on a year-to-year basis). The export for U.S.A returned to 57.6 tons.

Powder and granular was 0.4 tons (-) for Korea and the other was 0.8 tons (258.0% increased). The amount of the others for China was 0.5 tons.

As for the total amount of export from January to September 2015, total amount of pure magnesium kept the same volume 13 kg (77.6% decreased), magnesium alloy was 1,017.8 tons (159.2% increased), powder was 3.7 tons (41.9% decreased), and the other was 22.3 tons (18.6% increased).

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September China Magnesium Industry and Market Bulletin



CMA kicked off its annual conference in Beijing

Sponsored by China Magnesium Association(CMA), China Nonferrous Metals Industry Association, the 18th Annual Conference was held on October 21 in Beijing held.

Attended the conference Mr. Renxudong, executive vice president of China Nonferrous Metals Industry Association, Mr. Zuo Tiejong, academician of Chinese Academy of Engineering, Mr. Chen Xuesen, head of Nonferrous Metal Division, Raw Material Department, Ministry of Industry and Information Technology(MIIT), and Mr. Xu Jinxiang, chairman of CMA, China Nonferrous Metals Industry Association.

Mr. Ren Xudong said, in his speech, that magnesium industry is a sunrise industry, and is still in the primary stage of its development. Coupled with the economic downward pressure, the emergence of a variety of difficulties is normal, but it may be temporary. In the times that energy saving and emission reduction pressure is becoming more and more serious, there will be increasing need for light weight, and magnesium material, as a lightweight structure material, has a broad prospects and great potential for development. We have every reason to believe that, in the period of industry difficulties, as long as everyone has confidence, control and prevent risks, magnesium industry will usher in a new starting point for a better and faster development after the current difficulties.

Mr. Ren Xudong requires CMA should scientifically plan development map for the 13th Five-Year Plan, lead the industry for the next five years of development, actively promote the technical progress of the industry, enhance energy-saving and emission reduction, make industry breakthrough in processing and application; strengthen the team building, improve the capacity and level of service, with various forms of service ways and means to advise the government and solve problems for the enterprise.

Mr. Chen Xueshen, from Raw Materials Department of MIIT, said that under the current situation of increasing downward pressure on the industry, magnesium industry should seize the opportunities of made-in-China 2025 program and Internet, change the idea, accelerate the development of industry and technology, improve the traditional production management and business model, actively expand magnesium consumption, and promote the quality and efficiency of the industry. He said MIIT will do effective job in five aspects to promote the development of magnesium industry as follows.

Firstly, MIIT will continue to be in conjunction with the relevant departments and CMA to implement in-depth study on specific policies and measures for steady growth, and reflect the real economy demands in terms of the financial, tax, electricity, new materials, export tax rate, and market withdrawal policy.

Secondly, MIIT will strengthen policy guidance. MIIT is compiling the 13th five year development plan for nonferrous metals industry and relevant new materials including magnesium. In the planning, MIIT continues to select as a support point the continuous and semi continuous smelting magnesium, magnesium alloy deep processing, and magnesium application. MIIT will promote and guide the upgrade of magnesium industry, and, at the same time, timely revise the standard conditions of magnesium industry.

Thirdly, we will speed up technological progress. MIIT will continue to work with the relevant departments to continue, through various funds, provide support for technological transformation, industrial restructuring & upgrading, clean production of magnesium smelting, high performance magnesium alloy and deep processing. MIIT also encourages domestic enterprises to strengthen international cooperation and to increase the introduction and application of international advanced magnesium processing technology.

Fourthly, we will pay high attention to the integration among intelligent equipment, production process automation and management information. Magnesium industry should improve the quality and stability of magnesium products, and reduce operational costs. At the same time, magnesium industry should make full use of Internet to guide magnesium production enterprises through e-commerce, big data and cloud platform to build a high efficiency and energy saving magnesium materials research and development design platform, fully respond to the downstream user's personalized needs, and promote the transformation from production manufacturing to service-oriented manufacturing.

