



JM

Custom Catalysts

Custom collaboration for high performing products



Johnson Matthey
Inspiring science, enhancing life

Custom catalysts

JM recognises that value can often be driven by differentiation. Collaboration with JM on custom catalyst programmes enables our customers and partners to gain an advantage by creating and deploying catalyst technology.

Customised collaboration

JM's customer focus and expertise in all aspects of heterogeneous catalyst design, scale-up and manufacturing enables us to accelerate our customers' product development and commercialisation. Our custom collaborations harness the global development and world leading manufacturing capability of the organisation to deliver high quality catalysts with outstanding performance that meet all our customers' needs.

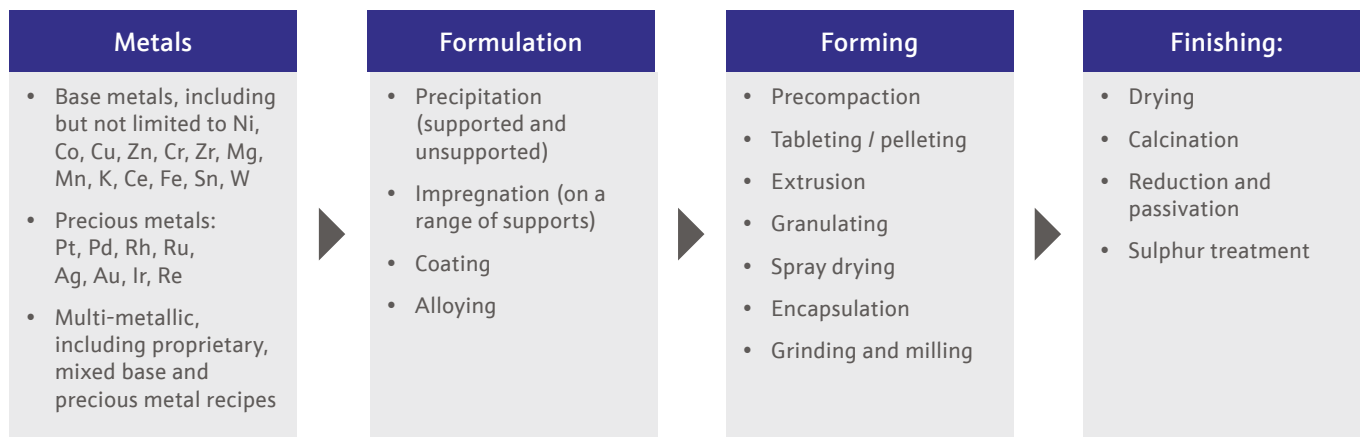
Acting with integrity

Our reputation for reliability and integrity ensures that our customers' IP is safeguarded during every step of the collaboration process: from project initiation to product delivery.

