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@intmag.org.

November 2014, Issue #9

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@intmag.org.

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Mg NEWS AROUND EUROPE

CRM Day: Critical Raw Materials and Industrial Policy
More News Around Europe

Mg NEWS AROUND ASIA

August Japan Magnesium Newsletter
More News Around Asia

Mg NEWS AROUND THE INDUSTRY

October Magnesium Review from Metal-Pages
More Industry News

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 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!

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
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 continue to hold onto inventory, as many are waiting for the end of the year to burn off the older materials. The Chinese magnesium market continues to fall as holders of material cut prices to generate sales. 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. 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.

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 crisp 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 aluminum 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 continue to hold onto inventory, as many are waiting for the end of the year to burn off the older materials.
Israel Chemicals reacts badly as panel unveils new plan for natural resources tax

More News around Europe

1. Extension of the scope of abiotic materials and the inclusion of biotic materials
2. Revision of the list of critical materials for the EU using the same methodology
3. 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 dependency 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/.

Mg NEWS AROUND EUROPE

CRM Day: Critical Raw Materials and Industrial Policy

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 Rübig, 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 Rübig 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.

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Mg NEWS AROUND ASIA

JMA August Magnesium Newsletter Japan
Vol 23. Covering the news for August 2014
The Japan Magnesium Association

INDEX
News in Japan
Railway Technical Research Institute (RTRI) developed a flame-resistant magnesium alloy
Furukawa Battery and Toppan Printing released a magnesium air battery
Toyama Industrial Technology Center and BBS Japan developed face-joining technology of magnesium alloy with aluminum

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 availability 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 25 meters 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 lightweight 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 (922.5% 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.
Industrial development will have obvious improvement. The main development target (2016-2020) will be: 

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 period, output of magnesium alloy materials 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 plan 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 33% 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 bn.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 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.

- 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.

- Multiple processing bases will be formed by main enterprises of deep-processing and application of magnesium products in Yangtze River Delta, Zhujiang Delta, Chengqing, Bohai area, Northeast China and the Central Plains area.

- 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 500kt of production capacity.
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 gear 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 18th, Chen Xuesen, director of Nonferrous Metal Section, Raw Material Industry Development, 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 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 industry development planning during 2016-2020.

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

   - 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.
     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%.
     Low-cost and high strength magnesium alloy.
     To start with rare earth-free magnesium alloy 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%.
     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.
     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/cm3, tensile strength at greater than 280-300MPa, and elongation rate at more than 20%
     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.
     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.
     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.
     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
   - Low cost and high quality magnesium alloy smelting technology;
   - Metallurgical quality control technology and equipment for high-quality melt magnesium;
   - Electromagnetic shielding magnesium alloy.
   - Mg-based energy alloy.

2. Main engineering technology for magnesium and magnesium alloy

   - Low cost and high quality magnesium alloy smelting technology;
   - Electromagnetic shielding magnesium alloy.

3. Main related technologies

   - Mg-based energy alloy.
   - Electromagnetic shielding magnesium alloy.

4. Main product development

   - Mg-based energy alloy.
   - Electromagnetic shielding magnesium alloy.

5. Main market application

   - Mg-based energy alloy.
   - Electromagnetic shielding magnesium alloy.

6. Main standard construction

   - Mg-based energy alloy.
   - Electromagnetic shielding magnesium alloy.

7. Main policy support

   - Mg-based energy alloy.
   - Electromagnetic shielding magnesium alloy.

8. Main industrial chain construction

   - Mg-based energy alloy.
   - Electromagnetic shielding magnesium alloy.

9. Main industrial cooperation

   - Mg-based energy alloy.
   - Electromagnetic shielding magnesium alloy.

10. Main industrial investment

   - Mg-based energy alloy.
   - Electromagnetic shielding magnesium alloy.

11. Main industrial training

   - Mg-based energy alloy.
   - Electromagnetic shielding magnesium alloy.

12. Main industrial exhibition

   - Mg-based energy alloy.
   - Electromagnetic shielding magnesium alloy.

13. Main industrial promotion

   - Mg-based energy alloy.
   - Electromagnetic shielding magnesium alloy.

