

## 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](mailto:info@intlomag.org).

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### ASSOCIATION NEWS

#### IMA 72nd Annual World Magnesium Conference Call for Papers Deadline Extended!

**You're Invited** to submit a 150-word abstract for a proposed presentation at IMA's 72nd Annual World Magnesium Conference, the premier international magnesium industry conference. This conference highlights technological advances, innovative applications, and emerging developments in the global marketplace. The event attracts delegates from all aspects of the Magnesium industry. You will have unparalleled opportunity to address magnesium professionals, industry leaders, and decision-makers who seek cutting-edge technical information, problem-solving resources and current industry updates.

The IMA has extended the deadline for the [2015 Call for Papers](#) to **Friday, December 5, 2014!** This is your opportunity to help shape the content of the 72nd Annual Magnesium World Conference program and to elevate the presence of your company within the magnesium community.

We welcome your offer to present on most any relevant topic for which you or your firm has suitable expertise. Please help support the [Call For Papers](#) by suggesting a topic and/or a speaker, whether yourself or a colleague. Please help us promote the Call For Papers!

Click [here](#) to download the Call For Papers Form.

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

#### Program Committee Selection Process Timetable:

- December 5, 2014 Extended Deadline for abstract submissions
- December 2014 Selection of papers and Notification of authors
- February 27, 2015 Manuscripts due
- May 17-19, 2015 Annual World Conference in Vancouver, Canada

#### Submit abstracts via email by December 5, 2014 to [info@intlomag.org](mailto:info@intlomag.org).

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#### Help Promote the Magnesium Industry: Looking for a few Good Photos

With the IMA's rebranding efforts and our new mission statement "to be the global authority" to and in the magnesium community, we are reaching out to our members to supply us with updated images, such as, production, manufacturing or end user photos.

Not only do we need your image offerings for the new IMA booth, we would like permission to use them on the new IMA website, in upcoming IMA marketing brochures, the IMA social media channels, and more!

Images should be submitted as high resolution (.eps) for use on printed materials and low resolution (.jpg) for use on the website. Please sign and submit the [IMA Photo Release Form](#) giving permission to publish your images. Please include a short description or caption with each photo. Companies will also receive credit ("photo courtesy of...") on any and all materials on which we choose to publish your images.

These are exciting times for the IMA and we are happy that you and your member colleagues will be along for the ride! Please contact Amanda Kasik, [afortman@tso.net](mailto:afortman@tso.net) at the IMA headquarters to submit your photos. We would love to hear from you!

THANK YOU for being a valued member of the IMA!

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#### Welcome the newest IMA Member: Shiloh Industries

The IMA is happy to introduce you to the newest IMA Regular member, Shiloh Industries. For those of you who have not met Megan Connolly, please help welcome her and her colleagues as the IMA's newest member:

Shiloh Industries  
Canton, MI  
USA

Shiloh Industries is dedicated to delivering lightweighting, noise and vibration solutions to automotive, commercial vehicle and other industrial markets. Every day, our focus is on successfully balancing the need to reduce cost, weight and part complexity with the need to enhance performance, safety and fuel efficiency.

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## Member News

[Hatch's 'Qinghai Magnesium Smelter - Dehydration Facility' Project Wins 2013 Bentley Be Inspired Award](#)

[Shiloh Industries to advance global product strategy with Plymouth Twp. tech center](#)

[ICL reaffirms plan to shut Dead Sea Magnesium](#) (To read MetalBulletin articles in full, click [here](#) to register for a free trial)

[Magnesium specialist makes two acquisitions](#)

[Latrobe Magnesium's technology produces magnesium](#)

[Latrobe Magnesium shares on a tear](#)

[Steady Acceleration in Manufacturing Activity to Drive the Market for Industrial Castings, According to New Report by Global Industry Analysts, Inc.](#)

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## Mg NEWS AROUND THE INDUSTRY

### October Magnesium Review from Metal-Pages

The outlook is fairly stable for European magnesium in the coming months amid quiet demand, as well as plentiful stocks. "It's been largely Chinese-driven, although the market has been struggling with the exchange rate as well," one dealer said. "It has been much more difficult to sell in Europe with the euro/dollar rate, while there are lots of stocks around."

Signs of an uneven US economic recovery knocked expectations for interest-rate increases next year. The US Federal Reserve said in September it will end quantitative easing if the domestic economy persists in strengthening.

Annual magnesium contract settlements have had a quiet start for deliveries next year. Supply volumes have been ticking over as usual and there has been nothing unusually substantial, sources said.

Chinese production is running close to production costs. Any decision to cut magnesium production levels steeply costs money, so such a move in China is unlikely unless demand slumps for several months, sources said. China dominates world primary magnesium metal production, with the country's production exceeding 730,000t in 2012, equivalent to above 75pc of total supply.

US magnesium continues to trade sideways amid a shortage of near-by units and the occasional spot enquiry. The US magnesium market has been largely dominated by a supply crimp this year due to a reduction in overseas metal from countries like Russia and Kazakhstan, while a shortage of aluminium scrap has also forced some consumers to switch into other alloying materials like magnesium.

It comes as demand for pure magnesium on the spot market has been sporadic, with trade sources reporting flat market conditions following a brief flurry of activity last month as some consumers looked for additional fourth quarter tonnage after running short on long-term contracts. The market could remain lackluster heading into next month as consumers traditionally rundown inventory for year-end accounting purposes.

"There are not huge amounts of spot business as I think most people are done for the fourth quarter and are now looking at next year. But the industry remains good overall."

Underlying demand for magnesium remains robust, due primarily to the aluminium alloying sector that continues to be boosted by the automotive industry. US automotive sales shot up 6.1pc to 1.28 million units in October and many automakers are now predicting a strong end to the year.

