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Inspiring science, enhancing life

## Sector call - Platinum Group Metals Services

15<sup>th</sup> March 2019

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Jane Toogood, Sector Chief Executive, Efficient Natural Resources

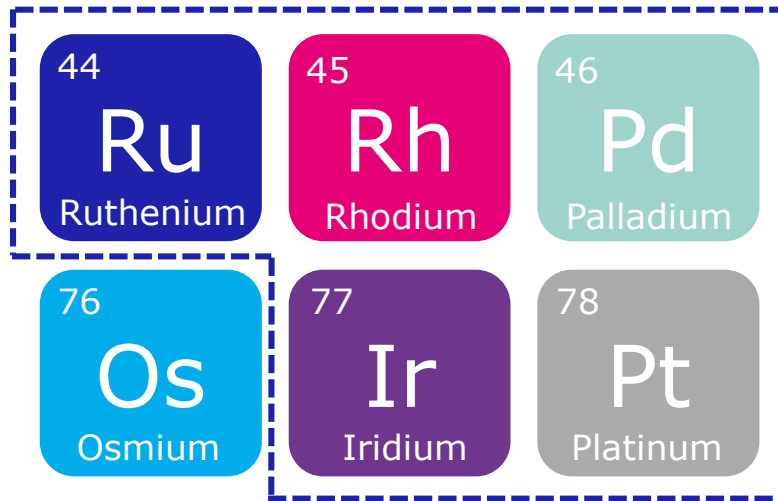
Mark Bedford, Managing Director, Platinum Group Metals Services

# Cautionary statement

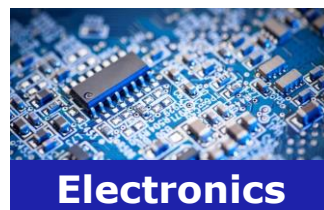
This presentation contains forward looking statements that are subject to risk factors associated with, amongst other things, the economic and business circumstances occurring from time to time in the countries and sectors in which Johnson Matthey operates. It is believed that the expectations reflected in these statements are reasonable but they may be affected by a wide range of variables which could cause actual results to differ materially from those currently anticipated.

# JM is a world leader in platinum group metal refining

## Platinum group metals



## Key global markets



## Efficient Natural Resources

- Pgms used in Catalyst Technologies for manufacture of chemical catalysts

## Clean Air

- Pgm metal salts used in washcoats for autocatalysts

## Health

- Foundation of Health was pgms

## New Markets

- Fabricate precious metal tubing used in production of medical devices

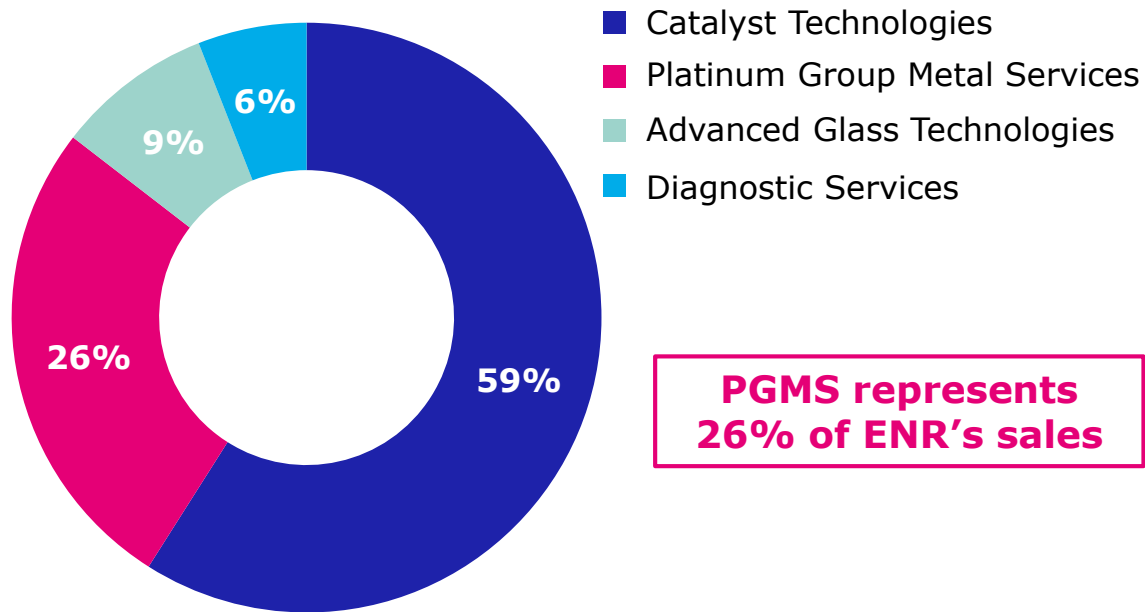
# Market dynamics



**Secondary sources of pgms to become more important as the world moves towards a sustainable and circular economy**

# Platinum Group Metal Services (PGMS)

**2017/18 ENR sales: £956m<sup>1</sup>**



**PGMS represents 26% of ENR's sales**

Ensures secure supply of pgms to internal and external customers

- Offer customers a holistic service, satisfying all their metal needs
  - We refine, trade and hold metal
- PGMS generates attractive returns and generally delivers negative working capital
- Strategically important
- Investing in efficiency and resiliency of our refining assets

# Competitive advantage: a leader in pgm chemistry

## Technology

- Efficient processes for refining and fabrication
- Refine to market-grade 99.95% purity

