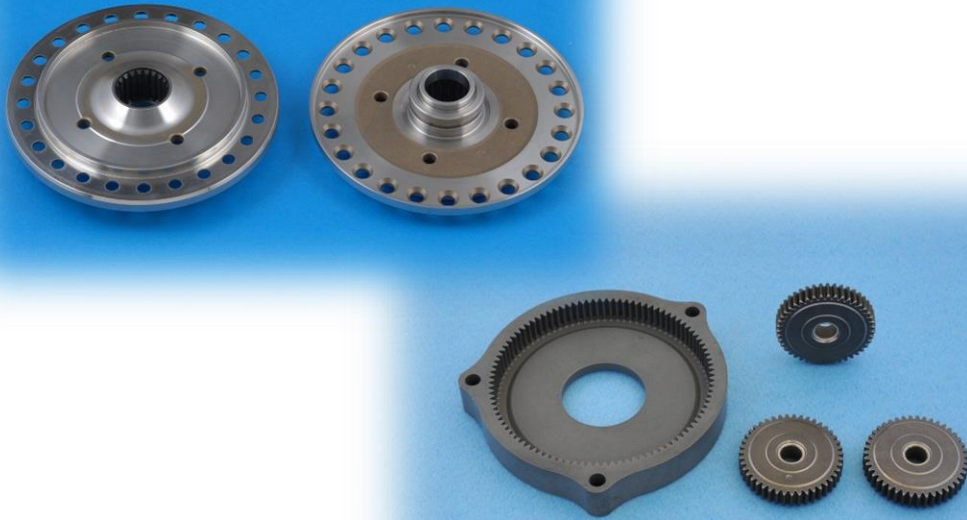


Overview of PM Situation in Asia and Japan



Mamoru Moritani
President JPMA

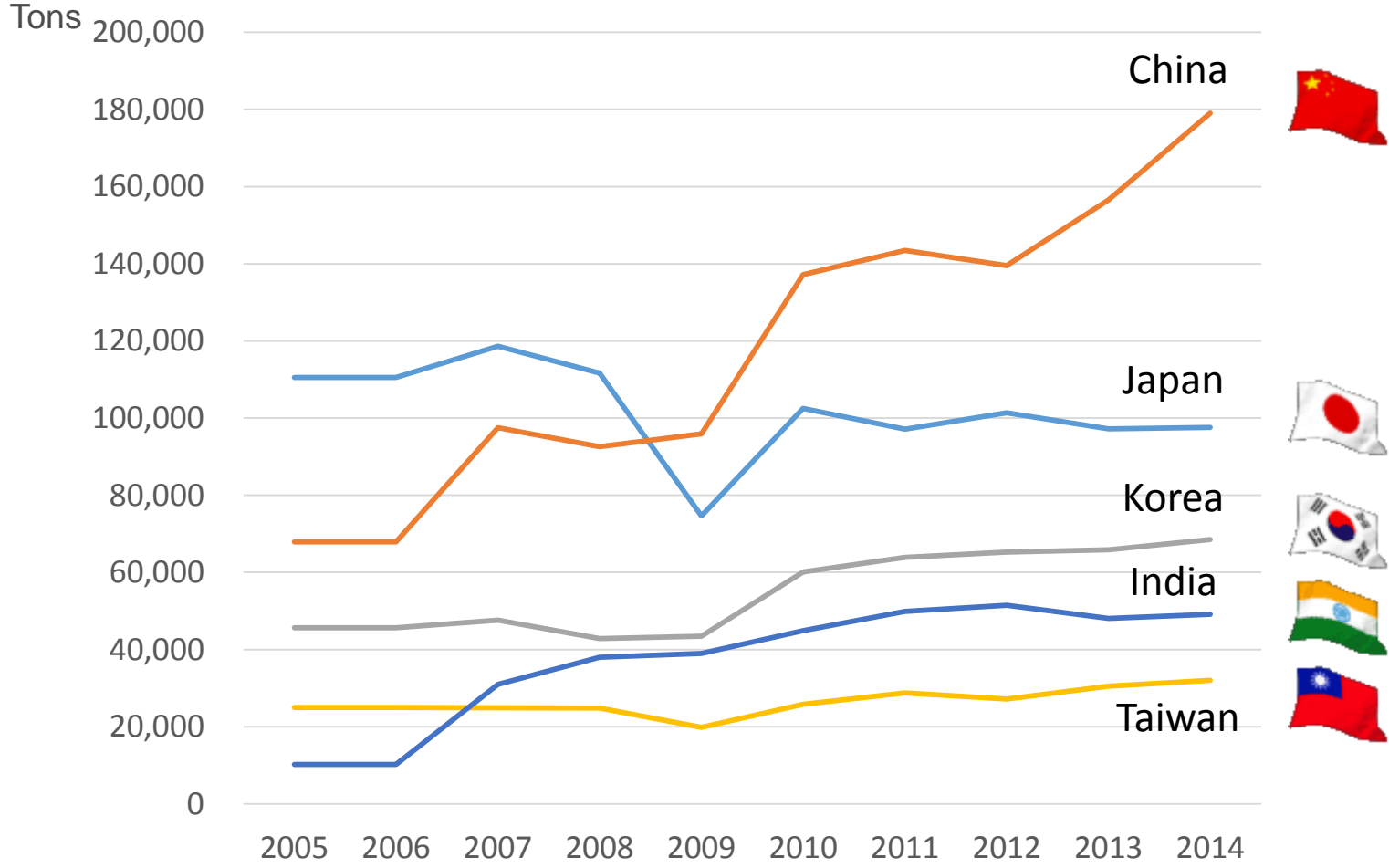


Outline

- State of PM Industry in Asia
- PM Conference in Asia
- State of PM Industry in Japan
- Trend of PM Technologies in Japan