"I can't see much changing for the moment as we head into the quieter Thanksgiving period and really for the year-end" said another trader. "Most of the suppliers are well sold on contracts and there's nothing much available for the spot anyway."

Meanwhile, reports of last minute offers for pure magnesium from Russian has thrown US magnesium negotiations for 2015 deals into a tailspin as suppliers clamber for the reminding contract business. The unexpected move by Russian suppliers comes as they struggle to sell into the domestic market due to reports of some consumers switching into Chinese magnesium next year, a weaker ruble and lingering issues selling into the Ukraine.

Last minute offers for pure magnesium from Russian has thrown US magnesium negotiations for 2015 deals into a tailspin as suppliers clamber for the reminding contract business.

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Although mating season talks are starting to wind down, there are still a number of requests for quotation (RFQs) from some aluminium alloying companies in the market and offers for magnesium are being reported as competitive.

"There's some unexpected competition from Russian imports due to a weaker ruble and the fact that there are some problems selling into the Ukraine. We also understand that at least one Russian consumer has turned to Chinese metal next year," said one trade source.

"So the Russians are now looking at international markets and some is coming into the US and making the market quite competitive."

The sudden introduction of Russian metal is believed to have blown settlements out to a wide range as some deals are now reportedly being negotiated below the low end of the range.

"Volumes are looking good for next year, particularly in aluminium auto. Some of the rolling mills are looking at more of the auto body sheet side of the market next year," said another trade source.

Magnesium is primarily used as an alloy with aluminium, accounting for some 45pc of total world consumption. Another 35pc is consumed in magnesium alloys in structural metals, about 13pc in steel making, with the rest used in electro-chemical and other sectors.

The Chinese magnesium market continues to fall as holders of material cut prices to generate sales.

Demand from the steel industry, where magnesium powder is used as desulphuriser, remains sluggish, with prices down to their lowest in the past ten years. Consumers

are living off contract deliveries and waiting for prices to bottom out. Producers are rushing to sell stocks for year-end accounting purposes. The export market is stable with overseas buyers enquiring for next quarter. But firm deals are few as importers are expecting lower prices.

China exported 167,911t of the metal in the first nine months of 2014, up 9.0pc against the same period last year, but the increase was much lower than 36.1pc in the same period of 2013.

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## More Industry News

[Move Over, Lithium: Magnesium-ion Batteries Could Soon Be the Norm](#)

[Alliance Magnesium: important achievement for its intellectual property portfolio](#)

[Nevada Clean Magnesium Announces Non-Brokered Private Placement](#)

[Nevada Clean Magnesium Plans Update to NI 43-101 Preliminary Economic Assessment to Include Additional Project Improvements](#)

[Lancaster manufacturer tapped for magnesium research project](#)

[Nevada Clean Magnesium Grants Scanmag Extension To Comply With Terms Of Proposed New Joint Venture](#)

[SKILSAW Power Tools Builds On Heritage With New Brand Identity And Expanded Product Line](#)

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## Mg NEWS AROUND EUROPE

### CRM Day: Critical Raw Materials and Industrial Policy

On 14 October 2014, Chris Dagger of Magnesium Elektron, Christian Glück of Georg Fischer, Christian Payn, IMA European Representative, Martin Tauber of Magontec, Ltd. and Ken White, IMA Chairman attended the CRM Day in the European Parliament in Brussels, Belgium.

The day began with the first official CRM Alliance membership meeting since forming after a successful CRM Exhibition in February 2014. The primary objectives were to discuss both individual and common concerns that CRMs are experiencing at the EU level and to agree on a future organizational structure. During the meeting, the objective to ensure that CRMs receive consideration when drafting legislation, which should not be focused on substitution, was re-established. In theory, this meant the formation of a clear strategy for the CRM Alliance to promote the importance of critical materials to the EU and to support a CRM policy. The CRM Alliance also discussed the development of a data inventory for Raw Material System Analysis that will be established by BioDeloitte in France and Charles University in Prague.

Following the membership meeting was an exclusive luncheon event attended by CRM Alliance members, European Commission, European Parliament and members of the European Directorate Group Enterprise and Industry. Hosted by Dr. Paul Rübzig, Vice-Chairman of the EP Scientific Technology Options Assessment Committee, the event proved to be a good setting for an intense and constructive discussion. Throughout the luncheon it became apparent that critical raw materials are being viewed as vital for the European economy and for energy efficiency. Consequently, measures need to be taken to ensure the continued supply of critical materials to and within the EU.

Dr. Paul Rübzig opened the event with an emphasis on integrating industrial and raw materials policies. He emphasized the importance of companies in industries that utilize critical materials to increase standards for energy efficiency. He commented that there must be a compromise between how these materials are used and their critical need in many applications.

Flor Diaz Pulido, Acting Head of Unit Raw Materials, Metals, Minerals and Forest-based industries - DG Enterprise and Industry, led with an explanation into the intentions of the European Commission regarding critical materials and industrial policy. She stated that they have placed high priority on focusing on the raw material initiatives. The CRM list is not only used as a policy-making tool, but provides a benchmark that tells which materials should receive focus for research and innovation.

In accordance with the EU's focus on raw materials initiatives, in September 2013 the European Innovation Partnership on Raw Materials adopted the Strategic Implementation Plan (SIP), which is based on three pillars: technology, non-technology and international. Within the technology pillar, is a clear focus on finding substitutions for raw materials. One of the main concerns for CRM Alliance members is this push for research to find substitutions for CRMs.

Chris Dagger, Board Member of the International Magnesium Association, stated that, from the magnesium perspective, the industry is very concerned about the EU approach to substitution. Mr. Dagger adamantly stated, "We will not support substitution! The industry therefore does not need an EU-funded policy focused on substitution." He noted that the main issue is centered on trade because China has out competed Europe in mining. The Commission should target its efforts to international relations and trade issues.

