

PM Production in Asia

(Source JPMA, PMAI, KPMI, TPMA and CMPMA)

(Metric Tons)

Area	Item	2017	2018	2019	2020	2021	21/20 %
Japan	Iron-Base	92,166	92,283	89,239	71,467	81,137	13.5%
	Copper-base	3,059	3,026	2,776	2,126	2,453	15.4%
	Total	95,225	95,309	92,015	73,593	83,590	13.6%
China	Iron-Base	169,636	168,876	162,612	164,219	188,236	14.6%
	Copper-base	15,535	14,831	10,780	11,268	13,539	20.2%
	Total	185,171	183,707	173,392	191,600	191,600	0.0%
Korea	Iron-Base	68,917	65,858	64,531	58,681	62,900	7.2%
	Copper-base	435	639	673	1,118	1,510	35.1%
	Total	69,352	66,497	65,204	59,799	64,410	7.7%
Taiwan	Iron-Base	32,637	34,800	30,630	30,700	31,000	1.0%
	Copper-base	2,070	2,040	2,060	1,980	1,800	-9.1%
	Total	34,707	36,840	32,690	32,680	32,800	0.4%
India	Iron-Base	33,600	36,000	40,000	32,000	36,000	12.5%
	Copper-base	7,200	8,900	10,200	8,500	9,800	15.3%
	Total	40,800	44,900	50,200	40,500	45,800	13.1%
Malaysia	Iron-Base	3,744	3,970	3,920	3,063	3,354	9.5%
	Copper-base	85	95	115	111	132	18.9%
	Total	3,829	4,065	4,035	3,174	3,486	9.8%
Singapore	Iron-Base	1,542	1,655	1,442	1,105	1,337	21.0%
	Copper-base	404	314	384	313	370	18.2%
	Total	1,946	1,969	1,826	1,418	1,707	20.4%
Thailand	Iron-Base	16,498	19,771	18,434	13,514	16,036	18.7%
	Copper-base	66	67	76	55	60	9.1%
	Total	16,564	19,838	18,510	13,569	16,096	18.6%
Indonesia	Iron-Base	6,134	6,778	6,588	4,543	5,433	19.6%
	Copper-base	96	104	111	62	-	-100.0%
	Total	6,230	6,882	6,699	4,605	5,433	18.0%
Total	Iron-Base	424,874	429,991	417,396	379,292	425,433	12.2%
	Copper-base	28,950	30,016	27,175	25,533	29,664	16.2%
	Total	453,824	460,007	444,571	420,938	444,922	5.7%



Connect with us



2022 Newsletter

September

Asian Powder Metallurgy Association



Hiroshi Ii
President (2022~)



Nobuhiro Hashimoto
President(2021)



Yoshio Uetsuki
Executive Director
General Secretary

JPMA Activity of 2021

2021

- 16th PM Information Exchange Meeting(Mar.)
- 2021 JPMA General Assembly(May)
- JPMA Special Session at the JSPM Spring Meeting(Jun.)
- 9th Human resources development seminar(Jul.)
- 2021 JPMA Fall General Assembly. (Oct.)
- 39th Case Studies of Production Efficiency Improvement Meeting and the 24th Metal Powder and Equipment PR Meeting(Nov.)

2022

- 17th PM Information Exchange Meeting(Mar.)
- 2022 JPMA General Assembly(May.)
- JPMA Special Session at the JSPM Spring Meeting(May.)
- 10th Human resources development seminar(Jul.)
- 40th Case Studies of Production Efficiency Improvement Meeting and the 25th Metal Powder and Equipment PR Meeting(Nov.)



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Chu, Chiu-Lung

President
Asia Powder
Metallurgy Association

How time flies. More than two years have passed since the outbreak of the COVID-19 pandemic toward the end of 2019. This pandemic has posed a huge challenge to communications between APMA members, and also impacted the global powder metallurgy supply chain. I am sure that our member countries have had to overcome countless obstacles in order to meet their powder metallurgy production targets.

Production levels of the powder metallurgy industry have fluctuated over the past two years due to various changes and disruptions in the external environment; we hope it will return to normal in tandem with car production levels in the fourth quarter of 2022.

This year's World PM 2022 Congress & Exhibition is scheduled to be held in Lyon, France from October 8th to the 13th. It is hoped that APMA members' executive directors, Asian powder metallurgy scholars, and all industry members can actively participate in this event; through participation, we can gain a clearer picture of changes in the world of powder metallurgy in this post-pandemic era.

It is also hoped that the 2023 APMA International Conference will be held in South Korea as planned, so that we may meet and engage in face-to-face discussions, and examine how APMA members can continue to contribute to the world. I hereby wish all APMA member groups and individuals all the best in overcoming the challenges posed by COVID-19; let us convene and resume our discussions.



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JSPM Activity of 2021

In consideration of the spread of the new coronavirus infection, most of JSPM's 2021 activities were conducted online from the Board Meeting to the Annual Meeting and the Seminar.

The 2021 Spring and Autumn Meetings were held virtually. Presentations were delivered via on-demand or live streaming. On the final day of the spring Meeting, the ordinary general meeting, awards ceremony, and social gathering were held online using Remo Conference. There were about 180 presentations and about 400 participants at the autumn meeting. Many members gathered on the web. They were run smoothly, but nothing beats a real event!



Presentation at Zoom webinar



A scene from the Award Ceremony



A scene from the Meeting Party: introduction and interview of participating students



Shuzo Sonoda
President of FUKUDA
METAL FOIL & POWDER
CO., LTD.