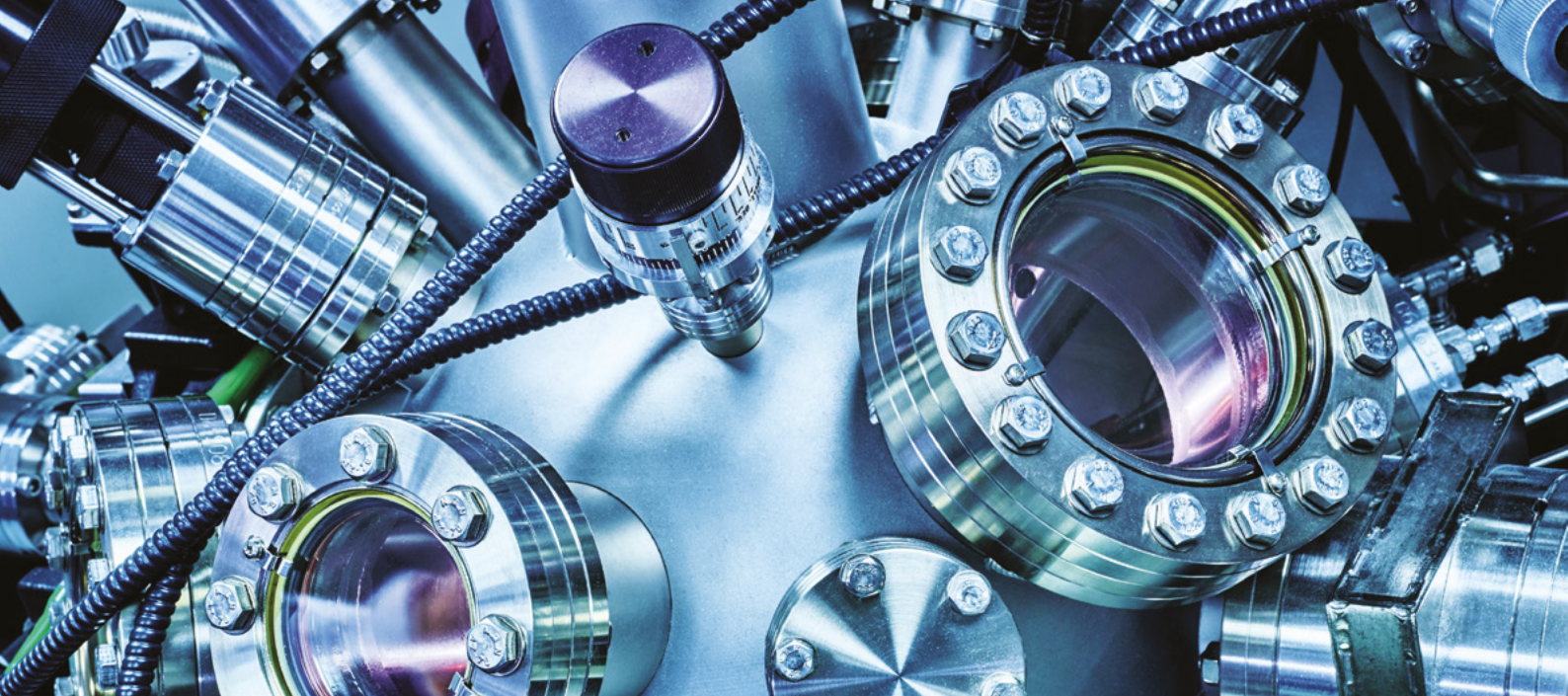
Working together

Two projects are rarely the same: flexibility and collaboration are key to our approach in custom projects. We always take the time and care to listen to our customers' non-technical requirements so that we can jointly select the right project model and project management approach. This flexible, collaborative approach ensures that JM continues to be our customers' most valued partner for customised solutions

Project models



Contact your local sales manager to discuss your requirements or contact us via our website.



Catalyst development and characterisation

Investment in people and science ensures that Johnson Matthey stays at the forefront of catalyst technology

Catalyst preparation

Johnson Matthey (JM) uses a wide range of preparation methods to produce catalysts tailored for specific processes. New catalysts are scaled-up on dedicated equipment, from gram to kilo and kilo to tonne quantities of catalyst.

A wide range of state-of-the-art development equipment is used to transform catalyst formulations into final products, including tableting presses, extruders, granulators and spray dryers.

For catalyst finishing we have a comprehensive range of drying, calcination, reduction and passivation equipment (static, rotating, moving, fluidised bed) operated under a range of conditions.

Catalyst characterisation

JM's material characterisation capabilities include:

- N₂ and Hg porosimetry providing pore volume, pore size distribution, average pore diameter, BET surface area
- Full range of chemisorption techniques for measuring active metal surface areas (e.g. Ni, Co, Cu, Pd, Pt, Ru)
- X-ray diffraction for measuring crystallite sizes and identification of the crystallite phases present
- Scanning Electron Microscopy, Transmission Electron Microscopy
- EPMA: Electron Probe Micro-Analysis
- X-ray fluorescence, ICP, AAS and classical methods for catalyst composition
- Infra-red and Raman spectroscopy, vibrational spectroscopic techniques for measurement of adsorbates on catalytic surfaces
- X-ray Photoelectron Spectroscopy for measuring surface composition of catalysts
- Ammonia and pyridine adsorption and desorption to determine Lewis and Bronsted acid sites
- TGA, DSC, DTA, TPR analysis
- Particle size analysis and sedimentation techniques
- Full range of equipment for measuring strength and attrition of formed catalysts and powders

Catalyst testing

A key strength of JM is our capability and expertise in catalyst performance testing.

Our experience in chemical process technology, combined with world class science and an extensive range of catalyst testing rigs gives us an advantage in testing and delivering optimum catalyst solutions.

We have the capability to test catalyst performance at all stages of the development and scale-up process, from initial screening at milligram scale through to pilot testing at kilogram scale.

Technical service

JM wants its customers to be successful. We continually develop high technology catalysts, the performance of which may be significantly enhanced by optimisation of plant operating conditions.

JM's technical service team are available to provide advice to customers on revised operating conditions, within the plant design limits.

Our highly experienced technical service personnel can assist in many important aspects of process catalyst operations.

The technical service function can assist with:

- Catalyst selection
- Operating conditions and life predictions
- Catalyst loading
- Start-up, shut down and regeneration procedures (on site assistance)
- Routine plant monitoring (technical service site visits)
- Trouble-shooting
- Plant optimisation and revamp studies
- Training
- Establishing basic flow sheets for new applications
- Reactor design (process vessel sketches)
- Chemical and physical analysis of spent catalyst



Why Johnson Matthey?

We have been leaders in our field for more than 200 years, applying unrivalled scientific expertise to enable cleaner air and improved health whilst making more efficient use of our planet's natural resources. Through continued investment in research and development, we are tackling the world's big challenges into our third century and beyond.

Chemical catalysts

Our range of performance and custom catalysts highlight Johnson Matthey's extensive capabilities and expertise in the chemicals market area. With our dynamic group of dedicated and skilled people and unparalleled technical service, we meet the needs of our customers worldwide, to develop and manufacture the catalysts that optimise chemical processes.

We offer you a comprehensive portfolio of chemical catalysts, plus a range of collaboration models to produce custom-made solutions, available at commercial scale.

Our heritage in chemical processes further enables us to provide practical solutions to maximise the value of your business.

This reputation is further enhanced by our established range of products and technologies:

- PRICAT™
- HTC™
- PURASPECT™
- PURAVOC™
- ACCENT™
- HYDECAT™
- ODORGARD™
- Sponge Metal™
- PURACARE™
- KATALCO™
- AMCAT™

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