

# JM

## FCC Flexibility through addition systems

Johnson Matthey's **INTERCAT** addition systems allow refiners to inject catalysts and additives throughout the day, allowing for performance and cost optimisation

**Johnson Matthey**  
Inspiring science, enhancing life



# Addition systems

INTERCAT addition systems have been in widespread use in the FCC process since the mid-1980's, and today there are over 400 units installed in refineries throughout the world.

These addition systems come in a variety of configurations, for injecting additives from a few kilograms per day to fresh catalyst systems at tens of tons per day.

The standard INTERCAT™ addition system consists of a storage vessel for the additive or catalyst, associated piping and equipment to load the vessel and a control system which controls the supply of catalyst to the FCC unit.

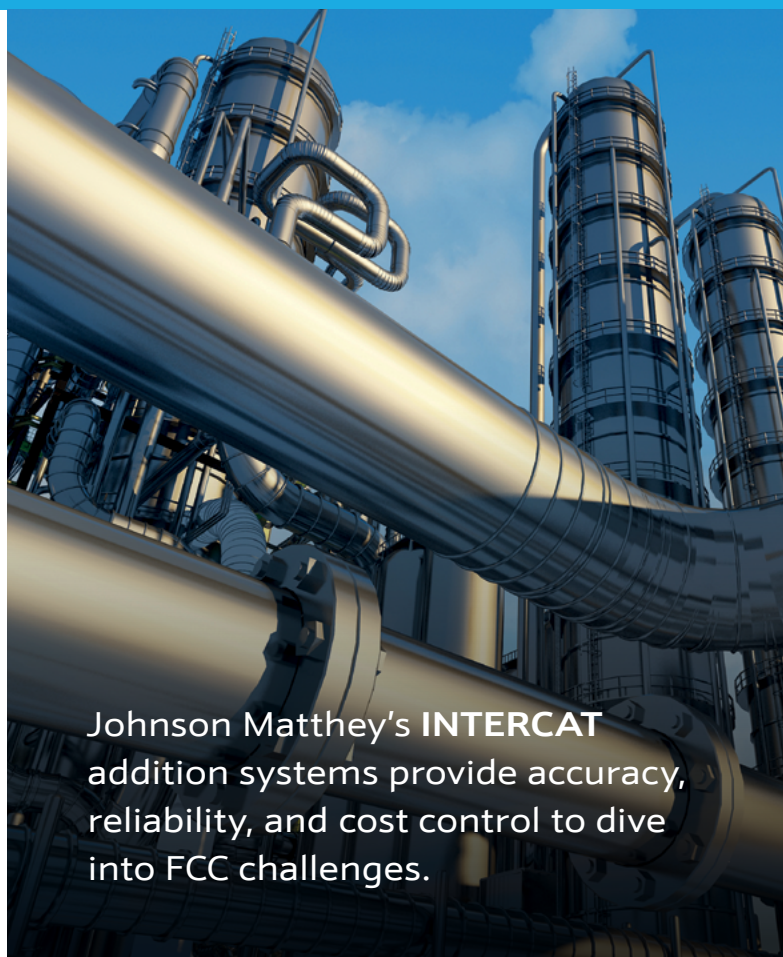
Johnson Matthey also offers the specialized MSCAS (Multi-Source Catalyst Addition System), that can add catalyst or additive from up to 4 different sources, such as hoppers or totes.

For the standard loaders, the main vessel is mounted on 3 load cells for highly accurate weight measurement and addition. The vessel's outlet line is equipped with a single valve to control the flow of catalyst to the FCC. This specially designed valve is the only moving part of the system in frequent contact with catalyst during normal operation which maximizes reliability. The system is controlled by an INTERCAT Management System (IMS) Controller which allows for operation locally or through the refinery DCS system.

The design and control logic of the Johnson Matthey system ensures extremely accurate catalyst additions at regular intervals throughout the day. The logic for the controller was developed internally based on years of operating experience.

The addition systems can be set up to manually refill from totes, flex hoppers, bags, or existing refinery hoppers. The addition system can also include auto-refill capability from these same sources for ease of operation.

The system also includes a Sintered Metal Filter to control particulate emissions. It combines high permeability, efficiency of particulate capture, and automatic self-cleaning.



Johnson Matthey's INTERCAT addition systems provide accuracy, reliability, and cost control to dive into FCC challenges.

To simplify additive and catalyst inventory management and save valuable supervisory resources, Johnson Matthey patented AIM TECHNOLOGY™, Automatic Inventory Management system. The system tracks additions, the onsite inventory of FCC catalyst and additives as well as facilitates remote monitoring for troubleshooting and diagnosis purposes, making AIM TECHNOLOGY an excellent digitalization solution.



## The advantages of an INTERCAT addition system include:

- **Reliable and precise additions.** Allows for improved control of unit severity.
- **The ability to control e-cat activity.** Permits higher throughputs, higher severities or the processing of a greater range of feed stocks.
- **The ability to add additives separately from the fresh catalyst.** Allows the refiner the flexibility to quickly respond to changing market conditions.
- **More stable and efficient FCC operation.** Adding small shots of additive over a 24 hour period is up to three times more efficient than adding large quantities at the end of each shift.
- **All INTERCAT addition systems are designed and supported internally by Johnson Matthey engineers and technicians.** This allows for fast troubleshooting by those directly involved with the loader if issues do arise.

## Addition system sizes and designs

- **Single Additive or Catalyst Addition System (AAS),** usually 1 to 10t capacity.
- **Fresh Catalyst Addition System (CAS),** up to 120t capacity or 4t day hopper design.
- **Multi-Compartment Addition System (MC3),** containing three separate compartments.
- **Multi-Source Catalyst Addition System (MSCAS),** a skid mounted unit that can draw catalyst and additives from up to 4 separate hoppers or tote bins.
- **COP Mini Loader,** designed to add shots as small as 0.1 kgs/day to accurately spread promoter addition throughout the day to improve afterburn and CO control.

Designed and produced by [www.houseoftype.co.uk](http://www.houseoftype.co.uk)

For further information on Johnson Matthey, please contact your local sales representative or visit our website.  
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