Yoko Inoue
Executive Director
Secretary General Association,
Executive Director

The new activity scheduled in 2022

The Autumn Meeting, 2022 will be held at Doshisha University, Kanbaikan in Kyoto, from November 15 (Tue) to November 17 (Thu). Initially, JSPM planned to hold JSPMIC2022 before the Autumn Meeting, 2022, but the organizing committee of JSPMIC2022 has decided to postpone the meeting to 2023, considering carefully the spread of COVID-19 infection. JSPMIC2023 will be held at Doshisha University, Kanbaikan as the same venue, from October 16 (Mon) to October 18 (Wed), 2023. Call for papers for JSPMIC2023 will resume in early December 2022. We look forward to applying your presentation in JSPMIC2023.



Website of the Autumn Meeting, 2022



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In 2022, the name was changed from the Korean Powder Metallurgy Institute to the Korean Powder Metallurgy & Material Institute.

Korean Powder Metallurgy & Materials Institute (KPMI) is a professional academic society consisted of over 2,100 specialists in universities, research institutes and companies on powder metallurgy technology leading the key and future advanced industries.

2021 Activites

The 2021 Spring Conference of Korean Powder Metallurgy & Materials Institute

Period : Yeosu Expo Convention Center, Yeosu, Korea

Venue : 1-2 April, 2021

The 2021 Spring Conference of the Korean Powder Metallurgy & Materials Institute was held at the Yeosu Expo Convention Center (offline) and zoom (online). It is a choice that takes into account the diversity of academic exchange needs of members under the COVID-19 environment.

Based on traditional programs such as oral, poster presentation, and exhibition, this academic conference has opened a number of symposiums to respond to the rapidly increasing demand for the powder industry.

3rd International Symposium on Innovation in Materials Processing

Incorporating the Fall Conference of Korean Powder Metallurgy & Materials Institute

Period : SONO CALM Jeju, Korea

Venue : 26-29 October, 2021

The third International Symposium on Innovation in Materials Processing (ISIMP-2021) was held at the the SONO CALM Jeju in Jeju, Korea from 26-29 October 2021.

ISIMP 2021 brings together leading scientists, researchers, engineers, practitioners, technology developers and policy makers in materials processing to exchange information on their latest research progress and innovation.

It provided an opportunity to exchange knowledge and experiences with experts and experts from various fields of academia and industry.



Dr. Hwi-Jun Kim
President



Yeon Ho Kim
Manager

2022 Activites

The 2022 Spring Conference of Korean Powder Metallurgy & Materials Institute



Period : 31 March - 1 April, 2022

Venue : Gyeongju Hwabaek International
Convention Center (HICO), Gyeongju, Korea

17th International Symposium on Innovation in Materials Processing

Incorporating the Fall Conference of Korean Powder Metallurgy & Materials Institute

Period : Phoenix Jeju, Korea

Venue : 14-18 November 2022



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Main activities of 2021 of KPMA

KPMA was gathered for the first time in 2000 for supporting of 2006

World PM Congress and have remained, currently having 30 member firms including PM manufacturing, Powder supplier, Equipment company.

Looking into who are the members, PM sector include Korea Sintered Metal, Halla Stackpole, Sinteron, Korea Powder Metallurgy plus 13 more members that cover up more than 95% of entire PM Market share.

Powder production companies are with Chang Sung Corp, PoongSan Holdings, Hoganas Korea+Powder sales representatives followed by Metek(QMP), Woolim(Kobe steel)etc.

Equipment company include Dae Hwa Press, Jung Wha Press, Korea Tamakawa. + Equipment sales office Naewai Commercial(Yoshisuga), Yangwoo(Fluidtherm).

KPMA gathering is annually scheduled to be held 4 times and one of them is Annual General Meeting.

KPMA president and directors served 2 years and possibly renewed.

KPMA have been a center that help exchange market information, introduce new technology and keep a mutual relationship among members, also help members to obtain a reliable statistical data about industry by continuing to collect the data such as Korean Iron powder shipments which provide the best barometer for the health of PM industry.



Mr. Kun Jin Lee

President of KPMA.
Korea Sintered Metal Co., Ltd.

I have been serving as president of KPMA since March 2017.

Also I am a president of Korea Sintered Metal Co., Ltd and Samhan Co., Ltd. those Companies are powder metallurgy company that represents Korea in the powder metallurgy market.

I hope to continue all of us growth and development through close cooperation and assistance with who serve powder metallurgy.



Mr. Winfred OH

Secretary General
Korea Sintered Metal Co., Ltd.

My name is Winfred OH.

I am doing a general secretary work at KPMA since July 2022.

I am administering sales promotion company in behalf of foreign famous machine builders and material producer whose products are involved with powder metallurgy and chemical, automotive, steel mill industries that is requiring sintering furnace and powder compacting press and ferrous & non-ferrous powder and chemicals in their production lines from European countries, Australia, USA, India since 24 years in Korea.



Mr. Chun-Chung(Kevin) Shaw

President

I have been serving as the President of TPMA since October 2021. Previously, I served as the vice President of TPMA from 2018 to 2021. In addition, I am the President of Super Electronics CO., LTD.. This company is specializing in the production and development of magnetic materials which is one of the most representative companies in the magnets market in Taiwan.