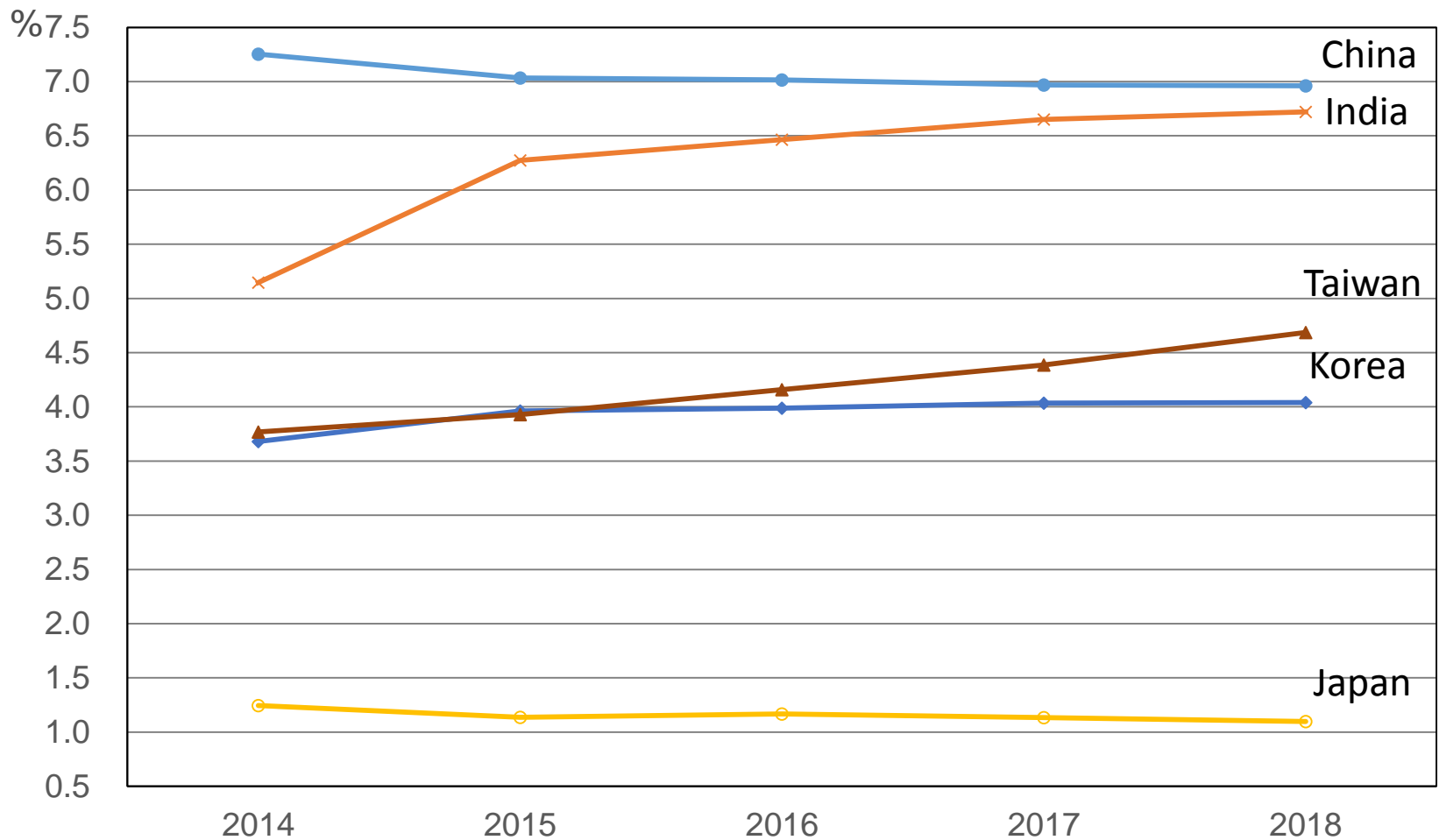
Fig 1 - PM Production in Asia (5 Major Areas)



(Source: JPMA Annual Report)



Fig 2 - GDP Growth rate prediction in Asia



(Source: International Monetary Fund)

