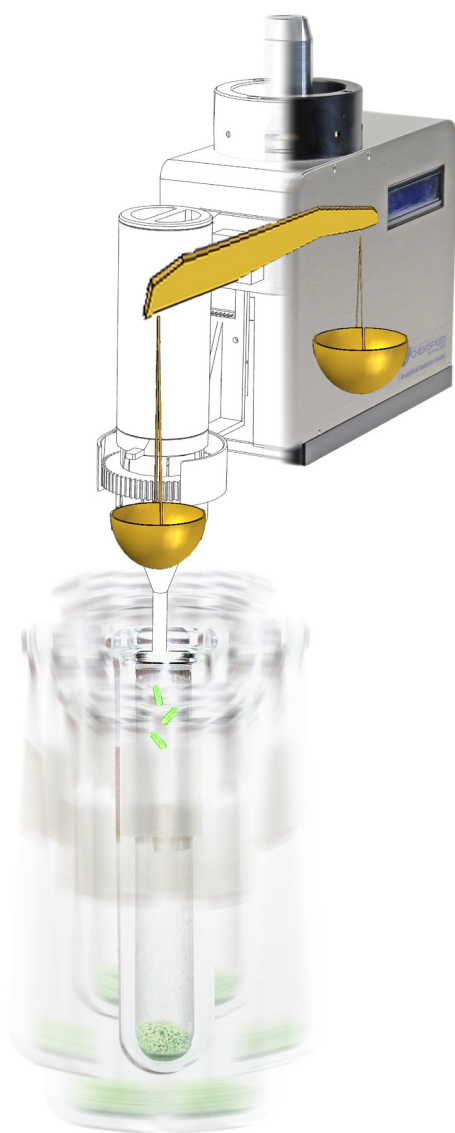


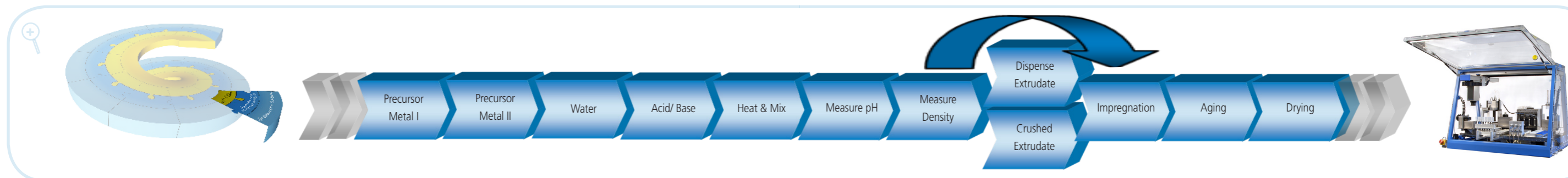
ISYNTH CATIMPREG

from concepts to success

- Heterogeneous catalyst preparation by incipient wetness & excessive liquid impregnation of extrudates & powders -