Super Electronics CO., LTD. was founded in 1971. The head quarter is located in Taipei City. There are also several manufacturing sites and business bases located in Taiwan, China and Malaysia. The Super Electronics CO., LTD. mainly consists of two systems which are Superrite Electronics CO., LTD., and Supermax CO., LTD. Superrite Electronics CO., LTD. mainly focuses on the production of ferrite magnets and SrTiO3 variable resistor for DC micro motor. The target market of these products is the traditional industry. However, Supermax CO., LTD. specializes in processing Neodymium magnet. Both of Superrite Electronics CO., LTD. and Supermax CO., LTD. specialize in the development and manufacture of magnet-related products. The target market of the group is also transferred smoothly from motor and electrical machinery factories that have a long life cycle to information and electronics industries that have a short life cycle.



Dr. Ching-Shuan Liu

Secretary General

Dr. Ching-Shuan Liu is a Director in the President office of Super Electronics CO., LTD. He also serves as the general secretary of Taiwan Powder Metallurgy Association (TPMA). Dr. Liu earned his PhD degree in Materials Science and Engineering in National Tsing Hua University in 1996. Dr. Liu previously worked as a researcher at Industrial Materials Labs of Industrial Technology Research Institute (ITRI) from 1988 to 1997 before joining Super Electronics CO., LTD.

His research fields are both magnetic materials and fine ceramics. In these two fields, he mainly specializes in three topics:

- (1) Soft ferrites (magnetic)
- (2) Hard ferrites (magnetic)
- (3) SrTiO3 variable Resistor



KPMA would also need to speak with a single voice when it comes to saying its demand to the States ministry.

It, however, is still a young organization and Technical activities has something to be better, though, it begun to have organized own technical session at the Joint technical symposium with KPMA and to take a part of Technical education program to be held twice a year.

Over the years, the industry has increasingly grown in parallel with the growth of the industry where it serves by welcoming and embracing new metal powder based technologies and solution.

In the future, KPMA need to work together to continue to encourage the members to participate in the development of new PM part and its technologies by promoting and sharing the industry's success stories.

Annual General meeting I was held on May 25, 2022 and elected new president. In September, 2022, Members meeting will be scheduled.



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Opening speech presented by TPMA President Dr. Sea-Fue Wang in the 2021 TPMA annual general convention



TPMA 40th Anniversary (26, Aug, 2022)



TPMA 2022 Members of the Assembly



TPMA 2022 Members of the Assembly

Events of Taiwan Powder Metallurgy Association (TPMA) in 2021

The TPMA annual general convention was held at National Taipei University of Technology in Taipei on 15th October 2021. Several awards including outstanding paper award, excellent staff award, innovative award, and association scholarship were awarded during the annual convention. The keynote speech "Sustainability and Life Cycle Analysis" was presented by Dr. Lionel Aboussouan, the chief executive of EPMA.

In addition, the board meeting was also held in the same university on 27th October 2021. Mr. Kevin Shaw, the new TPMA President, was elected during the meeting. At the same time, some of the board members had been reelected. Furthermore, TPMA cooperated with Industrial Technology Research Institute to hold and organize several seminars in 2021, including "Workshop on Intelligent Platform for Powder Metallurgy Technology" and "Workshop on Smart technology of medical materials and commercial opportunity".



TPMA Vice President Mr. Kevin Shaw presented the innovative award.



TPMA President Dr. Sea-Fue Wang presented the excellent staff



Dr. Lin presented outstanding paper award



Dr. Wang presented association scholarship



Speech presented by APMA President Mr. Chiu-Lung Chu in the 2021 TPMA annual general convention



Keynote speech "Sustainability at EPMA" was presented by Dr. Lionel Aboussouan (chief executive of EPMA).



Activities of Powder Metallurgy Association of India (PMAI) during the year 2021-22

It is a pleasure and honor for me to submit a report on the activities of our association, Powder Metallurgy Association of India, PMAI.

After the Annual General Meeting which was held on 18 February 2020, the whole world has gone through an unprecedented situation of Covid-19 pandemic, and it took a little more than two years, situation has not come back to old normal.

In those tough and testing times, PMAI activities were severely affected, however, with untiring efforts of our members, we kept active contact and conducted events.

Governing Council Meetings:

In order to discuss and deliberate on various activities, the Governing Council has adapted to meeting online. The Governing Council meetings were held on 26 January 2021, 27 March 2021, 5 June 2021, 8 August 2021, 14 November 2021 and 14 April 2022 in virtual mode.

Workshop on PM Product Tool Design Process:

This 2 day online workshop was very well attended and conducted on 9 and 10 March 2021.



Powder Metallurgy Short Course:

This comprehensive introductory course briefing the basics of powder metallurgy was conducted online between 25 - 28 September 2021. The course also received very good response.



Aniket Gore
President of PMAI



K.S. Samant
Director of PMAI



International Conference PM22:

This conference was conducted in Virtual Mode between 18 and 20 April 2022. It was very well received, with 118 paper submissions.

PMAI is accredited with both Elsevier and Taylor and Francis, and this will encourage presentation of quality work.



New Activities scheduled for 2022-23:

Powder Metallurgy Short Course - 21 to 24 September 2022. Physical Course held at College of Engineering Pune.

Powder Metallurgy Tool Design Workshop - 8 to 10 November 2022. Physical Course held at College of Engineering Pune.

New Course: Heat Treatment of Powder Metal Parts - 9 and 10 December 2022. Physical Course held at College of Engineering Pune.

International Conference on Powder Metallurgy PM 23 - Date to be announced - Q1 2023.

New Course: PM Plant Safety and Quality Assurance - Date to be announced - Q1 2023.