APMA Conference

2011 1st APMA Conference Jeju, Korea



2013 2nd APMA Conference Xiamen, China



2015 3rd APMA Conference Kyoto, Japan



2017 4th APMA Conference Taiwan



World Congress in Asia

1993 PM1993 Kyoto, Japan



2000 PM2000 Kyoto, Japan



2006 PM2006 Pusan, Korea



2012 PM2012 Yokohama, Japan

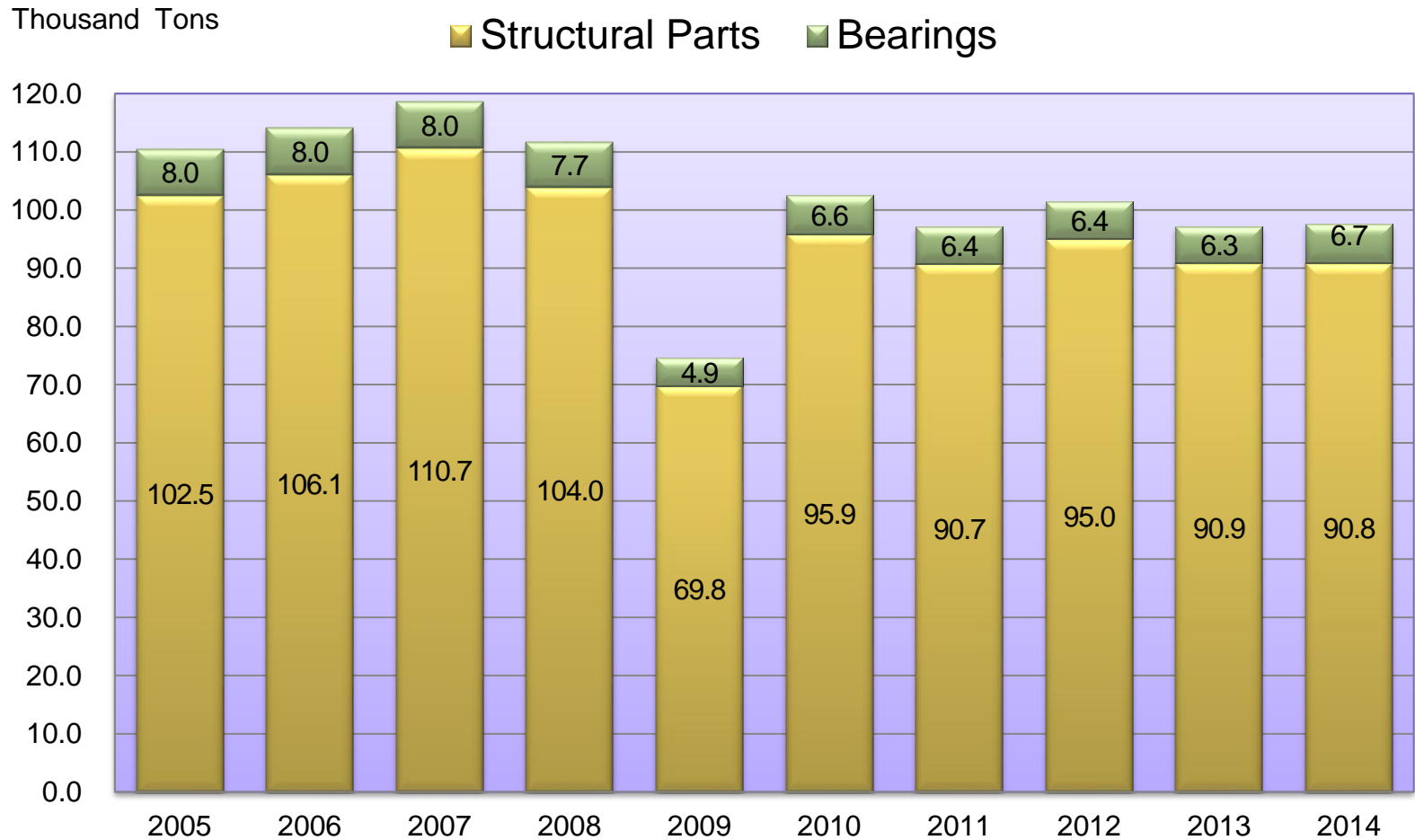


2018 PM2018 Beijing, China



PM Production in Japan

Fig 3 - Production Weight - Structural Parts & Bearings



(Source: METI)