Mark Saxon, President and CEO of the CRM Alliance member Tasman Metals, made it very clear that the western world needs to focus on using the right metals for the best technology solutions rather than focusing on substitution. He stressed that there is no global shortage in the metals themselves, however, there has been a shortage in investment in a secure supply chain and the willingness to pay a price that allows for sustainable production.

During the Q&A session the audience overwhelmingly commented that substituting critical materials was not even a solution. Rather, a focus should be put on investment in mining and on addressing trade related issues, particularly with China.

The day ended with an interactive exchange between CRM Alliance members and Dr. Adrian Chapman from Oakdene Hollins, co-author of the CRM report. Dr. Chapman explained the methodology used to classify CRMs. The two main areas of focus are on supply risk due to poor governance and/or risk due to low environmental standards and the economic importance by looking at the end use application.

In the 2014 update, four key items were identified:

1. Revision of the list of critical materials for the EU using the same methodology
2. Extension of the scope of abiotic materials and the inclusion of biotic materials
3. Provide material profiles with greater information on the CRMs
4. Assessment of methodological refinements, including eight possible additional influences, e.g. price volatility and by-production.

During the discussion it became apparent that 12 of these critical raw materials have over 50% supply dependency from China. The question of minimizing the supply risk is clearly a priority for the CRM Alliance members. Each CRM Alliance member will consider their own material and make suggestions for presenting to the EU as solutions. As a result of the meeting, both parties had a better understanding of the other's position and a closer cooperation is envisioned for the next CRM report.

The CRM Day attracted a great response from both the CRM industry and European policy makers involved in the EU. This event offered an opportunity for all parties to meet and discuss best practices with the ultimate goal to create a policy supported by all. For more information on the CRM Alliance and the CRM Day please visit <http://criticalrawmaterials.org/>.

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## More News around Europe

[Israel Chemicals reacts badly as panel unveils new plan for natural resources tax](#)

## Mg NEWS AROUND ASIA

### **JMA August Magnesium Newsletter Japan Vol 23. Covering the news for August 2014** [The Japan Magnesium Association](#)

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##### News in Japan

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#### Domestic Magnesium Market - July, 2014

##### News in Japan

##### **Railway Technical Research Institute (RTRI) developed a flame-resistant magnesium alloy**

*(Source: Japan Metal Bulletin 29th Aug., 2014)*

Railway Technical Research Institute (RTRI) announced on 28th Aug that they have been developing a flame-resistant magnesium alloy jointly with Sankyo Tateyama Inc. and Sankyo Material Company for the purpose of weight reduction of railcars. They want to apply it to high speed railcars like Shinkansen bullet trains, including for export, and to put them into practical use in 2023 to 2024. The magnesium alloy (AZX611=Mg-6Al-Zn-Ca) developed by RTRI and the Sankyo group retains an excellent flame resistant property up to a high temperature by adding calcium and almost the same mechanical properties as aluminum 6000 series. As this flame-resistant magnesium alloy has capabilities of thermal forming, joining, and welding such as arc welding, they are advancing the development for applying this new alloy to the materials of railcar structures. They made a hollow extruded prototype by using the newly developed magnesium alloy in order to strengthen the magnesium's weak rigidity which is generally two thirds of aluminum. Furthermore, they confirmed availabilities of this newly developed magnesium alloy for thermal stamped interior parts, and possibilities for TIG welding and FSW (Friction Stir Welding). Forming technology will become a major task in future when this magnesium alloy will be used for railcars because the length of prototype parts is still around 15 meters, which is needed 25meters for the Shinkansen as an example. An attention will be paid to see whether the newly developed magnesium alloy will be able to open a possible new approach in high-speed railcar field where the aluminum alloy is the worldwide mainstream.

##### **Furukawa Battery and Toppan Printing released a magnesium air battery**

*(Source: Japan Metal Bulletin and Sokeizai Tsushin 1st Sept., 2014)*

Furukawa Battery Co., Ltd. and Toppan Printing Co., Ltd. announced on 29th August that they jointly developed an emergency magnesium air battery named "Mg Box", pronounced as Mug Box, made of the world's first paper container, and that they will begin selling it in mid-December. The Box generates electricity up to five days by only pouring water or seawater. An application as an emergency power supply at a time of a disaster is expected because it weighs only 1.6 kg and can be stored for long periods. The products will be sold mainly to local governments.

"Mg Box" is a cube a little over 200mm on each side, and the maximum electricity is 300 watts. Since only approximately 2 liters of water or seawater is needed for generating electricity, it can be easily carried because it weighs only 3.6 kg even after pouring the water. It has two output terminals for USB and can charge up smart phones up to 30 times. The magnesium air battery is a primary battery which consists of atmospheric oxygen as the positive-electrode, and a flame-resistant magnesium alloy as the negative-electrode. Furukawa Battery pushed forward the development with Tohoku University, National Institute of Advanced Industrial Science and Technology, Tobata Seisakusho Co., Ltd., and Fuji Light Metal Co., Ltd. from several years ago and established the product technology of the practical use level in 2012. There was a structural problem in increasing its size with maintaining the watertight structure for the practical application as emergency use. But, the problem was settled by combining a paper container technology of Toppan Printing, and this led to the development of lightweight battery having practical capacity. The paper container makes it easy to dispose after the use.