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Powder Metallurgy Short Course-21 (PMSC21)

25-28 September 2021

In Virtual Mode: Platform used: Microsoft Teams

A four-day short-term course on powder metallurgy “Powder Metallurgy Short Course-21 (PMSC21)” took place from 25-28 September 2021 in the virtual mode and governed through Department of Metallurgy and Materials Science, College of Engineering Pune Campus. The program was organized by PMAI in collaboration with Department of Metallurgy & Materials Science College of Engineering Pune. Dr. S.P.Butee, Convener and HoD Metallurgical Engineering COEP welcomed the participants and briefed about workshop. He also introduced various activities and happenings of the department to the people present in the inauguration. Mr Aniket Gore, President, Powder Metallurgy

Association of India gave introduction about PMAI and the activities housed under the flagship. Dr. Vaishali Poddar, Co-Convener gave instructions for online mode of communication during PMSC21 and later Dr. S.P.Butee proposed the vote of thanks. Invited talks covered various aspects of powder metallurgical technology. This time the event went to an international level with few of the speakers and participants from various parts of the world. The multiple invited talks were delivered by eminent speakers and covered various powder metallurgy and its application related topics as tabulated in Table 1.

Table 1: Topics of the invited talks covered by various invited speakers at PMSC21.

Sr. No.	Topic	Name of the Speaker
1	Overview of Powder Metallurgy and Particulate Materials Technology	Mr. N.L.Chandrachud, Consultant
2	High Density, High Performance PM Materials Processing	Mr. N. L. Chandrachud, Consultant
3	Maintaining Quality in PM Manufacturing	Mr. Rajendra Sethiya, GKN
4	Mechanical and Solution Methods of Powder Production for PM	Dr. K. Murli Gopal, Novoken Innovations
5	Commercial Iron powder technology: manufacturing, characterization & applications	Mr. M. Nipani, Hoganas India
6	Powder Characterization	Prof.P.Ramakrishna, Emeritus Professor
7	Design and fabrication of Tooling for PM	Sanjay Rastogi, Consultant
8	Consolidation of Powders:Binders, Lubricants & Sintering Aids	Dr. Syam Babu, BARC
9	Fabrication / Shaping Methods for Advanced Ceramics and Composites	Dr. Deep Prakash, BARC
10	Thermal Methods of Powder Production for PM	Dr. T. Mahata, BARC
11	Thermal Consolidation of Powders– Sintering Fundamentals	Dr. N.B. Dhokey, CoEP
12	Furnaces for sintering & heat treatment	Mr.V.Raghunathan, Fluidtherm
13	Sintering of Some Commercial Ceramics	Dr. S. P. Butee, CoEP
14	Surface Engineering of PM Components	Dr. Umesh Mhatre, SMT
15	PM parts Heat Treatment	Dr. N.B. Dhokey, CoEP
16	PM Porous Materials	Dr. K. Murli Gopal, Novoken Innovations
17	Bio-materials	Dr. Malobika Karanjai, ARCI
18	Bond Matrices in Diamond cutting tools	Dr. Vivek Singhal, Sharp Diamond
19	PM applications in cemented carbide cutting tool technology, defence and Aerospace Industry	Mr. Bijoy Sarma, Consultant
20	Powder metallurgy of Bulk Metallic glass Composites	Dr.Bhaskar Majumdar, DMRL
21	Friction Materials	Dr. Malobika Karanjai, ARCI
22	Metal Injection Molding	Prof. Parag Bhargava, IITB
23	Additive Manufacturing	Dr. Suraj Jadhav, KU Leuven, Belgium

Each session comprised of dedicated discussions, challenges and opportunities in powder metallurgy technology development. Overall there were about 21 participants attending this course which were drawn from diverse industries viz. TATA Motors, Innomet Advanced Materials Pvt. Ltd., Shubhkarma Argentum Pvt. Ltd., Kumar Process Consultants and Chemicals Pvt. Ltd, Harita NTI Ltd., Bhabha Atomic Research Centre, Mumbai, National Institute of Technology, Rourkela and Central South University. After completion of all the sessions, an online exam was conducted and accordingly e-certificates were given to the participants for completion of the course. During the valedictory function (online snap shown in Fig. 1), each

participant was encouraged to share his / her experience in PMSC21 and to communicate the scope of improvement in PMSC21 to further increase the usefulness of the course. The course feedback was collected from all the participants and the overall rating for the course came out to be 3.9 out of 5. Few suggestions were given by the participants to further improve the course effectiveness viz. details related to PM in electrical contacts PM, elaborate information on basic set up needs of PM related functioning, and introduction of interactive sessions in between to have PM discussions with the experts and speakers.

CPMS



Prof. Baiyun Huang
President



Prof. Yong Liu
Secretary General

Introduction of the activities in 2021

The 2021 National Conference of Powder Metallurgy was held in Changsha, Hunan on 24th Dec. 2021 and the theme of the event was “innovation, development and application”. The conference was taken place in the form of a combination of “conference + exhibition”, including activities such as opening ceremony, keynote talks, and science and technology achievements exhibitions. The conference had a total of 9 sub-venues, and attracted more than 400 participants of academicians, experts and young scholars from the powder metallurgy industry and research field in China and abroad. The purpose of the conference was to promote the development of fundamental and application research in the powder metallurgy industry in China, to build a high-level platform for academic exchange, to promote exchanges and discussions among peers in powder metallurgy, and to support development of China’s high-tech, high-end manufacturing and essential engineering projects.