Fig 4 - Production Weight - Structural Parts for Vehicles

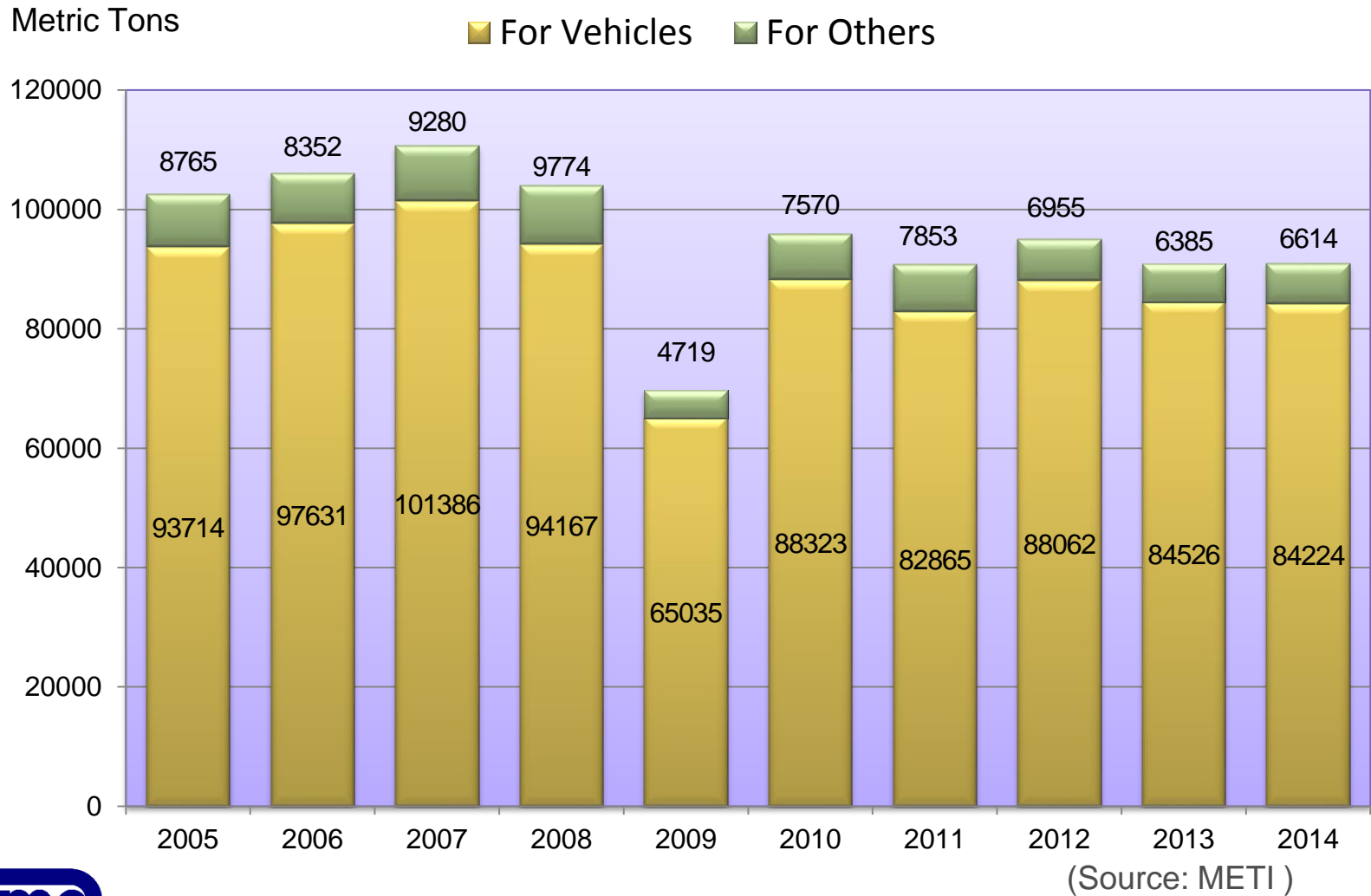
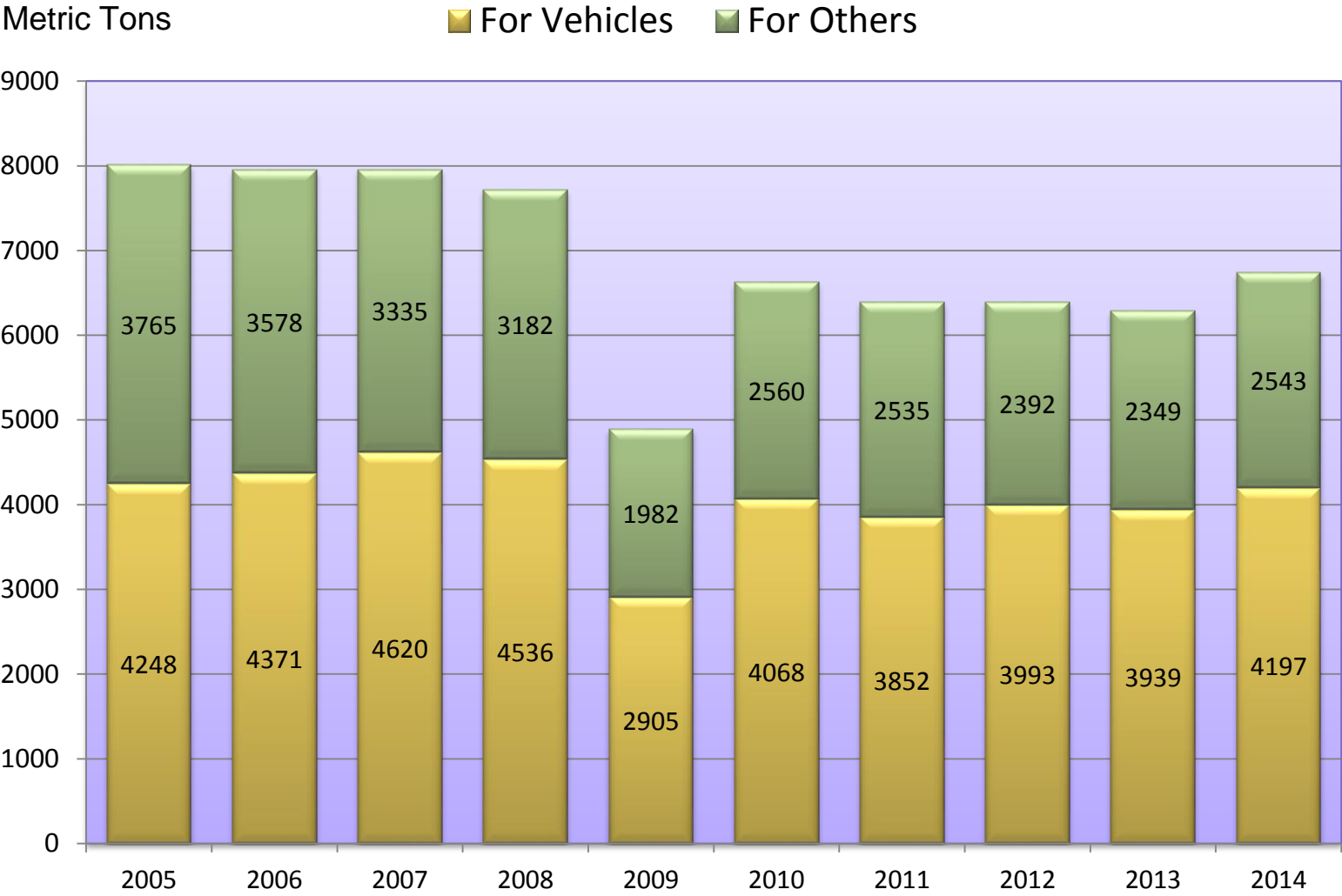


