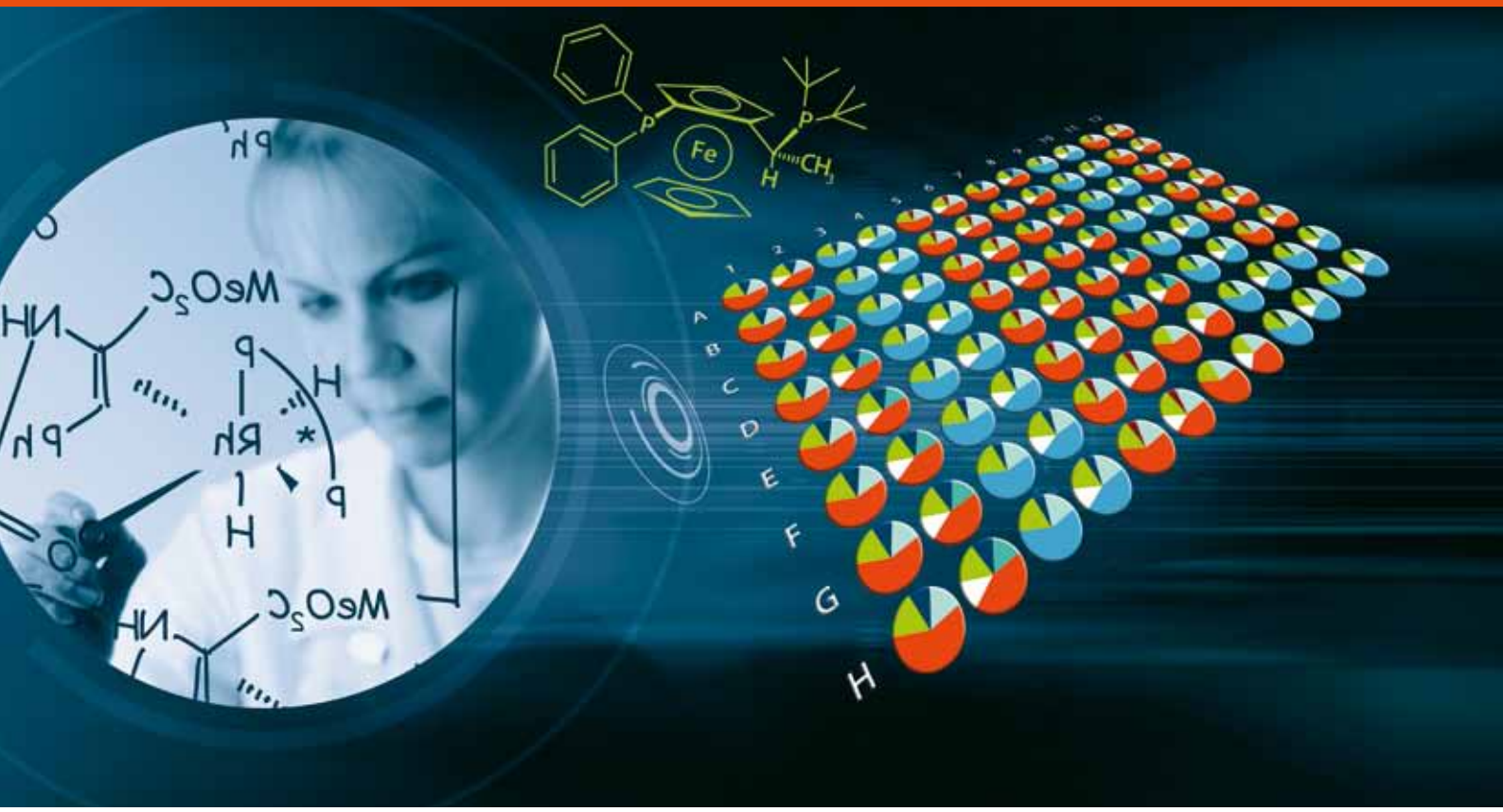
solvias

Catalysis Solutions



Making the Most of Your Chiral Molecules

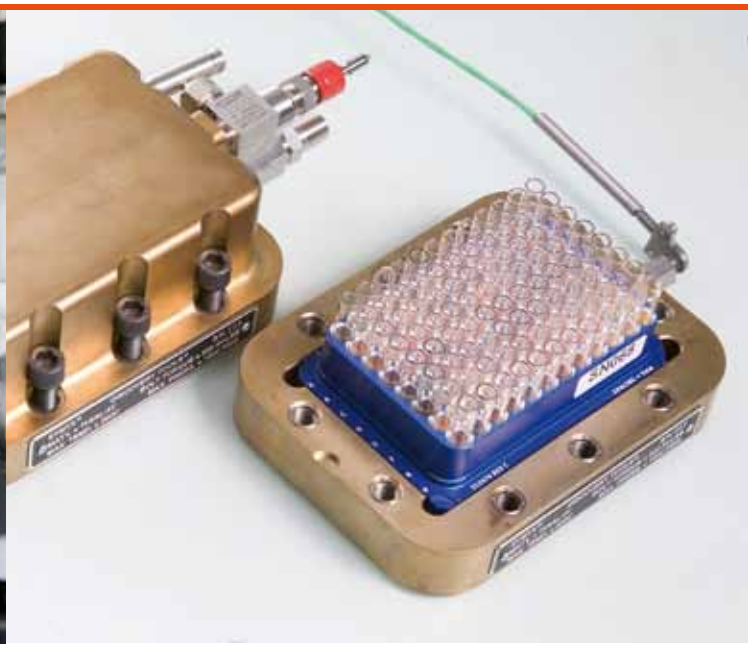
Amazing where you can go

Process Development by Solvias....

From screening to process implementation: fast state-of-the-art answers

Process development, design and optimization of catalysis leads are a Solvias specialty. The development process often works in tandem with our screening efforts. Once we find a screening hit (or once you supply us with your hit), our experts will set out to develop that lead for implementation in your process. Experience counts in this area. This makes it possible to apply the most rational and direct approach in the development of your catalytic process, from mg screening and kg scale-up, to tech transfer into production tanks.

Our Services



High Throughput Screening for

- Asymmetric homogeneous catalysis
- Biocatalysis
- Racemic resolution
- CX-Coupling
- Heterogeneous hydrogenation

Process Development and Production

- Catalysts and ligands for commercial supply by Solvias
- Optimization (semi-automated parallel autoclaves)
- Fine tuning, quality risk and risk analysis
  (twenty-four 50 ml reactors permit very accurate fine tuning)
- Scale-up and proof of concept
  (large selection of autoclaves, 100 ml-50l)
- Kilo-scale production (high pressure reactors, 5l, 16l and 50l)

Accelerating Chemical (Process) Development with HTS Technology

Within the chemical development group, and as a critical component of process research, Solvias relies on the highly efficient High Throughput Screening platform. High Throughput Screening (HTS), combined with rational design of experiments (DOE), is a powerful tool for rapidly identifying reaction conditions that consist of multiple reaction parameters to be screened and optimized. With this strategy, a large experimental space and serendipity can be covered and exploited. Until now, these screening tools have been used most successfully with asymmetric homogeneous