On July 10, 2021, the State Key Laboratory of Powder Metallurgy of Central South University cooperated with KeAi to launch a new journal Advanced Powder Materials, referred to as APM. It mainly publishes papers about innovative achievements in high-level scientific theory, advanced technology, and application exploration in the field of powder material science. It covers topics on advanced powder metallurgy materials, composite materials and coatings, advanced ceramics and cemented carbide, high-performance structural and functional materials, micro-nano materials, new energy and catalytic materials, 3D printing and additive manufacturing, material computing and material design. The chief editors are Boyun Huang, academican of the Chinese Academy of Engineering, and Chain-Tsuan Liu, academican of the American Academy of Engineering.

In January 2022, The papers in Volume 1, Issue 1 were officially published. Up to now, APM has published four issues, and a total of 45 papers have been officially launched, which have been downloaded nearly 90,000 times, and cited more than 770 times. The submissions were from 18 countries and regions including China, UK, Germany, United States, New Zealand, Singapore, Denmark, Thailand, Sweden, and Hong Kong, China. The authors include 4 academicians and many well-known experts and scholars.

In August 2022, the journal was recorded in the DOAJ (Directory of Open Access Journals) database.

Work Plan in 2022

1. Further strengthening academic exchanges and international cooperation.
Continuing to organize academic salons on powder metallurgy, and invite well-known scholars from China and abroad to give lectures. It is guaranteed to carry out academic exchange activities at least every 2 months to create an active and united academic atmosphere.
2. Preparing for the important conferences in 2022. Continuing to communicate and exchange with the Asian Powder Metallurgy Association and other societies.
3. To well running the “Advanced Powder Materials” journal, and to try to publish 4 issues with high-quality publications throughout the year.



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Main activities of 2021 of CPMA



2021 10th International Forum of Powder Metallurgy Technology and Powder Injection Molding



2021 Symposium on Process and Technology of Metal Powder Manufacturing (Hefei)



2021 Technology Roadshow of Powder Metallurgy



2021 National Powder Metallurgy Congress (Changsha)



Shaoming Zhang
President



Wei Han
Secretary General



Establishment of CPMA Committee on Standardization

CSTM粉末冶金领域委员会成立大会暨CPMA标准委员会成立大会



New activity scheduled in 2022 of CPMA

1. The 15th Int'l Exhibition for Powder Metallurgy, Cemented Carbides and Advanced Ceramics
2. 4th South China International Summit on Technology and Application of Injection Molding and Additive Manufacturing
3. Seminar on HIP
4. 2022 Formnext + PM South China (Shenzhen)



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2021 Activites 1 Aug 2022

Agenda

- Update Situation
- Activities 2021
- Planned Activities 2022

Update Situation

- Due to COVID-19, ThaiPMA decided to postpone the physical event to 2021.
- We had an online meeting in March 2021.
- There is a new member joining ThaiPMA in 2021.
- The TMETC conference has been postponed, so our AM/PM session and AM/PM award has cancel in 2021.

Activities 2021-1

Online meeting in March 2021

- On 26 March 2021
- The first ThaiPMA online meeting.
- Agenda:
 - Introduced new member
 - Final decision on AM/PM award at TMETC 21.
 - Special event.

Activities 2021- 2

Special event - Logistic Turbulence

We invited Mr. Torsten Kielersztajn, the Freight Manager of Hoganas AB, to share his view about on the logistic turbulence occurring around the world. The topics include:

- The causes of logistic turbulence at the present.
- Rail route from Europe to Asia is the way to solve the delay problem from sea freight delivery.
- Suez canal situation.
- Container shortage situation.

Activities 2021-3

Distribution of PM School Handbook

- After publishing the handbook, in 2021, we distribute the handbook to all the members.
- Full Member: 50 pcs
- Associate member: 25 pcs



Pramote Eiangkhunchorn
President



Boon Teeraprawatekul
Secretary General

Powder Metallurgy Handbook:



ThaiPMA New Member



Industrial heating processes and equipment

Planned Activities 2022

- 2 - Public PM Schools
- 1- Metallography School
- 1 - End-user Seminar - PM for Green technology
- ThaiPMA Award at TMETC 22
- ThaiPMA Session at TMETC 22
- Collaborate with the universities for PM class
- There is further discussion over this issue of how we can collaborate with the university here. Finally, we should interview and discuss with the faculty leader who has the PM Class in Thailand for their needs.



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Overview of the status and trends in the Asian PM Industry (Posted in PM2022 Congress, Lyon, France)