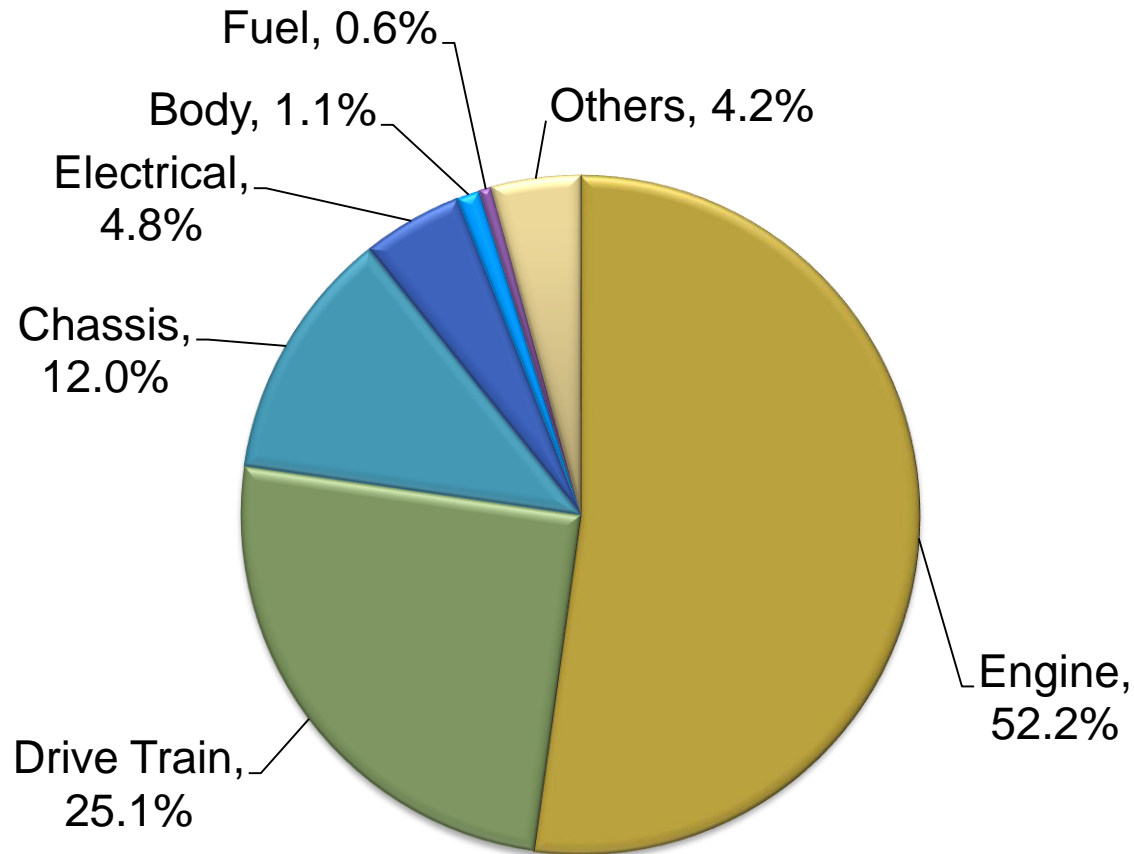
Fig 5 - Production Weight Bearings for Vehicles



(Source: JPMA Statistics)