## Trusted partner

- Understand customers' needs
- Hard to replicate
- Trust us to assay

## Scale and flexibility

- £5bn of metal flowing through refineries p.a.
- One-stop shop
- Flexible offering

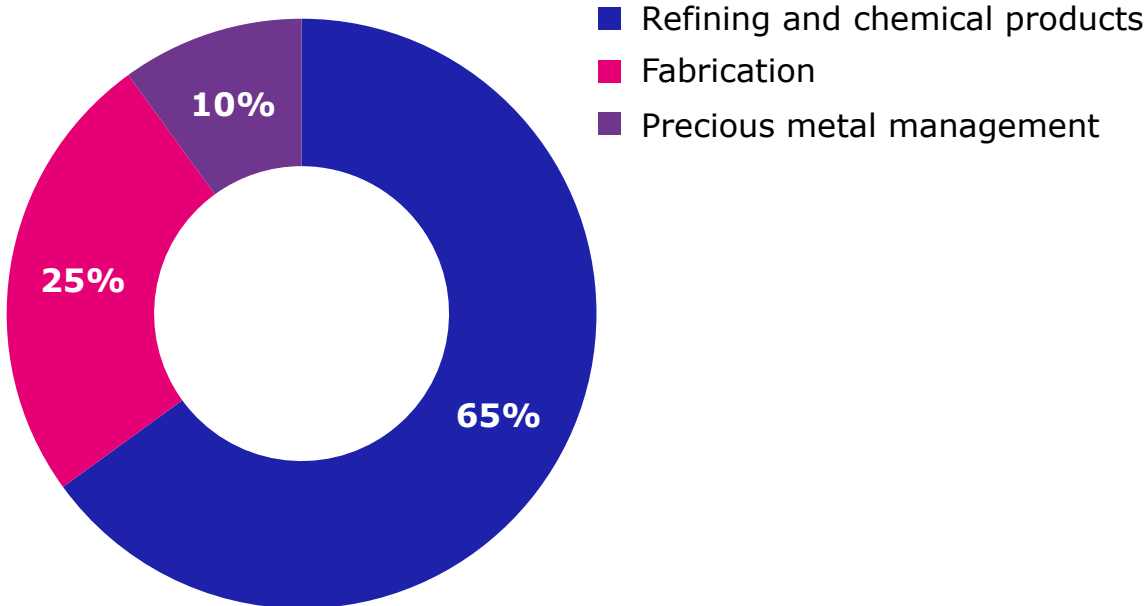
## Security of supply

- Uninterrupted pgm supply to JM and customers
- Crucial part of JM's supply chain

**Circular economy**

# Platinum Group Metal Services

2017/18 sales: £253m<sup>1</sup>



## Refining and chemical products

- Recycling and refining of pgms
- Production of chemical compounds

## Fabrication

- Fabrication of pgm products

## Precious metal management

- Metal trading activities

# Refining and chemical products

World's largest secondary refiner of platinum group metals

- 4 refining operations in the UK, US and China

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Transform refined pgms into chemical compounds

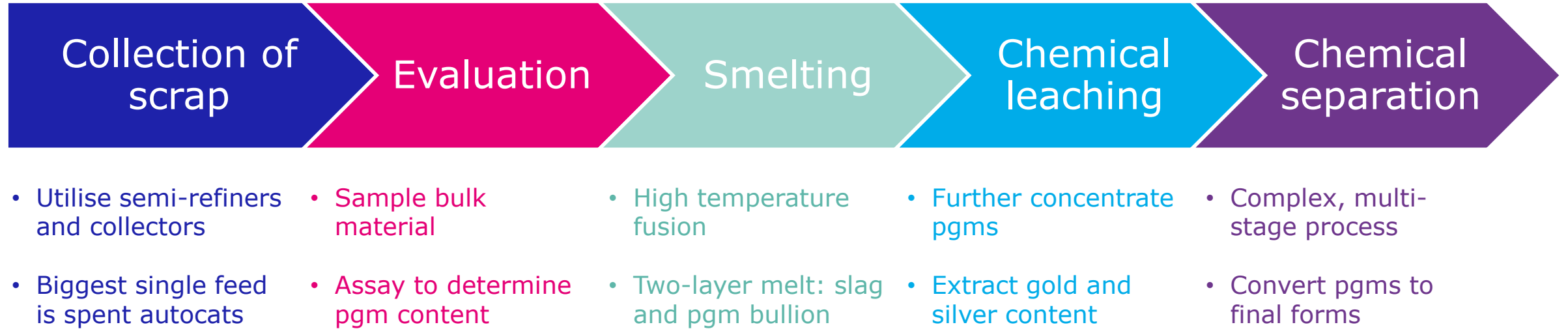
- Selection of over 200 chemical compounds





# Recycling and refining process

## A five stage process



**Highly advanced techniques for extracting and separating pgms**

# Fabrication and Precious metal management

## Fabrication

Supply a range of fabricated pgm products

### Wire

Airbag  
initiators

Gas  
sensors



### Sheets and foils

Rh foils  
used in  
medical  
scanners



### Ignition products

Wire or  
pre-cut  
electrode  
tips



## Precious metal management

- Centre of metal liquidity
- Underpins PGMS business
- Enables flexible customer offering

# A strategically important business

Generates attractive returns

Generally delivers negative working capital

Remain focused on current working capital challenges



# A great business for JM

Market leader

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Generates attractive returns

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Expertise, technology and competencies underpin JM

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Crucial to JM's future success

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# JM

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Q&A

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