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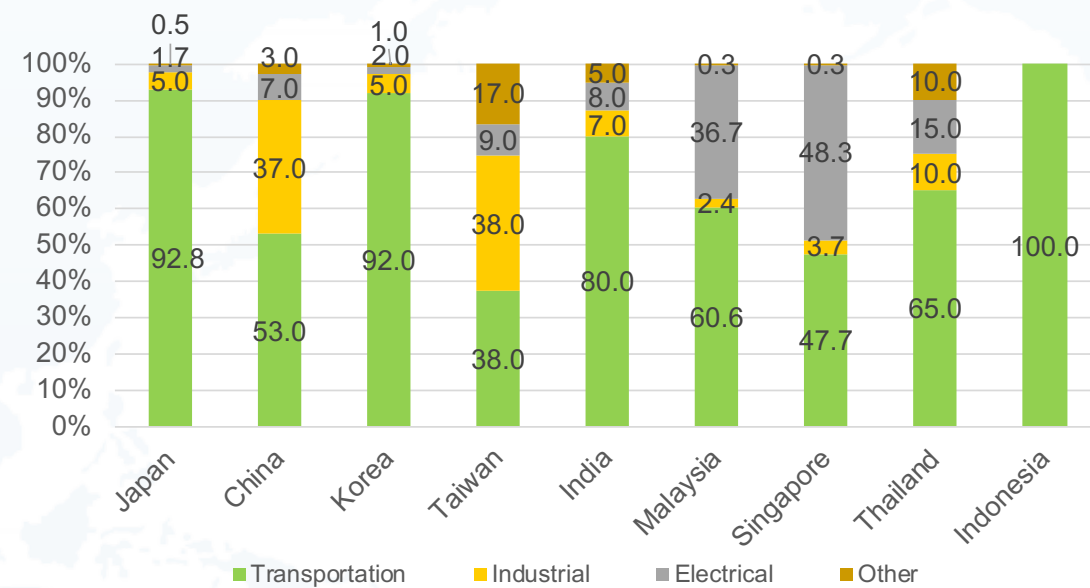
President, APMA

It is a great honor to represent the Asian Powder Metallurgy Association to attend PM2022 and take this opportunity to introduce the current situation of the powder metallurgy industry in Asia. The Asian

powder metallurgy industry has become more and more courageous after two years of disruption from COVID-19.

• Members introduction

Association members				
1			Japan Powder Metallurgy Association	1956~
2			Japan Society of Powder and Powder Metallurgy	1958~
3			The Korean Powder Metallurgy Association	2000~
4			The Korean Powder Metallurgy & Materials Institute	1993~
5			The Taiwan Powder Metallurgy Association	1980~
6			China Powder Metallurgy Alliance	2013~
7			China Powder Metallurgy Society	2000~
8			The Powder Metallurgy Association of India	1973~
9			The Thailand Powder Metallurgy Association	2015~



• Market Trend for Automobile

Main Country Car Sales in Asia

Country	2016	2019	2020	2021	2022
Australia	1,178,133	1,062,867	916,968	1,005,000	1,100,000
China	28,028,175	26,796,931	25,311,069	25,700,000	27,000,000
India	3,669,094	3,816,858	2,938,023	3,800,000	4,100,000
Indonesia	1,057,019	1,032,907	532,027	880,000	920,000
Japan	4,970,258	5,195,216	4,598,615	4,550,000	5,100,000
Korea	1,825,433	1,780,088	1,878,104	1,700,000	1,650,000
Malaysia	580,085	604,281	529,434	500,000	590,000
Philippine	404,063	416,628	248,171	305,000	360,000
Taiwan	439,585	439,835	457,453	455,000	430,000
Thailand	768,788	1,007,552	792,146	759,119	820,000
Vietnam	273,310	306,452	284,279	275,000	300,000
Total	42,920,633	42,153,163	38,486,289	39,929,119	42,370,000

• MIM production in Asia

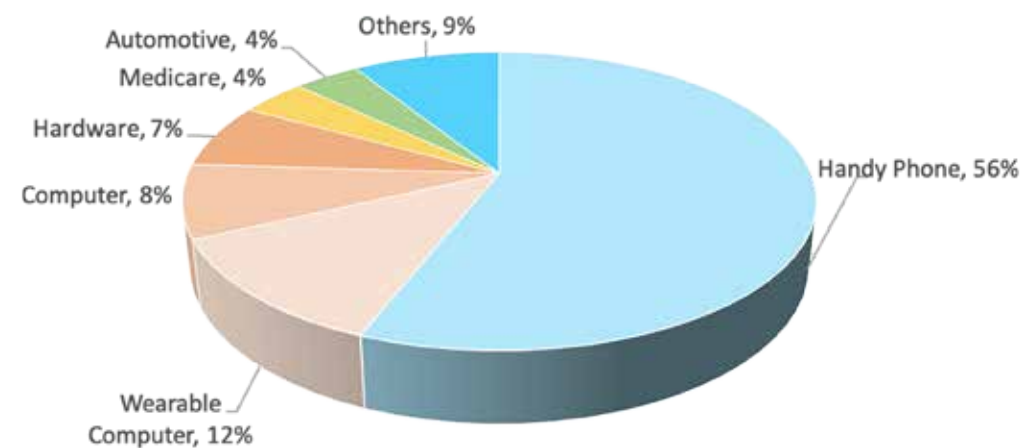


2021 year MIM application

%	Transportation	Industrial	Electrical	Other
Japan	No data	No data	No data	No data
China	7	6	78	9
Korea	80	15	5	0
Taiwan	17	16	60	7
India	25	20	30	25
Thailand	0	60	20	20

More than half of the global MIM production (about US\$1.5 billion) comes from the contribution of China.

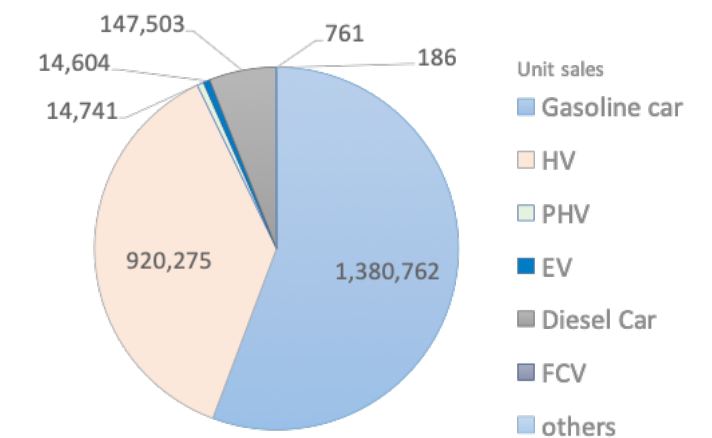
MIM application in China 2021



76% of production items are for information appliance.