Fifthly, MIIT will actively encourage the application of magnesium materials. Through the use of the characteristics of magnesium metal, MIIT will map out a clear positioning of magnesium application priority areas, focus on high-end applications for cars and electric bicycles. At the same time, magnesium industry should improve the service awareness of material application, and provide support for the development of downstream users.

Mr. Zuo Tiejong, during the conference, made a keynote report, and excited the participants with his full- feeling speech. He said that 5 academicians 15 years ago wrote to the central government for supporting magnesium industry, and now, Mr. Shi passed away, while other 3 academicians are aged 90 on average, and he is the youngest, but at 80 years old. For the coming 13th five-year period, he is willing to lead several academicians and once again write to the Central government, and to have interview with several ministers, for purpose of setting up light alloy lightweight alliance of auto industry. He said that magnesium industry should develop toward deep processing of high added value and large-scale applications, rather than rely on publishing paper, but rely on industrialization and scale. The demand for magnesium by automotive industry is vast potential, which is a great opportunity for the development of magnesium industry.

Mr. Xu Jinxiang made report entitled accelerating adaptation to the new normal, plotting new industry positioning, seizing new historical opportunity and creating a powerful nation dream of magnesium industry. He pointed out that we should build innovative achievement conversion mechanism, actively promote the industrialization of magnesium industry innovation, vigorously develop a mixed ownership economy, optimize industry and capital structure, form the joint body with the management foundation of industry chain operation in the whole industry, in order to maximize the market benefit as the ultimate strategic goal of common interests, and fundamentally strengthen China's magnesium industry with overall competitiveness and influence.

The conference also initiated two seminars, one for new technology and new equipment, and other for magnesium alloy processing and application.

Operational cost can be reduced further by updating smelting technology of primary magnesium

On October 21st, Dr. Xiao Yang, director of Zhengzhou Light Metal Research Institute, Chinalco, was invited, during the 18th annual conference of CMA, to make report entitled "thinking about the development of China's magnesium industry".

One important point of his report is that operational cost of smelting magnesium process, by the update, has great potential for reduction.

He said the energy consumption has been reduced from 11t in 2000 to the current 4t of coal per ton of primary magnesium. However, the cost of magnesium smelting can be lower than the current level through technical update and large operational scale, and drawn near to the level of the steel production.



Magnesium in the near future can be produced from the existing three steps into free-refining two steps method, and, from the long run, can theoretically involve one-step reduction method. Energy consumption can be reduced theoretically to 2t of standard coal from current 35. Production process can be gradually more environmentally friendly with recycling resource.

At present, the production process of aluminum smelting is complex with lengthy process, and low grade alumina ore also needs to concentrate, per ton of primary aluminum will consume 2t of alumina, 0.5t of pre-baked graphite anode, 30kg of fluoride and 14000KW of electricity. On the other hand, the production process of magnesium smelting process is much shorter and the theoretical energy consumption is lower as compared with that of aluminum smelting.

If the magnesium smelting technology, as iron is reduced through blast furnace, can go through one step method, then the calcination of magnesite $MgCO_3$ forms $MgO+CO_2$, and, by coke thermal reduction, $MgO+C$ will give $Mg+CO_2$. Supposing the raw materials are fed through side loading in blast furnace structure, slag is discharged from the lower part of furnace, and magnesium crystallizes from the upper part, then single furnace can yield several tons (even dozen tons) of magnesium, and the cost of magnesium smelting will continue to close to that of steel.

With the update of magnesium smelting technology and equipment, magnesium smelting will realize more automation and intelligence process. Benefiting from effective process method, the capacity of magnesium producers will develop from 100kt to 500kt, and even to 1000kt annually, which will cut down production cost and make it close to the operation cost of steel production.

The development of the new type two-step method, for new vertical tank, may bring about over 100kt of capacity for one plant, with energy consumption at 2.5t of standard coal, labor productivity at over 100t per person annually, and smelting cost lower to 10000 RMB yuan.

If one-step method is successful as steel production from blast furnace, optimistically it is possible for 100kt-plus-capacity magnetism producer to reduce operational cost to 5000- 8000 RMB yuan.

Dr Xiao believes that the new technology will greatly reduce the cost of primary magnesium, make magnesium more competitive as compared with other materials in application. The key for large application of magnesium lies in reducing operational cost.