##### **Toyama Industrial Technology Center and BBS Japan developed face-joining technology of magnesium alloy with aluminum**

*(Source: The Kitanihon Shimbun 3rd Sep., 2014)*

Toyama Industrial Technology Center and BBS Japan Co., Ltd., a manufacturer and distributor of automotive wheels, developed a face-joining technology between aluminum alloys and magnesium alloys. Magnesium, which is the most lightest in practical metals, has disadvantages in corrosion resistance, strength, and costs, but a combination with different materials will resolve these disadvantages. "The forge welding technique" accomplished by the materials analysis technology of the center and the forging technology of the company enabled the mass production of this technique in a short time. They expect this material will be used as a high-performance material widely in transport vehicles, welfare apparatuses, and precision electronic equipment. They said that they had applied titanium to the interface layer between aluminum alloy and magnesium alloy, and had strengthened the chemical reaction layer, which is easy to be a cause of fracture, by applying their nano-technology. They formed a plastic flow interface (rough layer) having anchor effects on jointed surface, and a very thin tens of nanometers thick chemical reaction layer by applying a compress load which was 100 to 1,000 times larger than current FSW. The strength of the joint was 155MPa which is more than that of a state-of-the-art FSW (from 0 to 120MPa) using for parts of railcars.

"High-performance materials laboratories" will be set up by the end of this year in the "Monozukuri (Manufacturing) Research and Development Center", which is in the Toyama Industrial Technology Center, to pursue a new industrial cluster through researches of high performance materials such as magnesium. It will become a space to push a future strategy planned by the Toyama prefecture in May.

#### Domestic Magnesium Market - July, 2014

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

##### Import

Based on Import/Export Statistics of July 2014, magnesium metal import was 1932.5 tons (17.2% decrease from the same month the year before), magnesium powder 401.2 tons (56.3% increase) and other products 157.6 tons (9222.5% increase). Magnesium metal showed down from the same month the year before because magnesium metal largely decreased despite the recovery in the previous month, on the other hand, powder increased. Other products category increased nearly 10 times because the mass products were imported from China again.

The breakdown of the metal; pure magnesium import was 1,627.4 tons (0.9% increase from the same month the year before), die-casting alloys 298.0 tons (58.4% decrease), and casting alloys 7.1 tons (18.9% increase). Die-casting alloys showed large decrease which was more than 1/2 in the same month the year before. The production of the die-casting alloys in Japan looks to be in a severe situation.

In July, the average import price of pure magnesium was 262.7 yen per kg, which is 2.6 yen per kg, decrease 1.6% from the month before, and it had been keeping the level of 260 yen/kg for four months.

For comparison, price of the magnesium alloy from China was 318.8 yen per kg, 28.6 yen per kg increased from the month before.

The total imports of January-July 2014 consisted of 18,288.4 tons of magnesium metal (12.2% increase from the same period the year before), 2,628.3 tons of magnesium powder (3.8% decrease), and 1,319.4 tons of other products (1,126.3% increase). In total, this indicates continuous favorable recovery of the magnesium metal supply and large increase of the magnesium products.

## Export

In July 2014, 58.8 tons of magnesium alloys (48.7% increase from the same month the year before) including export to the United States, 0.5 ton of magnesium powder (2,400.0% increase), and 0.8 ton of other products (77.3% increase) were exported. In these, export to China was 0.7 ton.

The total exports of January-July 2014 consisted of 277.3 tons of pure magnesium and magnesium metal (5.0% increase from the same period the year before), 4.3 tons of magnesium powder (114.1% increase), and 18.4 tons of magnesium products (decrease 11.8%).

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## October China Magnesium Industry and Market Bulletin

### CMA kicked off its annual conference highlighting the application of magnesium

On Oct.16, CMA's opened its annual conference in Tianjin. Ren Xudong, executive vice president of China Nonferrous Metals Industry Association, and Chen Xuesen, director Raw Material Industry Department, Ministry of Industry and Information Technology, attended the conference and made speech. Prof. Pan Fusheng, director of National Engineering Research Center for Magnesium Alloys, made a special report on the national magnesium alloy development planning during the 13th five-year plan. He Jilin, academician of Chinese Academy of Engineering, and Wen Xianjun, vice president of China Nonferrous Metals Industry Association also attended the conference. There were more than 200 delegates attending the conference.

At present, many problems hit magnesium industry downturn, as indicated by slow supply and low price. The conference promoted the application of magnesium alloy deep processing materials as the theme. Participating experts and enterprise representatives exchanged viewpoints, released innovation vigor, further promoted the innovation and processing technology and equipment for high-end products, and added momentum to the transformation and upgrading of magnesium industry.

Ren Xudong, executive vice president of China Nonferrous Metals Industry Association, pointed out that downward risk and uncertainty facing world economy have eased. European and American economic begin to recover, but structural contradictions are still prominent in China's economy. Non-ferrous metal production, in the past 10-plus years, moved from two digit growth to single digit growth. Impacted by large environment, magnesium industry in China also shows 'new pattern'. From Jan. to Aug. 2014, China's primary magnesium output stood at 565.3kt, up 5.57% y-on-y. Shaanxi, Shanxi, and Ningxia still are the main primary magnesium area. Output in Shaanxi grew moderately, but both Shanxi and Ningxia dropped down. Even though, with the development of science and technology, positive signal emerged out for magnesium alloy materials, especially from 3C, automotive and other consumer areas which breeds greater breakthrough for large growth."

Ren Xudong said China has ranked No.1 in terms of production, export and consumption for many years. Compared to other nonferrous metals, magnesium resource is very rich, and can guarantee the sustainable development of magnesium industry. Magnesium performs excellently with broad application prospects, and magnesium industry in China, with the world development, actively participates in the global market competition. But there still remain in the level of magnesium raw material power country. Ren Xudong proposed that "we must accelerate the structure adjustment, strengthen the research and development of science and technology orienting application, take the market as the goal, fully mobilize all positive factors, strive to build a power country of magnesium industry, and contribute to building a power country of nonferrous metal industry.