Japan

2020	Unit sales	proportion
Gasoline car	1,380,762	55.70%
HV	920,275	37.13%
PHV	14,741	0.59%
EV	14,604	0.59%
Diesel Car	147,503	5.95%
FCV	761	0.03%
others	186	0.01%
Total	2,478,832	100%



1. In Japan, the policy is to "realize 100% electric vehicles by selling new passenger cars by 2035."
2. However, the "electric vehicle" mentioned here also includes HVs and FCVs. Not all cars will be EVs.

Korea

Recent PM Development	
PM part description	Application/Advantage
Electric Vacuum Pumps for Brake system	Sufficient Vacuum functioning
Electric Oil Pump	Cooling, Lubricating for EV traction motors
Gears in reduction gearbox in EV	Switching to PM method
SMC Core in EV motor	Higher Torque

India

1. The trends towards Electromobility in India are mirroring the trends in Global Market.
2. The key drivers are Emission Reduction, Reduction of Pollution and Reducing Carbon Footprint.
3. Market Estimates for EV Penetration vary and are dependent on Several Factors.
4. There is consensus that EV Penetration will continue to see high growth rates through 2030, with E2Wheelers and E3Wheelers continuing to see aggressive Growth.
5. Different Studies estimate India EV Market to reach 150 to 200 Billion USD by 2030
6. Total of 100 million electric vehicles could be on the Indian Roads by 2030
7. About 35 - 40 percent of all vehicles sold annually by 2030 could be electric

TYPE OF EV	SALES FOR YEARS 2016 - 2021					
	2016	2017	2018	2019	2020	2021
E2W/ E3W	20,000	22,000	54,800	126,000	152,000	312,737
E 4W	2,000	3,000	1,200	3,600	3,400	14,218
TOTAL	22,000	25,000	56,000	129,600	155,400	326,955

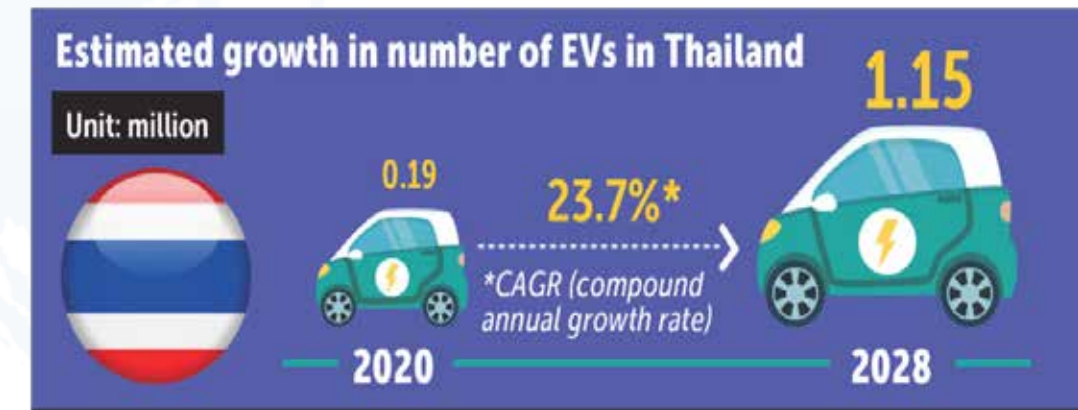
Passenger Vehicle			
OEM	June'22	June'21	YOY
Maruti	1,22,685	1,24,280	-1%
Hyundai	49,001	40,496	21%
TATA	45,197	24,110	87%
Mahindra	26,880	16,913	59%
KIA	24,024	15,015	60%
Toyota	16,512	8,798	88%
Renault	9,317	6,100	53%
Honda	7,834	4,767	64%
Skoda	6,023	734	721%
MG	4,503	3,558	27%
Nissan	3,515	3,503	0%
Volkswagen	3,315	1,633	103%
Fiat/FCA	1,963	789	149%
Citroen	77	41	88%
Total	3,20,846	2,50,737	28%

Two - Wheeler			
OEM	June'22	June'21	YOY
Hero MotoCorp	4,63,210	4,38,514	6%
HMSI	3,55,560	2,12,453	67%
TVS Motor	1,93,090	1,45,413	33%
Bajaj Auto	1,25,083	1,55,640	-20%
Suzuki Motorcycle	52,929	40,474	31%
Royal Enfield	50,265	35,815	40%
Total	12,40,137	10,28,309	21%

Commercial Vehicle			
OEM	June'22	June'21	YOY
TATA	34,409	19,594	76%
Mahindra	20,431	12,694	61%
Ashok Leyland	13,469	5,851	130%
VECV	5,584	1,760	217%
Total	73,893	39,899	85%

Thailand

1. Thailand has been a strategic production location for car maker around the world. However, the R&D has not been done so much in the country.
2. There was a movement from FOXCONN and PTT Group to establish a fully integrated electric vehicle production in Thailand.