14. Main industrial project

   - Mg-based energy alloy.
   - Electromagnetic shielding magnesium alloy.

15. Main industrial cooperation

   - Mg-based energy alloy.
   - Electromagnetic shielding magnesium alloy.

16. Main industrial support

   - Mg-based energy alloy.
   - Electromagnetic shielding magnesium alloy.

17. Main industrial research

   - Mg-based energy alloy.
   - Electromagnetic shielding magnesium alloy.
Shanxi at 187.6kt, down 0.49%, and Ningxia at 71.1kt, up 13.18% as shown hereafter.

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%, improvement goals and measures.

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 in last year. 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 average fuel consumption at 6.9L/100kt of fuel consumption upon MIIT's statistics for their passenger vehicles.

According to the latest circular, MIIT will expose passenger vehicle manufacturers who fail to meet average fuel consumption and manufacturers with more than 2015, passenger cars made in China must realize average fuel consumption at 6.9 L/100 km. 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.

Yunhai Special Metals received 23.7 million Yuan of central financial subsidy fund for its 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.

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

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 1.06 according the survey from Sunlight Metal). Price advantage in China is 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 commonwealth 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 Dongchunning)

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

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Output of primary magnesium in September (Unit: kt)

<table>
<thead>
<tr>
<th>Region</th>
<th>August</th>
<th>September</th>
<th>SubTotal (Jan.-Sept.)</th>
<th>Change of SubTotal (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shaanxi</td>
<td>36.9</td>
<td>38.3</td>
<td>289.6</td>
<td>10.02</td>
</tr>
<tr>
<td>Shanxi</td>
<td>21.4</td>
<td>21.2</td>
<td>187.6</td>
<td>0.49</td>
</tr>
<tr>
<td>Ningxia</td>
<td>6.2</td>
<td>6.8</td>
<td>71.1</td>
<td>-13.18</td>
</tr>
<tr>
<td>Xinjiang</td>
<td>3.9</td>
<td>4.5</td>
<td>32.2</td>
<td>74.72</td>
</tr>
<tr>
<td>Henan</td>
<td>1.7</td>
<td>2.3</td>
<td>36.1</td>
<td>15.63</td>
</tr>
<tr>
<td>Jilin</td>
<td>0.6</td>
<td>0.8</td>
<td>4.8</td>
<td>-21.72</td>
</tr>
<tr>
<td>Sichuan</td>
<td>0.5</td>
<td>0.5</td>
<td>3.8</td>
<td>107.7</td>
</tr>
<tr>
<td>Inner Mongolia</td>
<td>0.4</td>
<td>1.1</td>
<td>3.8</td>
<td>42.08</td>
</tr>
<tr>
<td>Qinghai</td>
<td>3</td>
<td>2.3</td>
<td>7.8</td>
<td>500.1</td>
</tr>
<tr>
<td>Liaoning</td>
<td>1.1</td>
<td>1.1</td>
<td>6.9</td>
<td>25.83</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>75.8</td>
<td>77.9</td>
<td>643.7</td>
<td>7.48</td>
</tr>
</tbody>
</table>