Shaanxi held magnesium industry development seminar

On October 30th, the seminar for the development of magnesium industry was held in Xian. Mr. Lichunlin, vice mayor Yulin city, attended the forum.

During the seminar, Professor Dan Zhiwei, from Xi'an Jiao Tong University, delivered report on the status quo and measures of China's magnesium industry, and Professor Zhang Shaojun, from Zhengzhou University, introduced the new technology in magnesium relevant. Mr. Lichunlin also addressed the seminar.

The participants exchanged views on the development of magnesium industry, analyzed the existing problems and difficulties, and put forward some suggestions. Both Fugu Tianyu Magnesium Alloy and Yulin Tianlong Magnesium respectively, on the upgrade project of primary magnesium process, signed agreement with Xi'an Jiaotong University. Mr. Cao Guorui, CEO of Fugu Tianyu Magnesium, attended the signing ceremony.

Research team from No.9 hospital affiliated to Shanghai Jiaotong University promotes magnesium-containing antibacterial stent for clinical application

Recently, bacterial inhibition potential of 3D rapid-prototyped magnesium-based porous composite scaffolds-an in vitro efficacy study was published in Nature's magazine, Scientific Reports. The article is authored by experts from No. hospital affiliated to Shanghai Jiaotong University, Key Laboratory of Orthopaedics Implantation of Shanghai City and Shenzhen Institute of Advanced Technology. Its first co-authors are Dr. Marui, from Department of Orthopedics, No. 9 Hospital, Shanghai Jiaotong University, and Dr. Lai Yuxiao, Shenzhen Institute of Advanced Technology

The authors, by low temperature and fast 3D forming technology, synthesized new type multi-porous and magnesium-containing stent with the substrate of PLGA and TCP. Through the content change of magnesium, they prepared three stents, i.e., PLGA/ TCP/5%Mg (PT5M), PLGA/TCP/10%Mg (PT10M) and PLGA/TCP/15%Mg (PT15M).

In vitro studies show such stents, as compares with common porous stent (PLGA/TCP, PT), have significantly inhibited the adhesion and biofilm formation of Staphylococcus aureus, in which PT15M and PT10M inhibit the biofilm formation significantly stronger than PT5M. Further study of its antibacterial mechanism found that the degradation of magnesium-containing stent can enhance pH, Mg^{2+} concentration and osmotic pressure in local micro tissue, and the increase of pH value may be the main reason for the antibacterial activity of magnesium-containing stent. The research results provide important theoretical basis for the further clinical research on the clinical transformation of magnesium-containing antibacterial stents.

Research has been financed by the National Natural Science Foundation of China (51361130034) and the EU No. 7 framework research project (n NMP3-SL-2013-604517).

110-120kg type magnesium ingot production goes through operation by Fugu Taida Coal & Chemical

On October 12th, Fugu Taida Coal & Chemical put on stream 110-120kg type magnesium ingot production line.

Mr. Gao, sale manager, said "we have just rolled out of 110-120kg type magnesium ingot as expected. Some time ago, we carried out inspection study in Shanxi and Ningxia upon the independent research and development design. Unlike artificial pouring, our method not only saves time and effort, but also is more efficient for customers' need". He said 110-120kg shaped magnesium ingot can find more export as oversea demand is higher. Based on original 7.5kg-type magnesium ingot, we diversify our product mix. Later, we will, upon customers' orders, organize related production, and we expect 110-120kg type ingot to hit 600t of monthly output."

At the same time, the company currently puts in order 100g and 300g ingot molds, their pouring stage also will realize mechanization.

Fugu Taida Coal & Chemical, founded in December, 2007, has 9 production lines: 600kt/a of coke, 2 x 25000kVA ferrosilicon furnace, 20kt of magnesium, 2 x 25MW waste gas-driven power plants, 1200kt of washing coal, 10000 reduction pots, 250kt of lime kiln, 4X25500kva calcium carbide furnace, and 50 mln. of unburned bricks. Its product portfolio includes coke, tar, gas, ferrosilicon, magnesium, electric power, coal, reduction pot, lime, calcium carbide and unburned brick.