• Industry reflected by COVID-19

Japan

1. The Japanese economy in 2021 was a year that was at the mercy of Covid-19, following the previous year.
2. Under such an economic environment, domestic production of automobiles (including buses and trucks) decreased to 7.84 million units, down 2.7% from the previous year.
3. In addition, since 2009, which was affected by global financial crisis, the number has dropped below 8 million units for the first time in 12 years, and has decreased for the third consecutive year due to factors such as a shortage of semiconductors and parts supply.
4. In 2021, Japan's PM production volume (JPMA statistics) totaled 83.6 kt for iron-based and copper-based products, an increase of + 13.6% compared to 2020.
5. However, this is -9.2% compared to 2019, and the situation has not yet recovered to the level before Corona.



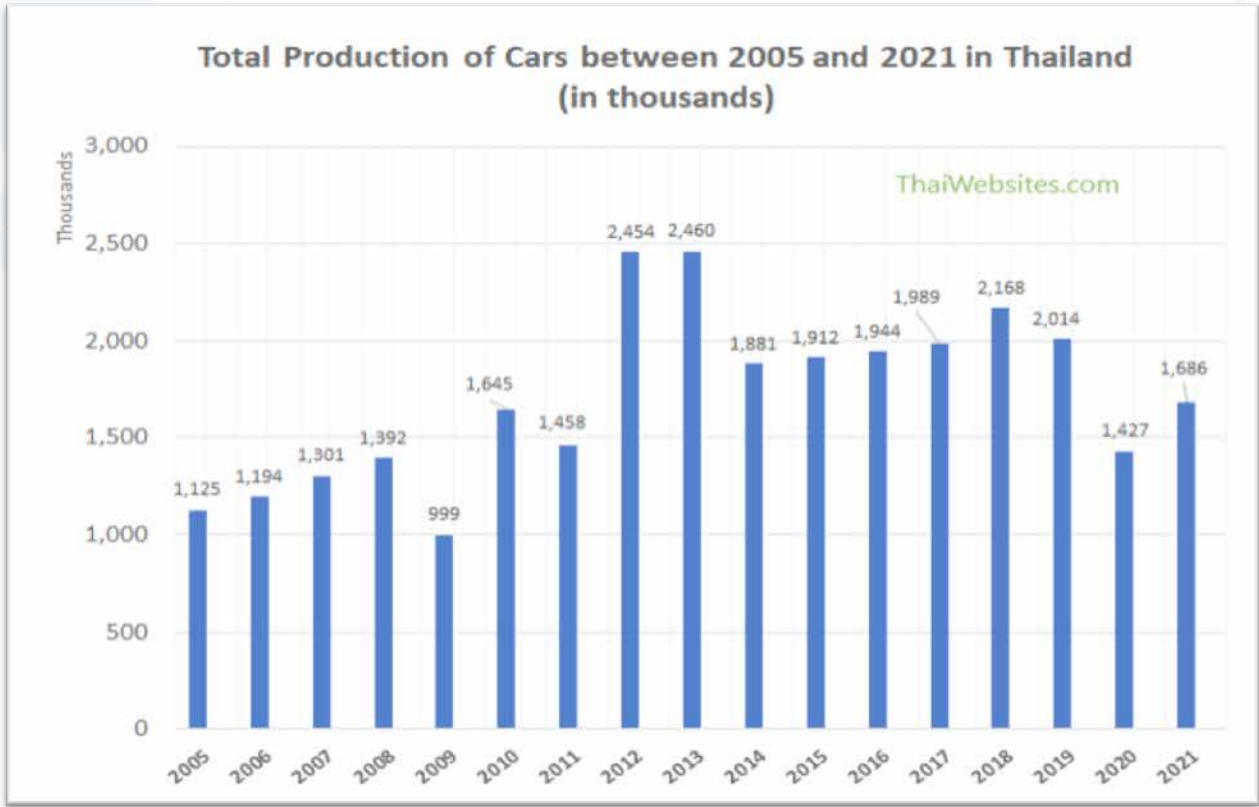
Q1	-2.90%
Q2	2.00%
Q3	-3.60%
Q4	4.60%

2021 Real Gross Domestic Product (GDP)

Over 400 million people infected with new coronavirus disease in 2021

Thailand

- 1. COVID 19 had a high effect on Thailand automotive production in 2020. The total car production was down to less than 1.5 million cars.
- 2. There is a great rebound on 2021, when the production amount increased around 18% to 1.68 million car.
- 3. However, as tourism is over 20% of Thailand GDP, the real purchasing power of Thai people is still not recover fully yet. We expected that the situation should be better in 2023.



India

- 1. Car Sales in 2021 improved by approx. 30% to 3.8 million Units from nearly 3 million Units in 2020.
- 2. Demand for ICE 4 wheeler Vehicles for 2022 will mainly depend on following factors:
 - (1) No new serious waves of COVID 19 causing lockdowns (hopefully this is no longer a major issue, although a milder COVID wave is expected later this year)
 - (2) Normalization of inflation pressure - which will cause cost of all consumables to increase, and is expected to cause a reduction in discretionary spending.

Korea

PM production during 2019~2022F

2020/2019	2021/2020	2022F/2021
-10%	+7%	+5%

- (1) 2022F expects 2% higher than 2019 when no Covid exists
- (2) More critical issue is a low supply of Semiconductor to Auto industry

World PM2024 Yokohama

Japan

- (1) Organizer : JPMA (Japan Powder Metallurgy Industry Association) , JSPM (Japan Society of Powder and Powder Metallurgy)
- (2) Date : October 13th (Sun) to 17th (Thursday), 2024
- (3) Venue: Pacific Yokohama