hydrogenation, CX-coupling, classical racemic resolution, carbonylation, hydroformylation, diastereomeric crystallization, biocatalysis development, kinetic resolution using transition metal catalysis, standard organic transformation (such as glycosidation) as well as customized screening capabilities in the rapidly growing area of organocatalysis.

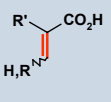
This fast and cost effective screening solution can enhance the route selection process for any chiral and non chiral intermediate or API. We assist you in selecting the most economic and viable route taking your development stage into consideration. Complemented by scale-up and manufacturing capabilities for APIs up to clinical phase II, Solvias supports its customers during the entire chemical and analytical development process.

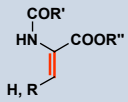
Pre-designed Plates for Asymmetric Hydrogenation

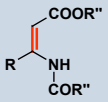
Solvias offers a flexible HTS screening arrangement that allows you to choose a 96-well standardized plate for your substrate and, if desired, modify the plate with your own choices. We view this research service as an extension to your laboratory and wish to fit into your drug development process with maximum flexibility, quick results, and competitive pricing.

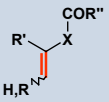
Choice of six pre-designed HTS plates for the following general substrate types:

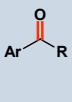
1 2 3 4 5 6

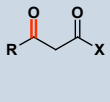


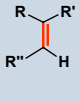












Unprecedented

1. Acrylic acid. Classic substrate.
2. Enamide. Classic substrates including alpha- and beta-dehydroamino acids.
3. Simple ketone. Typically methyl aryl ketones, alkyl aryl ketones, and ketones that lack a 2nd transition metal coordinating functional group.
4. Classic α- or ß-keto ester substrates or close relative.
5. Simple olefin. Tri- or tetra-substituted.
6. Unprecedented. Substrates that have little or no literature precedent.