Magnesium alloy research seminar opened in Wanfeng Auto

On October 12, magnesium alloy research industrial application seminar, hosted by Zhejiang Provincial Human Resources and Social Security Bureau and undertaken by Wanfeng Auto Holding, was kicked off in Wanfeng Square.

Li Yu, Dean of Wanfeng Research Institute, made report entitled the application of magnesium alloy in automobile, and Zhang Xuxia, director of Wanfeng Technology Department, addressed the application of robot in die casting segment.

Industry professionals and representatives from Daimler, BMW, Haima Automobile, Geely Automobile, China Automotive Technology and Research Center, China Aviation Science and Industry Group, Shanghai Volkswagen, China FAW, China Shipbuilding Heavy Industry, and Ford Motor attended the seminar. They exchanged view of points as for the future development of magnesium alloy industry.

Wanfeng Auto, responding positively to the policy for preferential attention to professional and technical personnel, builds platform for industry experts, representatives, business executives and technical personnel, where they, around magnesium alloy and its industrial application, put forward suggestion and promote the rapid application of magnesium alloy.

Xiaomi self-balancing robot will enters market on November 3, 2015

On October 19, Xiaomi announced the company, together with ecological chain enterprise Ninebot, launched next generation robot, No.9 9 balance robot. It is the first product by Ninebot after Ninebot successfully acquired Segway in April 2015. Unlike the similar robots worth of several thousand RMB yuan, No.9 balance robot, following one and half year's customized design for Xiaomi, is only 1999 RMB yuan, which is 1/4 of and even lower than the similar product in price.

No. 9 robot, with high performance, runs at speed of up to 16km/h, and lets operator feel the driving experience of as 4 times speed as walkers go. Equipped with two direct drive motors, its total output power hits up to 700 watts, but instantaneous power can exceed 2000 Watts, which is almost a power of electric motorcycles. Under typical test environment, it can run about 22km upon charge. Innovative Leansteer control, unlike common robots by two hands and feet, can analyze the leg movement and then control direction, so it runs with more relaxation and stability.

No. 9 robot only weighs 12.8kg. From various materials, it adopts magnesium alloy as body, and, based on strength design and verification of aircrafts, select 0.6kg-weight magnesium alloy frame which can withstand up to 600kg of load while the robot itself can support 85kg of weight.

Ninebot & Segway has 16 years of experience in developing balancing robots, with over 400 patents, which brings about superior safety for customers.



Currently, Segway I2 se is priced at 78000 yuan, Ninebot-E at 14900 yuan, and 500-1000W two-wheeled robot at 8519 yuan at average in JIingdong internet shop, but No.9 robot only costs 1999 RMB yuan. This will allow more young people to have the opportunity to experience the fun of balancing robots. This product will be in sale, from November 3, in Xiaomi's website.

Yizumi's Thixomolding Machine Passes Expert-level Technical Evaluation

On October 15, China Plastics Machinery Industry Association (CPMIA) organized an evaluation committee with well-known experts in domestic machinery industry and semi-solid magnesium alloy to conduct new product appraisal for UN650MGII thixomolding machine developed by Yizumi. The expert committee addressed high marks on the technical content of the whole project and agreed that the technology, indicators and performance of related equipment had met the advanced level of similar products in the world.

Based on on-site assessment and inspecting the site for project development and prototype manufacturing, the committee, hearing the report on the project implementation, and carefully reviewing relevant information and technical documents submitted for the evaluation, announced that Yizumi's thixomolding machine passed the technical evaluation and suggested Yizumi to further develop relevant production line to meet market demand.



A thixomolding machine is equipment that processes the magnesium alloy chips, the raw materials fed and sheared by the rotating screw and heated by the barrel, into semi-solid slurry. In industrialized countries, semi-solid magnesium alloy processing technology (thixomolding technology) has been mature and applied to mass production mainly in the fields of automotive, electronics, aerospace, etc. "UN650MGII thixomolding machine is a combination of Yizumi's technical strength in thixomolding and the cutting-edge technology in the world. Through systematic study of the thixomolding process technology, times of technical improvements and experiments and mastery of the secret of meeting the temperature requirements of producing magnesium alloy slurry, the trial manufacturing of the sample thixomolding machine was completed. This machine can produce complex magnesium alloy products that have high precision and good surface quality. The maximum injection speed of UN650MGII is up to 5m/s, which is the same with the Japanese counterpart; and it takes only 12ms for the machine to accelerate from zero to 5m/s. Technical performance of UN650MGII goes on parallel with Japan's and even reaches world's advanced level.