Xu Jinxiang, director of CMA, said in his report that " we will stress innovation as core position in the national industry and the overall development of enterprises, strengthen the dominant position of enterprises in technological innovation, encourage enterprises to set up R & D institutions, and lead them to construct innovation alliance."

During the conference, several magnesium enterprises also held a signing ceremony, and signed letters of intent for cooperation. CMA and Tianjin Wan Ju Asset Management signed "memorandum of electronic commerce project cooperation for China's magnesium industry; Tianjin Wan Ju Asset Management and Yingkou Yinhe Magnesium Alloy signed the letter of intent for strategic cooperation; Jiangsu Rongmei Magnesium Alloy Wheel and Inner Mongolia Zhongyu Magnesium Alloy Forged Wheels signed the" transfer agreement for the magnesium alloy automobile wheel forging production technology and patents.

### CMA begins to map out 2015-2020 year development plan for China's magnesium industry

Xu Jinxiang, director of CMA, informed the attendees during CMA's 2014 annual conference of some ideas about 2015-2020 year development plan for China's magnesium industry.

Xu said that CMA, according to some requirements and deployment from relevant ministries, commissions and China Nonferrous Metals Industry Association, launches the 2015-2020 year development plan for China's magnesium industry.

Mr. Xu said the 13th five-year plan period is critical for magnesium industry to accelerate the transformation of development mode and realize powerful magnesium country.

Magnesium, as a strategic resource with unique special status and as new structural material, will usher in the hopeful period of strategic opportunity, and play a greater role in lightweight, transport energy, materials, environmental protection industry, consumer electronics, marine engineering, aerospace, defense industry and other fields. Especially, the "energy saving and new energy automobile industry development plan (2012-2020)" proposes that average fuel consumption for passenger car by 2015 will dropped to 6.9 L / 100 km, and further to 5 L / 100 km by 2020. This means that by 2020, per vehicle lightweight rate will reach 16.5-22% and this trend will provide a broad application space for magnesium alloy parts.

The main development target (2016-2020)

During this period, obvious progress will be made for magnesium industry structural adjustment and industrial transformation and upgrading. Quality and efficiency of industrial development will have obvious improvement.

#### 1. Industry production target

It is expected that in 2015, China's magnesium production will exceed 800kt; by the end of 13th five-year plan, or by the end of 2020, China's magnesium production will reach 1300kt, with an average annual growth rate of more than 10%. (no more than currently existing capacity; actual utilization rate of current capacity at about 50%; during 12th five-year pan period, the average annual output at 700kt, against over 1000kt during 13th five-year plan period.)

#### 2. Energy-saving emission reduction target

During 13th five-year plan period, energy saving and emission reduction of China's magnesium industry will achieve greater progress, and energy consumption per unit product will further reduce. In 2020, the comprehensive energy consumption of China's magnesium will drop to 3500 kilograms of standard coal / ton, down 13% compared to the 12th five-year plan period, indicating average annual coal saving at about 500kt, carbon dioxide emission reduction at 1300kt, and average annual electricity saving at 150 bln.KWH.

#### 3. Technological innovation

To construct enterprises as the main body of the perfect technical innovation system; invest, accounting for 2% total revenue, in research and development; focus on the development and promotion of high efficient green technology and energy-saving emission reduction technology for new smelting, casting, and alloy production; research and make, at industry scale, wide strip and high-technology products including profile, castings, forgings and other deep processed products; make domestic technology breakthroughs in key equipment; develop application in the field of biological material and the new energy.

#### 4. Structure adjustment

To optimize industrial layout and organization structure; product quality meets the basic needs of strategic emerging industry; further improve industry concentration.

- o Optimize layout; strengthen industrial agglomeration effect; transfer magnesium smelting enterprises to e western regions where resources and energy have more obvious advantages; will be formed many smelting raw material bases in Yulin (Shaanxi), Yuncheng(Shanxi), Xinjiang, Ningxia, and Inner Mongolia.
- o Multiple processing bases will be formed by main enterprises of deep-processing and application of magnesium products in Yangtze River Delta, Zhujiang Delta, Chongqing, Bohai area, Northeast China and the Central Plains area.
- o Further optimize industrial structure and develop enterprises at large scale. By the end of 13th five-year plan period, output of magnesium alloy processing products will be expected to reach 600-700kt, and at least 10 related production producers, each with more than 20kt of output annually, will come into being. At the same time, China will promote the optimization and upgrading of smelting enterprises, and actively guide enterprises to carry out large-scale development, and strive, by the end of 13th five-year plan period, to cultivate more than 6 production enterprises, each with more than 50-

100kt of output annually, as leading enterprises with large scale and high level, and further improve China's international competitiveness for magnesium smelting enterprises.

- o To deepen the adjustment of product structure, and actively transfer and extend to high added -value product.

During the 13th five-year plan period, magnesium industry will vigorously promote the product structure for high value-added products; mainly meet the demand from automotive, rail trains and high speed rail transportation for large, porous, shaped, and hollow magnesium alloy profiles, high-quality magnesium alloy sheet, variable cross-section rolling plate, large-scale magnesium alloy die casting, and more than 1500mm-wide magnesium alloy sheet; mainly meet the demand from aerospace and defense industry for magnesium alloy plate with high strength, high toughness, high temperature, corrosion resistance, and fatigue resistance, as well as for large-scale forgings, profiles, and large and complex welding parts; mainly develop magnesium alloy function material of special function and property.

#### **Raw Material Department of MIIT plans, during 13th five-year plan period, to further focus on magnesium deep-processing industry and facilitate the application of magnesium**

In October 16th, Chen Xuesen, director of Nonferrous Metal Section, Raw Material Industry Department, Ministry of Industry and Information Technology (MIIT), addressed CMA national magnesium industry conference and said MIIT will continue to support magnesium industry upgrading as main measures.