from concepts to success



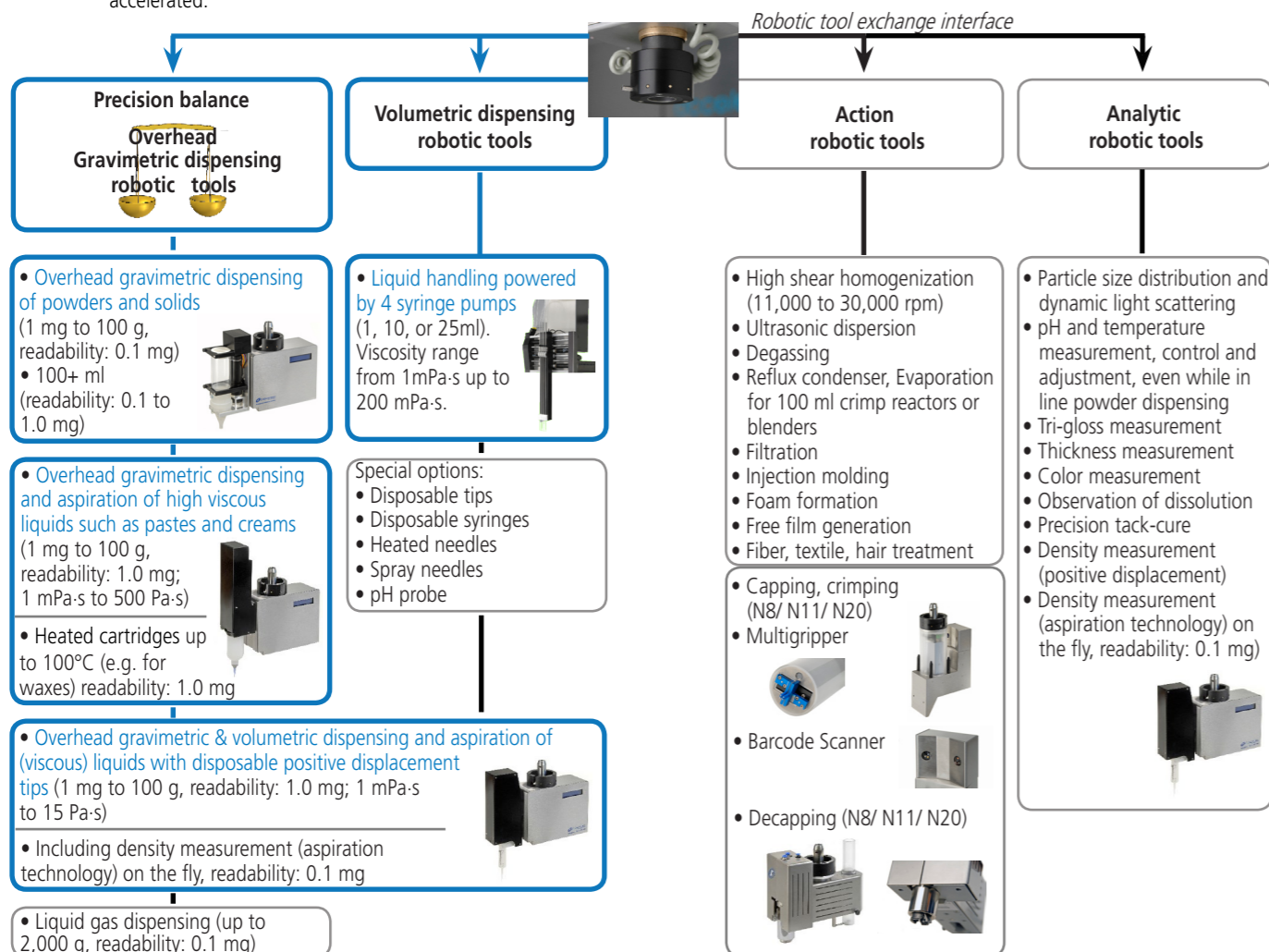
ISYNTH CATIMPREG, a modular robotic platform enabling automated heterogeneous catalyst preparation by impregnation

ISYNTH CATIMPREG, is Chemspeed's software-driven robotic platform for challenging impregnation workflows in the Catalyst industry.

- ISYNTH CATIMPREG brings paradigm shifting modularity enabling an easy to use workflow task driven software
- Exchangeable robotic tools
- Unrivaled gravimetric dispensing technology for metal salts, extrudates and powders **directly immersing into the target** including an **anti-drip system** which avoids cross contamination
- High quality, flexible and modular preparation and impregnation (disposable) reactors
- A large choice of hardware and software tools allow fine tuned adaptation to your workflow

Unrivaled gravimetric dispensing technology & exchangeable robotic tools

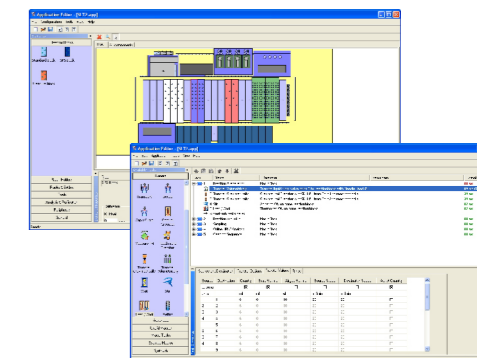
More than 30 features can be delivered with Chemspeed's unique robotic tool exchange technology, including unrivaled overhead gravimetric dispensing tools. Dispensing solids is as convenient and accurate as dispensing liquids. The product development R&D cycle is accelerated.



Powered by AutoSuite ISYNTH CATIMPREG user interface

AutoSuite ISYNTH CATIMPREG is an intuitive user interface software which allows easy workflow orientated programming. Many features such as the gravimetric dispensing steps are automatically calibrated, eliminating tedious optimisation steps.