Output of primary magnesium by September 2015				
Output by geography (unit: kt)				
Region	August	September	Jan. - Sept.	Jan. - Sept. % Change
Shaanxi	34.1	29.3	275.2	-3.78
Shanxi	13.5	13.1	152.4	-14.51
Ningxia	17.5	17.6	83.8	17.89
Xinjiang	3.3	2.8	25.5	-20.76
Henan	2.5	3.7	30.7	-14.92
Qinghai	-	2.5	12.3	58.01
Sichuan	0.4	0.4	3.5	-8.2
Inner Mongolia	1.8	1.3	9.5	149.6
Lioning	0.7	0.7	4.7	-32.42
Jilin	-	0.3	0.6	-87.01
Total	73.8	71.6	598.2	-5.16

Exports of Magnesium Products closed September in China (Unit: t)							
Month	Magnesium Unwrought (min. 99.8%)	Other Magnesium and Alloy Unwrought	Waste and Scrap	Magnesium raspings/turnings/granules according to size & powders	Magnesium Wrought	Magnesium Articles	Monthly Total
January	22710.5	9921.8	304.3	8681.3	186	544.8	42348.7
February	16121.9	8309.7	107.2	7885.7	405.5	452.2	33282.2
March	16046.9	8809.4	147.1	6315.1	197.5	387.8	31904.3
April	19652.5	9830.7	107.4	7799.3	438.5	446.1	38274.5
May	17992.7	9677.8	187.6	5220.2	329.7	456.9	33864.9

June	19215.7	8715.1	94.7	5709.1	254.7	398.2	34387.4
July	14775.9	10068.7	-	5319.1	280.0	482.9	30926.8
August	13789.6	8327.6	157.4	4070.2	83.8	348.9	26777.5
September	18578.5	10428.5	40	4909.3	267	484.5	34887.9
Total	159064.4	84089.8	1145.6	55909.2	2442.8	4002.4	306654.3

Magnesium Ingot Price by Sunlight Metals (Unit: Yuan/t)					
	Shaanxi	Taiyuan	Wenxi	Ningxia	FOB (USD/t)
Oct-8	12450-12550	12600-12700	12750-12850	12600-12750	2050-2080
Oct-10	12400-12500	12600-12700	12700-12800	12600-12750	2050-2080
Oct-12	12400-12500	12600-12700	12700-12800	12600-12750	2050-2080
Oct-14	12350-12450	12550-12650	12650-12750	12550-12750	2050-2080
Oct-15	12350-12450	12550-12650	12750-12850	12550-12750	2050-2080
Oct-19	12350-12450	12550-12650	12750-12850	12550-12750	2050-2080
Oct-20	12350-12450	12550-12650	12750-12850	12550-12750	2050-2080
Oct-22	12300-12400	12550-12650	12600-12700	12500-12600	2030-2060
Oct-23	12250-12350	12450-12550	12550-12650	12450-12550	2030-2060
Oct-26	12250-12350	12450-12550	12550-12650	12450-12550	2030-2060
Oct-27	12200-12300	12400-12500	12500-12600	12400-12500	2030-2060
Oct-28	12200-12300	12400-12500	12500-12600	12400-12500	2030-2060
Oct-29	12200-12300	12400-12500	12500-12600	12400-12500	2030-2060
Oct-30	12200-12300	12400-12500	12500-12600	12400-12500	2030-2060

Sunlight Metal collects and publishes daily ingot quotation and FOB price from key magnesium production regions objectively, independently and systematically. Being taken into account the viewpoints from both supplier and consumers, Sunlight Metal price, rationally reflecting the change in market, is the most authoritative in domestic magnesium sector. For more detail and inquiry, pls. contact us at info@chinamagnesium.net

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