Mr. Chen said MIIT has always attached great importance to the development of magnesium industry, strengthen the development of magnesium industry guidance and support from the planning, policy, standard, and fund etc. MIIT released "Nonferrous Metals Industry Development Planning during 13th Five-Year Plan Period" and "New Material Industry Development Planning during 13th Five-Year Plan Period" which all put forth the effort to develop high performance magnesium alloy and revitalize technological transformation and industrial strong base and allocate other special funds to support high performance magnesium alloy projects. MIIT issues magnesium industry access conditions, and carries out the access management. MIIT, at present, already releases 35 up-to-standard enterprises whose capacity account for 50% of national total.

Mr. Chen thought China's magnesium industry is facing the following problems:

Firstly, industrial structure needs to be adjusted. At present, capacity utilization rate for magnesium smelting industry is only about 50%, the problem of over large capacity is prominent, deep processing capacity of downstream products is of deficiency, and export is mainly primary products with low-added value.

Secondly, key technology of magnesium alloy needs to make breakthrough. Has been no fundamental breakthrough the large-scale application bottleneck as indicated in magnesium smelting and continuous production technology, high strength and heat resistant magnesium alloy technology, corrosion resistance and surface anti-corrosion technology, and magnesium material processing technology.

Thirdly, product development and market application need to be strengthened. New product development lags behind, the propaganda for popularization and application of magnesium products is poor; social understanding is of lack for comprehensive performance, application fields, advantages and characteristics for magnesium products; development and application of the whole magnesium downstream products is still at the starting stage.

In the background of currently national macroeconomic situation and downward pressure of domestic economy, it is a common task of all employees of the magnesium industry to early speed up magnesium industry technology progress, innovation and upgrading, actively expand the magnesium material consumption, and realize industry scale.

MIIT, then, will mainly carry out the following work:

Firstly, MIIT will actively strengthen planning guidance. In the Nonferrous Metal Industry Development Planning during 13th Five-Year Plan Period, we will continue to mainly support magnesium deep processing industry and expand the application of magnesium.

Secondly, MIIT will continue to strengthen the industry access and standard management. We will support the development of up-to-standard enterprises and improve industrial concentration.

Thirdly, MIIT will strengthen the support for technical progress. We will continue to increase the special fund support for technical innovation of magnesium smelting industry, and constantly improve the level of clean production of magnesium smelting and deep processing capacity. At the same time, we will encourage domestic enterprises to strengthen international cooperation, and to increase the introduction of international advanced technology.

Fourthly, MIIT will further expand the market application. We will, with China Nonferrous Metals Industry Association, study and establish magnesium products application mechanism, strengthen communication and coordination of upstream and downstream industries, promote the application of magnesium alloy materials in automobile and other related fields, and facilitate lightweight transportation. At the same time, we will rely on CMA to organize magnesium product promotion, and strengthen propaganda.

Finally, Director Chen Xuesen said we should adapt to the situation, seize opportunities, strengthen innovation, and strive to realize the transition of China's magnesium industry from big country to powerful country.

#### **Prof. Pan Fusheng talked about magnesium alloy development planning (2016-2020)**

In the recently national magnesium industry conference, Prof. Pan Fusheng, director of National Engineering Research Center for Magnesium Alloys made a special report, analyzed the current situation of magnesium and magnesium alloy industry in the technical aspects of the problem, and introduced the national magnesium alloy development planning during 2016-2020.

##### **1. Main alloy materials developed in 13th five-year plan period:**

- o High performance casting magnesium alloy.  
To develop high performance & heat resistant magnesium alloy and high performance casting magnesium alloy with low cost and their main absolute performance at existing commercial aluminum alloy level. Among them, tensile strength of high-property cast magnesium alloy targets to exceed 400MPa.\*
- o The ultra - high strength wrought magnesium alloys.  
To start with rare earth magnesium alloy as the main system, and develop ultra-high strength wrought magnesium alloy with strength at more than 550-600MPa, and elongation rate at larger than 5-10%.
- o Low-cost and high strength magnesium alloy.  
To start with rare earth-free magnesium alloys as the main system, emphasize the use of low cost elements, and develop high strength magnesium alloy with strength at 400-500MPa, and elongation rate at 8-20%.
- o High formability and high plasticity magnesium alloy.  
High formability magnesium alloy is 30-40m/min for extrusion speed, and room temperature Erichsen value for sheets is greater than or equal to 8-10.0mm; high plasticity magnesium alloy is over 50% for room temperature elongation rate.
- o Super light magnesium alloy.  
To start with magnesium-lithium alloy as the focal point, develop super light magnesium alloy with density at less than 1.60g/cm<sup>3</sup>, tensile strength at greater than 280-300MPa, and elongation rate at more than 20%
- o High strength and high damping magnesium alloy.  
To solve the problem that high strength and high damping performance cannot be coordinated, and develop high damping magnesium alloy with damping coefficient (SDC) at more than 40% with tensile strength at 350MPa.
- o Biomedical magnesium alloy.  
To study the technology of new medical magnesium alloy, and develop new medical magnesium alloy for different uses and relevant surface treatment.
- o Mg-based energy alloy.  
To develop new Mg-base hydrogen storage material with high hydrogen storage density, low operating temperature, controllable hydrogen discharge, and long cycle life.
- o Electromagnetic shielding magnesium alloy.  
To study the relation among alloy element, process and electromagnetic shielding property, and develop moderate-intensity electromagnetic shielding alloy with electromagnetic shielding effectiveness at 85-100dB (frequency range <1.5GHz, and 2mm of sample thickness) when strength is 320-360MPa

##### **2. Main engineering technology for magnesium and magnesium alloy**

- o low cost and high quality magnesium smelting technology;
- o Metallurgical quality control technology and equipment for high-quality melt magnesium;