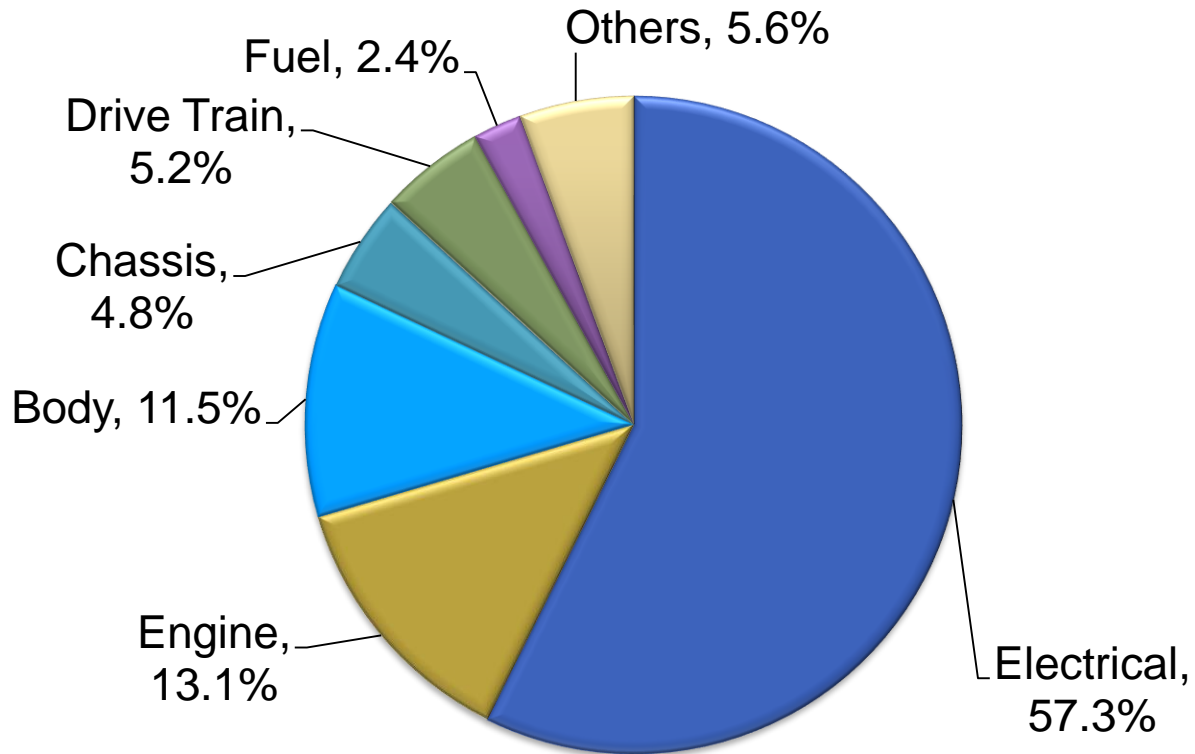


Fig 6 - Breakdown of Structural Parts for vehicles (2014)



(Source: JPMA Statistics)

Fig 7 - Breakdown of Bearings for vehicles (2014)



(Source: JPMA Statistics)