- The **AutoTeaching** tool allows to dispense solids, liquids, viscous liquids, and waxes without manual optimizing steps, and with high precision, accuracy and speed
- Easy programming: drag-and-drop workflow steps
- Barcode tracking
- Smooth integration into Chemspeed's workflow management software (see reverse)
- AutoSuite Application Programming Interface (API) for 3rd party software and hardware integration (standard integration of Spotfire, JMP, VirtualLab etc. as well as many instruments listed on the reverse page)



High-performance preparation and impregnation (disposable) reactors and modular platform deck

Chemspeed is able to dispense virtually any type of compound into any type of container (vial, microtiter plates, bottles, reactors, formulation vessels etc.)

(Please refer to other Workflow Brochures)

Chemspeed's ISYNTH CATIMPREG deck modularity allows the user to perform catalyst impregnation workflows in a fully automated fashion:

- Preparation of impregnation solution with heating under reflux, pH measurement & adjustment as well as density measurement & adjustment
- Gravimetric dispensing of powders and extrudates
- Incipient wetness & excessive liquid impregnation while shaking and heating in high quality (disposable) reactors
- High-quality quartz reactors for direct use in calcination
- Integrated washing, filtration & drying
- Integrated pH & density measurement/ adjustment
- Variety of reactors with heating, reflux, vacuum, filtration
- Disposable reactors
- Efficient mixing by shaking while preserving the extrudates



Overhead gravimetric dispensing of solids directly into parallel synthesis reactor array



Example of a tray configuration with reactors for impregnation solutions, reactors for impregnations, liquid handling unit, gravimetric powder and extrudate dispensing unit, a variety of racks, and much more...





Accessories

All tools and accessories of Chemspeed's Swing, Synthesizer SLT II, Swave, AutoPlant, Formax, Applicator and Investigator are fully compatible with the **ISYNTH CATIMPREG** robotic platform and vice versa (see the high output product development spiral below). Please refer to Chemspeed's other workflow brochures for modularity examples.

- Drying/desiccation, calcination, compaction, crushing, sieving module
- Analysis module (BET, pore size distribution, Raman, ...)
- Cleaning module
- Tailor-made customer care package



High output product development spiral

Chemspeed's AutoSuite workflow management software integrates with:

1. All of Chemspeed's robotic platforms for

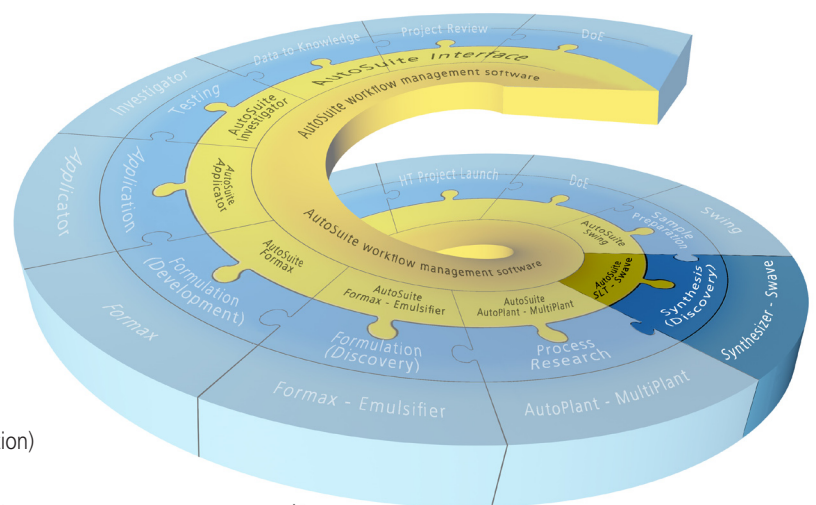
- Sample preparation workflows
- Parallel array synthesis workflows
- Parallel process research workflows
- High output formulation workflows
- High output application workflows
- High output testing workflows

2. Third party instruments

Chemspeed integrates a vast number of 3rd party components (e.g. in robotic tools). Please refer to Chemspeed's Workflow Portfolio brochure and/ or contact your Chemspeed's representative.

3. Third party software such as

- SpotFire (premium data visualization and selection)
- JMP (design of experiments - DoE)
- VirtualLab (lab journal, workflow management, instrument control)
- and many other laboratory software through industry standard languages (SQL, .net, C#, etc)



Hardware - Software - Logistics
Chemspeed Technologies offers all.