- o Production technology for large and complex magnesium alloy casting; advanced casting technology and traditional casting-upgrading technology;
  - o Large ingot casting process, heat treatment process and machining process for wide plate/sheet;
  - o Large billet casting process, profile heat treatment process and machining process;
  - o Coating material and magnesium alloy system with strong adhesion, good corrosion resistance and high hardness;
  - o Connection technology and equipment represented by friction stir welding.
3. Standard and R & D platform for magnesium alloy products
- o To establish complete and international standards that can meet the industrial production of magnesium alloy.
  - o To establish, with international level, the world's largest data platform which can meet the development and application of magnesium alloy.
  - o To establish modern R & D platform which can integrate R & D, material and product processing, product development and application, shorten the development cycle for magnesium alloy product and give full play to the potential performance of magnesium alloy.

### **Experts from Volkswagen group hope for potential application of magnesium alloy in Volkswagen automobile**

On Oct.13, experts from Research Center of Volkswagen Group joined the Symposium of Volkswagen Automobile-Oriented Magnesium and China' Magnesium Industry, sponsored by Dalian Deying Science and Technology Development and Sunlight Metal. Attended the symposium and made wonderful lectures Soenke Schumann, former director of Research Center of Volkswagen Group, Dr. David Klaumunzer, manager of Magnesium alloy Section, Research Center of Volkswagen Group, and Dr. Katrin Wendt, senior research engineer, Volkswagen Research Lab China.

The visiting experts described in detail the history and present situation of magnesium application in Volkswagen Group. They emphasized the factors considered in the Volkswagen group for the use of new metal materials: material performance, lightweight cost and carbon dioxide emission index. They, also, introduced Volkswagen Group's attention to China's market and magnesium material in the future development. They believe that, due to the more and more stringent emission reduction requirements from domestic and international communities for automobile, lightweight process must be accelerated, and the choice of materials include aluminum, magnesium, and reinforced fiber materials. However, at present in Europe and North America, magnesium-aluminum price ratios were 1.6 and 2.6 respectively, and in the China only 1.2 (actually only 1.05 according the survey from Sunlight Metal). Price advantage in China is very obvious. This year, China has exceeded Europe and become the Volkswagen Group's largest market. The above several factors make Volkswagen Group realize that Volkswagen Group should put special attention to magnesium alloy for its application in Volkswagen automobile made in China. In order to improve the amount of magnesium alloy, still remains lots of improvement and efforts, including parts in casting and machining deformation. They have an understanding that a new era of Volkswagen for magnesium alloy may be opened in China. They invite participants from China's magnesium alloy and processing enterprises to join Volkswagen for the application of magnesium in Volkswagen automobile.

Nearly 40 delegates from 20 magnesium industry sector attended the symposium. Attendees introduced the basic situation and development progress of their respective enterprises to Volkswagen experts at the symposium, and had frank communication. Especially, they introduced to the experts China's magnesium industry in the energy-saving emission reduction progress and the recent stability of magnesium market price, and expected the experts to evaluate, from more comprehensive and objective points, China's magnesium production, supply capacity and sustainable development, and to further enhance the experts' confidence for magnesium material.

Attendees and Volkswagen experts expressed great affirmation of the results of the symposium, thanked Dalian Deying Science and Technology Development and Sunlight Metal for their efforts to organize this commonweal technology exchange activity, and looked forward to such opportunities to build multi-level and multi- issue communication platform for the development of China's magnesium industry. *(Contributed by Dongchunming)*

### **Yunhai Special Metals intends to invest 0.299 bln. yuan on high-strength magnesium alloy project**

On Oct. 26, Yunhai Special Metals announced its intention to construct, by its own capital, high-strength magnesium alloy and deformation processing product projects in its factories in the Lishui Economic Development Zone of Nanjing City, and in its subsidiary Chaohu Yunhai Magnesium Industry, with total investment at 0.299 billion Yuan.

Data show that the project includes 30kt/a of high-strength magnesium alloy line; 4kt/a of semi continuous-casting line for high-strength magnesium alloy; 300t/a of high-strength magnesium alloy forging line; 2kt/a of high-strength magnesium alloy extrusion line; high strength magnesium alloy laboratory; high strength magnesium alloy parts machining line and related facilities.

Upon its full commission, the project, with investment recovery period at 4.58 years (including construction period), will realize annual sales income at about 1.252 billion Yuan and net profit at 0.116 billion Yuan.

Source from the company said this project for high-strength magnesium alloy and deformation processing product conforms to the industrial policy issued by MIIT, and belongs to the field of high-end equipment. The project, through the key technology breakthrough in high-strength magnesium alloy, aims to form engineering and industrialization ability, meet the demand for high-performance magnesium alloy from China's aerospace, rail transportation, and electronics. In addition, the project will help Yunhai Special Metals to extend to the high-end quality products, and further lay its leading position in magnesium industry.

### **Yunhai Special Metals received 23.7 million Yuan of central financial subsidy fund for its high-strength magnesium alloy project**

On Oct. 20, Yunhai Special Metals announced it received 23.7 million yuan of central financial subsidy fund from MIIT.

The announcement said that Nanjing economy and Informatization Committee, with Nanjing Municipal Finance Bureau, jointly issued "The Circular on Central Financial Subsidy Funds for Industrial Transformation and Upgrading of Encouragement-Class Industry", and required relevant finance bureau in development zones to allocate related funds to targeted projects as soon as possible. The circular also required to strengthen the capital management and special use.

The project, carried out by Yunhai Special Metals, is named high-strength magnesium alloy and deformation processing product, which belongs to the field of high-end equipment. It aims, through updating high strength magnesium alloy material, to improve Yunhai Special Metal's capacity for such material.