Fig 8 - Weight of PM Parts in 4 Wheel Vehicles

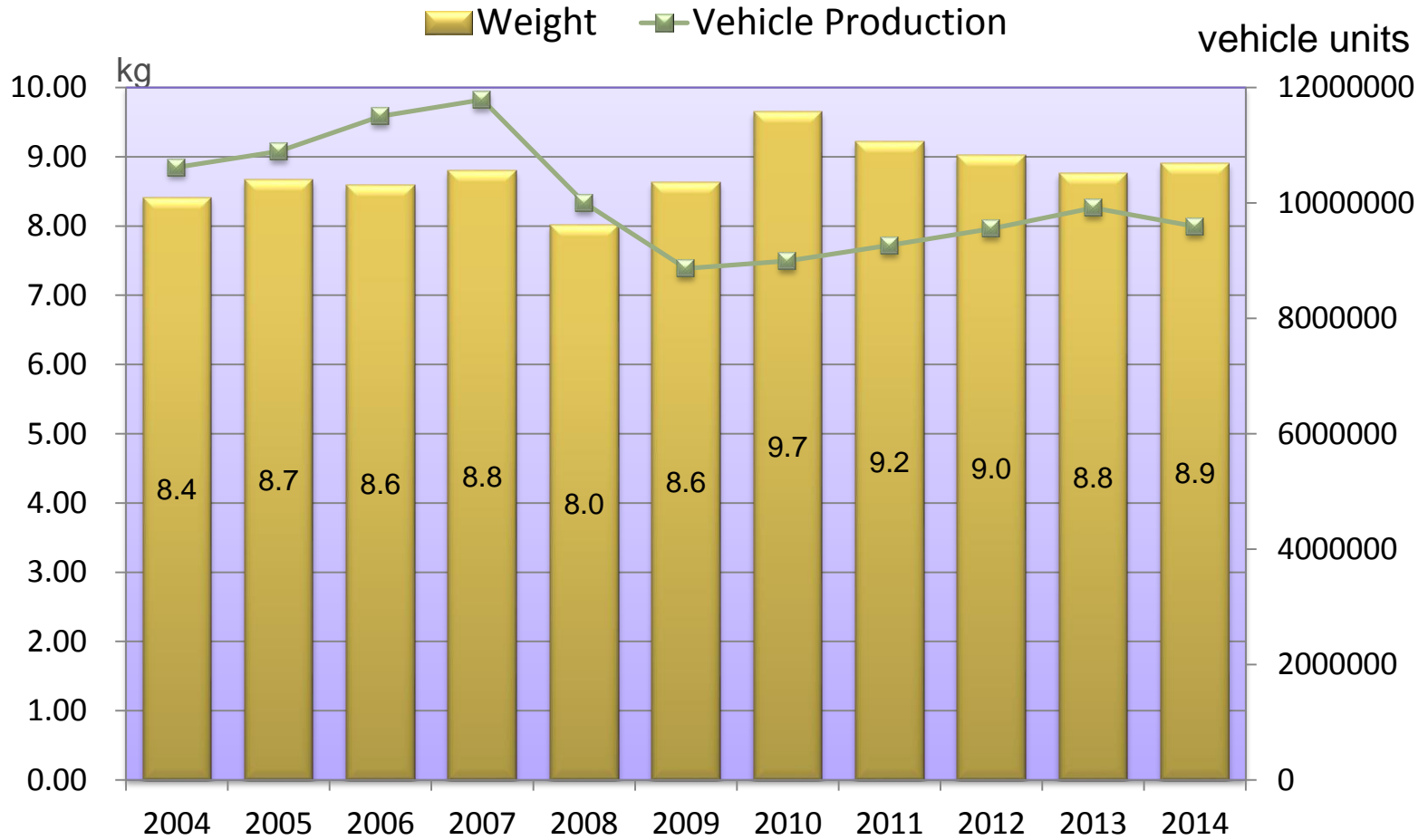
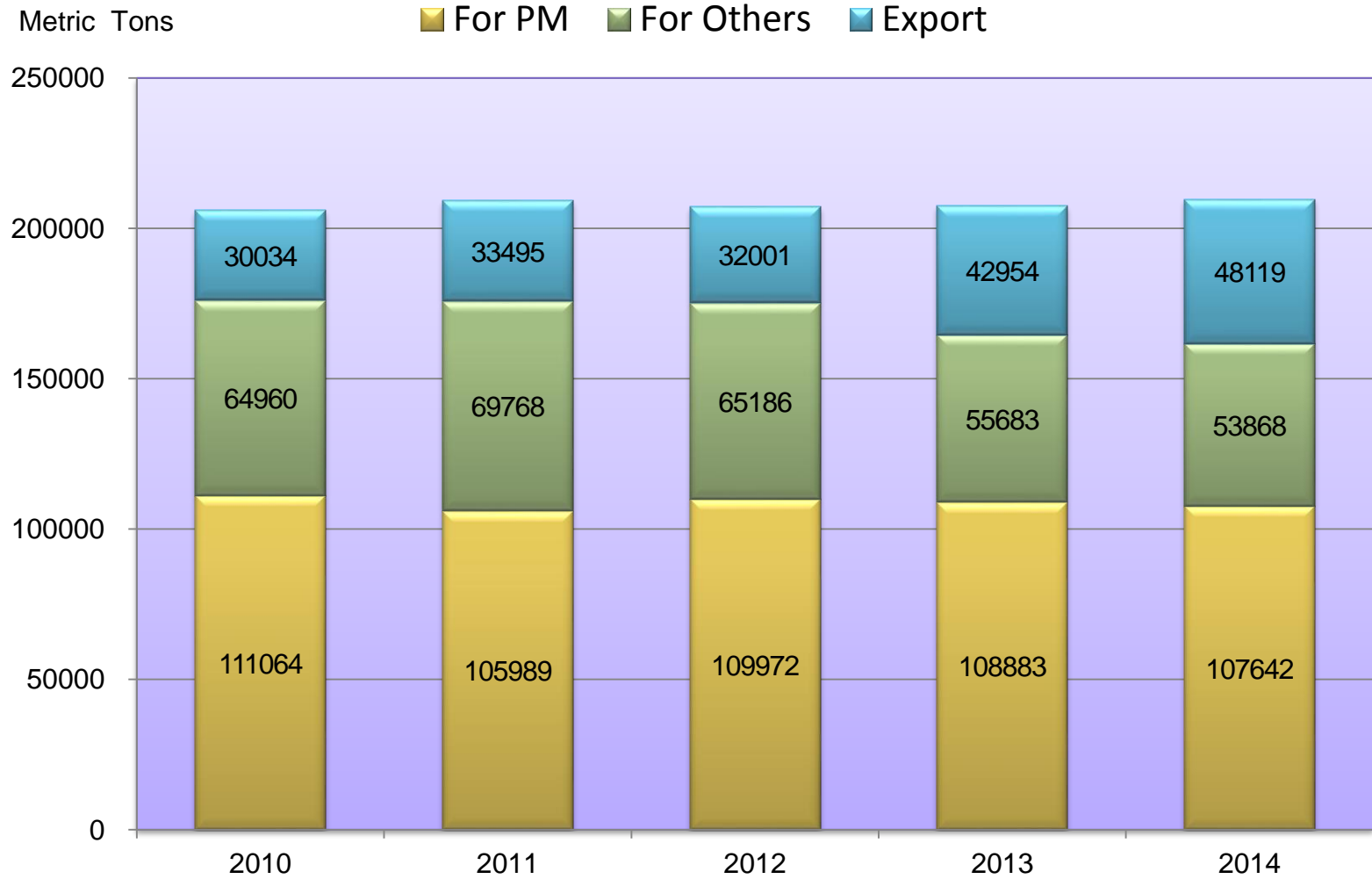
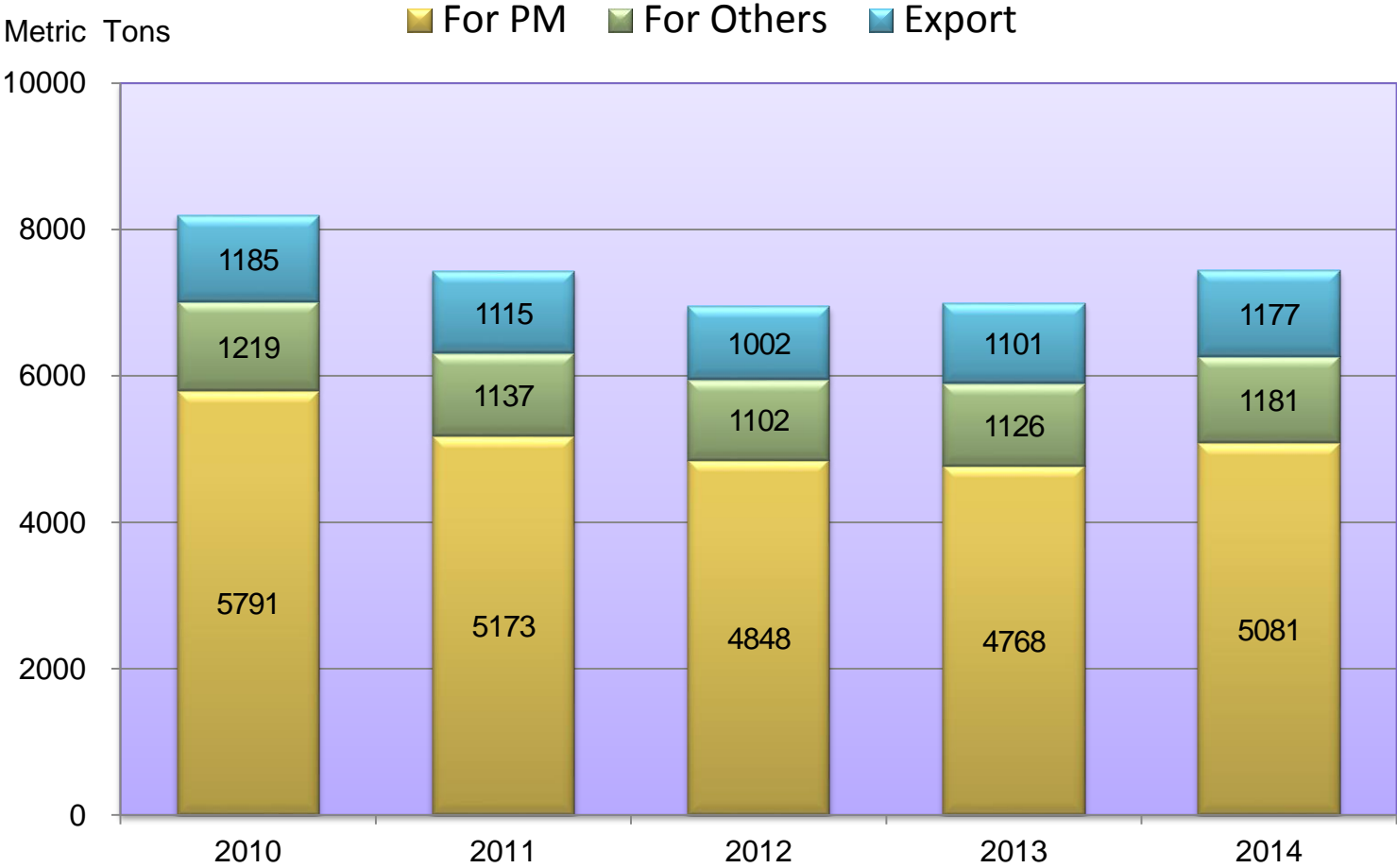


