



## **MIP [ 4 ] Process™**

Selective  
Separation Phases  
for Process Scale

# Decrease the Number of Purification Cycles and Increase Productivity

*Through innovative patented technology based on molecularly imprinted polymers (MIPs) you will experience improved clean up in your processes. With a high probability of success, unwanted contaminants or high value desirables can be efficiently extracted from your processes, resulting in more efficient production and cleaner products.*



## A Winning Technology

Molecularly imprinted polymers (MIPs) are a class of highly cross-linked polymer-based molecular recognition elements engineered to bind one target compound or a class of structurally related target compounds with

high selectivity. Selectivity is introduced during MIP synthesis in which a template molecule, designed to mimic the analyte, guides the formation of specific cavities or imprints that are sterically and chemically complementary to the target analyte(s).

MIP Technologies specializes in developing MIP sorbents for analytical applications, such as solid-phase extraction (SPE) or LC and for selective extraction or separation of small molecules at the preparative or process scale.

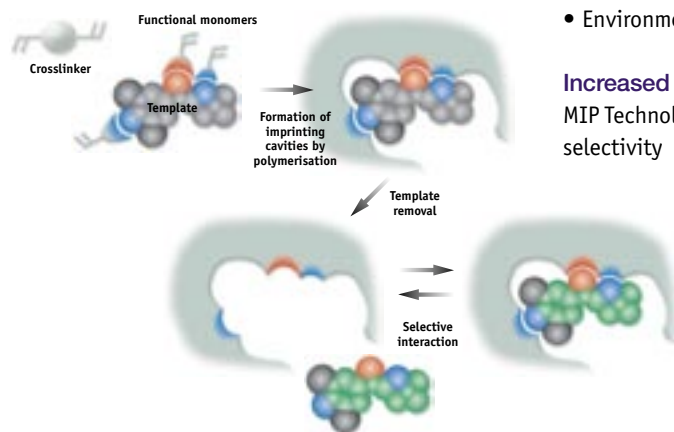
## Wide Range of Applications

MIP Technologies' process materials can be engineered for an essentially unlimited variety of small molecules, including chiral molecules or where feasible, small molecule modifications to proteins/peptides (e.g. phosphorylation and glycosylation). Furthermore, selectivity towards one specific molecule or a class of related molecules can be designed into the MIP phases. Examples of application areas:

- Pharmaceuticals
- Foods
- Chemicals
- Consumer products
- Environmental clean-up

## Increased Productivity at Reduced Cost

MIP Technologies' process materials introduce selectivity into the separation/extraction



*The basic principle of molecular imprinting*



process. It is possible to selectively extract unwanted chemical compounds from complex mixtures, leading to a significantly increased productivity by decreasing the number of purification cycles which in turn leads to a more cost efficient process.

MIP [4] Process™ is particularly advantageous in the intermediate and/or polishing steps of the purification cycle, where resolution is an important factor.

#### Stable Material and a Robust Format

MIP polymers are highly cross-linked and therefore typically exhibit high stabilities. MIPs are known to withstand organic solvents, extreme pH and elevated temperatures without loss of selectivity. Furthermore they are compatible with most process matrices such as pharmaceuticals, foods, chemicals etc. In addition the polymer constituents can be engineered to meet regulatory requirements.

#### From Development to Large Scale Production

MIP Technologies develops and produces material at benchtop and pilot scale in-house and up to the ton scale with its partners.

Our separation and extraction materials for process scale applications can be developed to operate in your existing separation/extraction equipment (eg HPLC, SMB, LPLC or non-chromatographic batch type).

In the development phase we are working closely with you to engineer a material that will improve your demanding separations or extractions. In the earliest phase we start with a screening protocol where we vary the polymerisation parameters in order to rapidly and efficiently find a selective MIP that meets your demands. We then provide you with some grams of material for your evaluation and approval, before proceeding to the pilot scale phase.

#### Pilot Scale

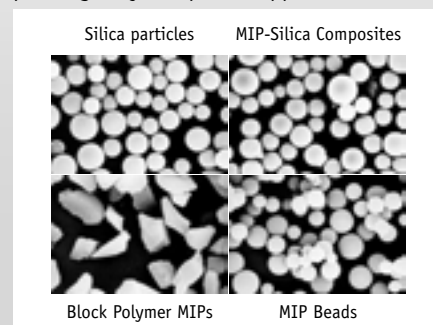
MIP Technologies has a pilot scale facility for production of material up to the kg level. To ensure high reproducibility of our products we are working according to ISO 9001:2000.

#### Manufacturing

For larger quantities, from multiple kilos up to the ton scale MIP Technologies has relationships with ISO certified polymer producers to serve your needs.

#### Flexible Formats

MIPs can be supplied in various formats depending on your specific application.

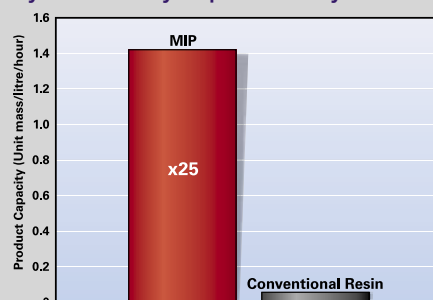


Scanning electron microscopy (SEM) pictures of MIP-silica composites, block polymer MIPs and MIP beads. As a comparison silica particles are shown in the upper left corner.

#### Quality Control

MIP Technologies works under stringent quality conditions. The company's well equipped QC laboratories ensure high product quality and low batch to batch variations. Both physical and chemical characteristics of the MIP sorbents are routinely monitored.

#### Increased Productivity by Molecularly Imprinted Polymers



Increased productivity by molecularly imprinted polymers compared to conventional resins. The diagram shows a 25 times higher product capacity in unit mass/liter per hour using a MIP compared with a conventional resin.

#### MIP [4] Process™ Benefits:

- Increased productivity at reduced cost
- Large variety of target molecules
- Compatible with most process matrices
- Stable material and a robust format
- Particularly advantageous in the intermediate and/or polishing steps



## Unique Patents and Cutting Edge Research

MIP Technologies AB is an innovative biotechnology company working at the boundary between chemistry and material science. MIP Technologies is the pioneer in the commercial development of molecularly imprinted polymers (MIPs), holds important patents and maintains cutting edge research activities in the area. The company's mission is to provide innovative products based on molecular imprinting that serve industry's needs in analytical, preparative and process scale selective separations.

### Customer Support

MIP Technologies offers close customer support. Please feel free to contact our highly qualified staff about your demanding extractions or separations.

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*a clean catch*