The project will target at the breakthrough of key technologies for high-strength magnesium alloy, develop the ability for engineering and industrialization, and meet the demand for high -performance magnesium alloys from aerospace, rail transportation, and electronics in China.

### **Chinese government will punish passenger vehicle manufactures failing to meet the standard on automobile average fuel consumption**

On Oct. 14, Ministry of Industry and the Information Technology, along with many ministries and commissions including Development and Reform Commission, jointly issued a circular aiming to strengthen the average fuel consumption for passenger vehicle manufacturers, and substandard manufacturers will take relevant penalties.

In 2013, central government issued the "Accounting Approach for average fuel consumption of passenger vehicle manufacturers ", and set up the target that, by year 2015, passenger cars made in China must realize average fuel consumption at 6.9 L/100 km.

According to the latest circular, MIIT will expose passenger vehicle manufacturers who fail to meet average fuel consumption and manufacturers with more than 6.9L/100kt of fuel consumption upon MIIT's statistics for their passenger vehicles

MIIT will temporarily suspend the application for new product project from related manufacturers who fail to meet fuel consumption standard in last year.

According to the circular, passenger vehicle manufacturers, including new ones and brown ones who plan to expand their product capacity, must adjust their plan if average fuel consumption plan they submitted are of substandard. MIIT will temporarily suspend any projects applied by related manufacturers whose products failed to meet the standard on average fuel consumption in last year.

The circular also say that any passenger vehicle manufacturers, who fail to meet the standard on average fuel consumption and fail to perform the compliance commitment, will be supervised in the terms of customs clearance, import inspection, and production consistency check.

The circular requires vehicle manufacturers must, on time, submit to MIIT the last year's average fuel consumption report. Any manufacturers, who fail to meet the standard on average fuel consumption, must, at the same time, submit compliance commitments in which the manufacturers must put forward annually specific improvement goals and measures.

### **Output of primary magnesium in Sept. by geography**

Data from China Customs said output of primary magnesium from Jan. to Sept. closed at 643.7kt, up 7.48% y-on-y. Among them, Shaanxi ended at 288.9kt, up 10%, Shanxi at 187.6kt, down 0.49%, and Ningxia at 71.1kt, up 13.18% as shown hereafter.

**Output of primary magnesium in September (Unit: kt)**

Region	August	September	SubTotal (Jan.-Sept.)	Change of SubTotal (%)
Shaanxi	36.9	38.3	289.6	10.02
Shanxi	21.4	21.2	187.6	0.49
Ningxia	6.2	6.8	71.1	-13.18
Xinjiang	3.9	4.5	32.2	74.72
Henan	1.7	2.3	36.1	15.63
Jilin	0.6	0	4.8	-21.72
Sichuan	0.5	0.5	3.8	107.7
Inner Mongolia	0.4	1.1	3.8	42.08
Qinghai	3	2.3	7.8	500.1
Liaoning	1.1	1.1	6.9	25.83
<b>Total</b>	<b>75.8</b>	<b>77.9</b>	<b>643.7</b>	<b>7.48</b>

Source: China Magnesium Association

**Export of magnesium products closed in September in China (Unit: t)**

Item	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
HS code	81041100	81041900	81042000	81043000	81049010	81049020	
Jan.	21732	12595.3	242.4	9304.7	490.1	476.2	44840.7
Feb.	11844.3	5898.5	209.7	3911	209.8	393.9	22467.2
Mar.	24607.2	9323.1	447.8	8858.7	512	389.5	44138.3
Apr.	20023.5	8624	147.9	9074.5	319.8	643.2	38833
May	16793.5	9041.1	433.7	7373.1	190.3	963.2	34740.9
Jun	16949.8	10150.8	286.4	7278.9	234.2	619.5	35519.7
Jul	18445.9	9232	289.9	6862.9	196.9	507.8	35535.5
Aug.	17975.3	8024.9	113.8	6918.4	373.2	632.5	340378
Sept.	19593.69	8249.17	0	6720.33	329.1	592.53	35484.81
<b>Total</b>	<b>167911.3</b>	<b>81139.01</b>	<b>2171.65</b>	<b>66302.5</b>	<b>2855.33</b>	<b>5218.29</b>	<b>325598.1</b>

**Magnesium ingot price by Sunlight Metal (unit: yuan/t)**

	Fugu	Wenxi	Taiyuan	Ningxia	FOB(Tianjin) USD/t
Jul. 5	14600-14700	14900-15000	14800-14900	14800-15000	2500/2570
Jul. 12	14600-14700	14900-15000	14800-14900	14800-15000	2500/2570
Jul. 19	14600-14700	14900-15000	14800-14900	14800-15000	2500/2570
Jul. 26	14600-14700	14900-15000	14800-14900	14800-15000	2500/2570
Aug.2	14500-14600	14800-14900	14700-14800	14700-14900	2490/2560
Aug.9	14500-14600	14800-14900	14700-14800	14700-14900	2490/2560
Aug.16	14350-14450	14650-14750	14550-14650	14550-14750	2480/2550
Aug.23	14350-14450	14650-14750	14550-14650	14550-14750	2480/2550
Aug.30	14350-14450	14650-14750	14550-14650	14550-14750	2480/2550
Sept.6	14350-14450	14650-14750	14550-14650	14550-14750	2480/2550
Sept. 13	14350-14450	14650-14750	14550-14650	14550-14750	2480/2580
Sept. 20	14350-14450	14650-14750	14550-14650	14550-14750	2480/2580
Sept. 27	14350-14400	14650-14700	14550-14600	14550-14700	1460-2530

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 5 years running. For more detail and inquiry, pls. contact us at [info@chinamagnesium.net](mailto:info@chinamagnesium.net)

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