Fig 9 - Shipment of Iron Powder



(Source: JPMA)

Fig 10 - Shipment of Copper Powder



(Source: JPMA Statistics)



Trend of PM Technologies in Japan

Selection from 2014 JPMA AWARD PRODUCTS

Hybrid Electric Vehicle

Synchronizer hub for DCT installed in Hybrid Electric Vehicle.

*SUMITOMO ELECTRIC INDUSTRIES, LTD.



Electric Vehicle

Air compressor component with thin-walled part for electric vehicle

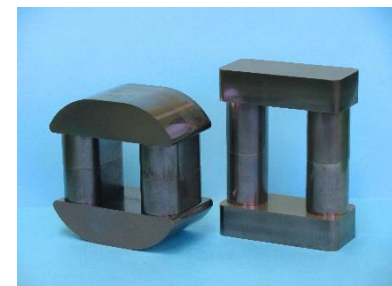
*DIAMET CORPORATION



Photovoltaic System

Soft Magnetic Composite reactor core for photovoltaic system

*Hitachi Chemical Co., Ltd.



Valve Switching Motor

Sintered Bearing for valve switching motor

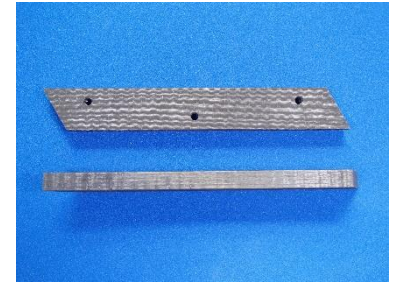
*Porite Corporation



Train Vehicle

Sintered contact strip material made of C/C composite impregnated with copper alloy for train

*FINE SINTER CO., LTD.



Miniature Tool Set

Miniature tool set is manufactured by MIM.11 tools such as Micrometer, Machine Vice etc. are all in a business card holder.

*CASTEM CO., LTD