Source: China Magnesium Association

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

<table>
<thead>
<tr>
<th>Item</th>
<th>Magnesium unwrought (min.99.9%)</th>
<th>Other magnesium and alloy unwrought</th>
<th>Waste and scrap</th>
<th>Magnesium rapslings/turnings/granules according to size &amp; powders</th>
<th>Magnesium wrought</th>
<th>Magnesium articles</th>
<th>Monthly total</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS code</td>
<td>81041100</td>
<td>81041900</td>
<td>81042000</td>
<td>81043000</td>
<td>81049010</td>
<td>81049020</td>
<td></td>
</tr>
<tr>
<td>Jan.</td>
<td>21732</td>
<td>12595.3</td>
<td>242.4</td>
<td>9304.7</td>
<td>490.1</td>
<td>476.2</td>
<td>44840.7</td>
</tr>
<tr>
<td>Feb.</td>
<td>11844.3</td>
<td>5898.5</td>
<td>209.7</td>
<td>3911</td>
<td>209.8</td>
<td>393.9</td>
<td>22467.2</td>
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<tr>
<td>Mar.</td>
<td>24607.2</td>
<td>9323.1</td>
<td>447.8</td>
<td>8858.7</td>
<td>512</td>
<td>389.5</td>
<td>44138.3</td>
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<tr>
<td>Apr.</td>
<td>20023.5</td>
<td>8624</td>
<td>147.9</td>
<td>9074.5</td>
<td>319.8</td>
<td>643.2</td>
<td>38833</td>
</tr>
<tr>
<td>May</td>
<td>16793.5</td>
<td>9041.1</td>
<td>433.7</td>
<td>7373.1</td>
<td>190.3</td>
<td>963.2</td>
<td>34740.9</td>
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<tr>
<td>Jun</td>
<td>16949.8</td>
<td>10150.8</td>
<td>286.4</td>
<td>7278.9</td>
<td>234.2</td>
<td>819.5</td>
<td>35519.7</td>
</tr>
<tr>
<td>Jul</td>
<td>18445.9</td>
<td>9232</td>
<td>289.9</td>
<td>8862.9</td>
<td>196.9</td>
<td>507.8</td>
<td>35335.5</td>
</tr>
<tr>
<td>Aug.</td>
<td>17975.3</td>
<td>8024.9</td>
<td>113.8</td>
<td>8918.4</td>
<td>373.2</td>
<td>632.5</td>
<td>340378</td>
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<tr>
<td>Sept.</td>
<td>19593.69</td>
<td>8249.17</td>
<td>0</td>
<td>8720.33</td>
<td>329.1</td>
<td>592.53</td>
<td>35484.81</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>167911.3</td>
<td>81139.01</td>
<td>2171.65</td>
<td>86302.5</td>
<td>2855.33</td>
<td>5218.29</td>
<td>325596.1</td>
</tr>
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Magnesium ingot price by Sunlight Metal (unit: yuan/t)

<table>
<thead>
<tr>
<th>Item</th>
<th>Fugu</th>
<th>Wenzhou</th>
<th>Taiyuan</th>
<th>Ningxia</th>
<th>FOB(Tianjin) USD/t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jul 5</td>
<td>14600-14700</td>
<td>14900-15000</td>
<td>14800-14900</td>
<td>14800-15000</td>
<td>2500-2570</td>
</tr>
<tr>
<td>Jul 12</td>
<td>14600-14700</td>
<td>14900-15000</td>
<td>14800-14900</td>
<td>14800-15000</td>
<td>2500-2570</td>
</tr>
<tr>
<td>Jul 19</td>
<td>14600-14700</td>
<td>14900-15000</td>
<td>14800-14900</td>
<td>14800-15000</td>
<td>2500-2570</td>
</tr>
<tr>
<td>Jul 26</td>
<td>14600-14700</td>
<td>14900-15000</td>
<td>14800-14900</td>
<td>14800-15000</td>
<td>2500-2570</td>
</tr>
<tr>
<td>Aug 2</td>
<td>14500-14600</td>
<td>14800-14900</td>
<td>14700-14800</td>
<td>14700-14900</td>
<td>2490-2560</td>
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<tr>
<td>Aug 9</td>
<td>14500-14600</td>
<td>14800-14900</td>
<td>14700-14800</td>
<td>14700-14900</td>
<td>2490-2560</td>
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<tr>
<td>Aug 16</td>
<td>14350-14450</td>
<td>14650-14750</td>
<td>14550-14650</td>
<td>14550-14750</td>
<td>2480-2550</td>
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<td>Aug 23</td>
<td>14350-14450</td>
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<td>14550-14750</td>
<td>2480-2550</td>
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<td>14350-14450</td>
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<td>Sept 6</td>
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<td>14550-14750</td>
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<td>Sept 13</td>
<td>14350-14450</td>
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<td>14550-14650</td>
<td>14550-14750</td>
<td>2480-2580</td>
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<tr>
<td>Sept 20</td>
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<td>14650-14750</td>
<td>14550-14650</td>
<td>14550-14750</td>
<td>2480-2580</td>
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<tr>
<td>Sept 27</td>
<td>14350-14400</td>
<td>14650-14700</td>
<td>14550-14600</td>
<td>14550-14700</td>
<td>1460-2530</td>
</tr>
</tbody>
</table>

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

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