

# TOLL MANUFACTURING / PILOT PLANTS



**INNOVATION**

**ENGINEERING**

**OPTIMIZATION**

## Job order and sample quantities production

### **Our service ...**

Our pilot plant areas include several units for the production, treatment and formulation of your products, ranging from just a few kilograms for smaller and sample quantities up to several tons for job order production.

We offer chemical, mechanical and thermal process engineering services. We develop individual solutions for your products regardless whether a single process step or a combination of unit operations is needed. Send your product as a raw material and we supply the final product according to your requirements and specifications. We operate our pilot plants for you around-the-clock.

Some services we offer are:

- reaction engineering
- crystallization and precipitation
- mixing and dispersing technology
- distillation, rectification
- extraction, membrane technology
- chromatography
- solid-liquid separation
- drying technology, granulation
- crushing, agglomeration, coatings

In addition to job order production in the narrower sense, i. e. production according to your specifications, our experts can prepare a variety of proposals for an optimal production process or develop a specific formulation that meets your needs.

### **... is your gain.**

Your products benefit from our many years of experience within the Bayer Group – we can apply our know-how to the entire range of your chemical and pharmaceutical products. For example: For market introduction, sampling or application technology purposes you need a larger quantity of your product. With our plants we are able to deliver your goods in the best time and of course with the specified quality. This ensures you a fast market entry and the highest degree of customer satisfaction. Benefit from a job order production in our pilot plants to avoid costs and capital investment risks during the market introduction phase. Especially for the production of demanding products we offer process development and optimization, applying the expertise and experience of our experts as well as complex design and simulation software. The integration into the Leverkusen Chemical Park enables us to offer state-of-the-art infrastructure. We consider logistics, product handling, waste management and environmental protection as inherent elements of a project. And our employees are experienced in the handling of all relevant industrial materials.



Pilot plant building B 310 (fluids)



**Bayer Technology Services**  
Powering Your Performance

## Our approach

Our pilot plants offer a variety of apparatuses from the field of unit operations.

Our range of equipment includes:

- approximately 4,000 m<sup>2</sup> floor space
- mobile and stationary units
- fully continuous shift system
- throughputs from 1 kg/h up to several 100 kg/h
- barrel and chemicals depots
- tank volumes up to 20 m<sup>3</sup>
- class E GMP-rooms

For the production of liquid products we provide specific reaction engineering know-how and years of experience with dispersal and homogenization processes. Batch and continuous distillation and extraction columns made of high quality materials and with a large number of stages are available for liquid recovery. Our membrane and chromatography processes are at your disposal if your products must meet particularly demanding quality requirements.

Starting with a suspension containing solids every process step from solid separation through drying to formulation is recreated. In addition to various filters and centrifuges we can make use of a variety of contact and convective dryers for your product. Additionally a new line for solids-formulation is available in which different process steps from crushing to agglomeration with or without classification can be included. For the handling of dangerous substances or products with special requirements, such as materials which are explosive dust hazards or which are sensitive to humidity, most of our units can be inertialized.

Our pilot plant services are supplemented by the cooperation with reaction kinetics and substance data groups. As an additional service we offer safety data determination as well as analytical support during your job order or sample quantities production.

## References

As a result of our previous functions within the Bayer Group the primary focus of our expertise lies in the fields of chemistry, crop protection, food ingredients and pharmaceutical precursors. From this foundation of knowledge we look forward to new products and applications.

In recent years we tackled a wide variety of challenges and resolved them to the satisfaction of our customers. Here is a selection of our projects:

- distillative separation of pharmaceutical precursors, crop protection active substances, dyes, photo and fine chemical products, catalytic solutions, polymers and polymer precursors
- high pressure dispersion of polymers and catalysts
- mixing and grinding of a rubber additive
- fluorine chemical production
- fluidized bed spray granulation for the production of flavor additives and chemicals for electronic devices
- latex spray drying
- filtration and drying of catalysts
- adsorptive separation of residues from a natural product
- formulation of fine chemicals and aroma chemicals
- coating of a crop protection active substance



Pilot plant building E 41 (solids)