Prepare for lightning fast results

Order	Set up HTS Analytics	Perform HTS Plate	HTS Analysis and Reporting
Easy to get started	Typically adapted from an HPLC method. Analysis time < 10 minutes	96 reactions performed to customer specifications	HPLC analysis and result reporting

1 Week

Standardized 96-well Plate Design

- Choose between six ready-to-use standard plates designed for your substrate

Maximal Flexibility

- Substitute your own ligand choices
- 150 ligands to choose from covering Solvias' technical scale as well as patent free and third-party ligands

Speed

- Lightning fast results

Chiral Ligands

Discover our large ligand portfolio

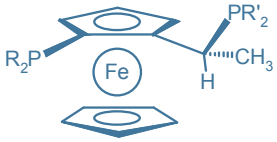
Solvias' extensive ligand library

Solvias' portfolio of industrially proven ligands and catalysts is readily available for your process. We currently have > 700 chiral (non) proprietary technical scale and research ligands on stock for screening and process development (65% Solvias catalysts, 25 % foreign, 10 % patent free). Most prominent and successful ligand families such as Josiphos, Walphos, Mandyphos, Taniaphos, Ubaphox are readily available from gram to kg-quantities under an IP-included kg-price. For commercial processes, all Solvias ligands are licensed without any general restrictions and without any further obligation such as custom production agreements with Solvias. The ligands are sold with attractive IP models ranging from an 'all-inclusive' kg price (IP included) to a regular royalty based licensing model.

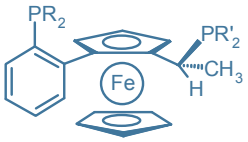
A list of readily available chiral ligands is available at www.solvias.com/ligands.

Broad Ligand and Catalyst Selection

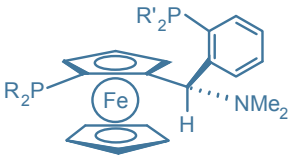
Solvias Chiral Ligands



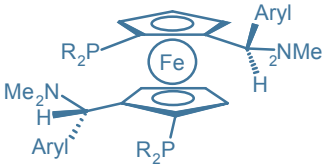
Josiphos



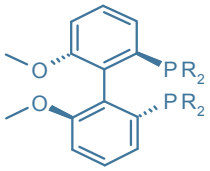
Walphos



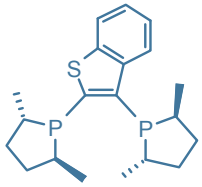
Taniaphos
(Umicore)



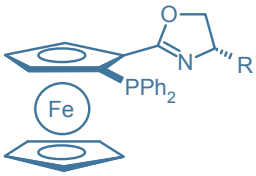
Mandyphos
(Umicore)



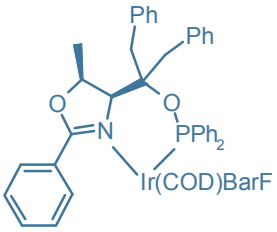
MeO-Biphep



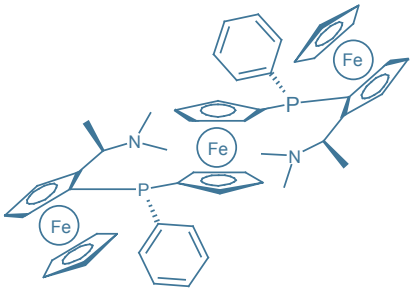
Butiphane



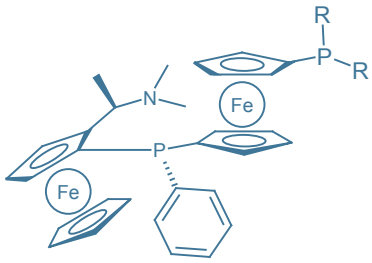
POx



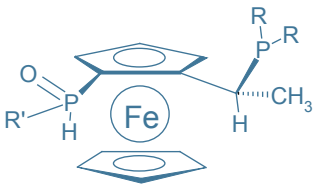
Ubaphox



Trifer

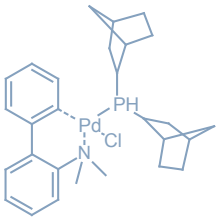


Chenphos

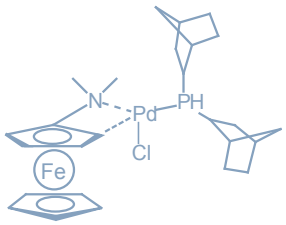


JoSPOphos

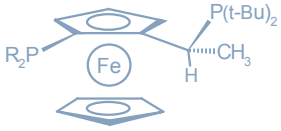
Solvias CX Coupling Ligands



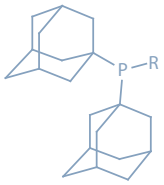
SK-CC01



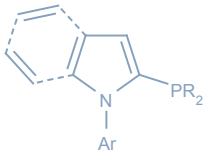
SK-CC02



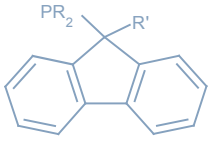
Josiphos



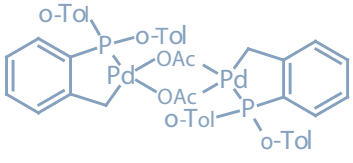
cataCXium A



cataCXium P



cataCXium F



cataCXium F

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