



professionals committed to success

expertise in challenging chemistries

cGMP according to your needs



our expertise, your manufacturing solution

saltigo
customized competence



Saltigo - Go for first-class service

Saltigo is a company dedicated to custom synthesis and manufacturing services. We are experienced, reliable, and competitive. Our position is built on decades of experience and the efforts of highly skilled and motivated employees.

The name Saltigo is based on the word for "jump" in many Romance languages. It also refers to the artistic somersault and represents a dynamic and successful approach to the future. Created from LANXESS's Fine Chemicals business unit, which achieved sales of close to US \$500 million in 2005, Saltigo will be among the top global players in custom services right from the beginning. Saltigo is a wholly owned subsidiary of the globally active chemicals manufacturer LANXESS.

Providing state-of-the-art services to the pharmaceutical, agrochemical and specialty chemicals industries is the key objective for Saltigo and its approximately 1,400 employees. While our resources are centered in Germany at our integrated site in Leverkusen and our facility in Dormagen, Saltigo locates experts throughout the world. Our global organization is committed to supporting your local needs throughout the entire product life cycle, always according to national and international regulations and to the principles of sustainable development. Saltigo wants to qualify as your long-term-oriented, dedicated service provider on a global basis.

saltigo
customized competence



Serving you is our business – confidentially, reliably, efficiently



Securing strict confidentiality and professionally managing intellectual property are important actions Saltigo takes in order to build and maintain a relationship of trust with our customers. Our manufacturing services range from kilogram amounts for clinical trials to pilot plant quantities to large-scale production of up to hundreds of tons, covering the entire life cycle of your product. We can also leverage our

extensive experience for you by providing assistance with route selection, process development and process optimization. Saltigo is committed to providing quality in every respect, ranging from compound purity to cGMP standards. Our experts provide timely and efficient manufacture of intermediates and actives in line with our company's motto "customized competence".

Meeting your needs with state-of-the-art assets



Well-educated, highly skilled experts from Saltigo take responsibility for safety, quality, and reliability in custom manufacturing. It is our main goal to be your first-line supplier. The majority of our resources are centered at our fully integrated site in Leverkusen, Germany. Our dedicated, specialized, and multipurpose plants are well maintained and can be flexibly assigned. At our FDA-approved site we employ cGMP standards according to your needs. Whether you need a kilogram or hundreds of tons, we are equipped with a comprehensive set of facilities, comprising a total of 2,500 m³ of agitated reactor volume:

- Kilo labs (typically 5–25 liter glass vessels)
 - Pilot plants (25–1,600 liter stainless steel, glass lined and alloy vessels)
 - Large-volume production plants (2.5–25 m³, approx. 600-6,250 gallon vessels).
- As a globally operating custom manufacturer, we provide industry-leading process excellence. Worldwide HSEQ management ensures that Saltigo emphasizes safety, minimizes waste and emissions into the environment, maximizes the ecological compatibility of its products, and meets international standards of quality and product stewardship.



Providing a broad and growing technology base



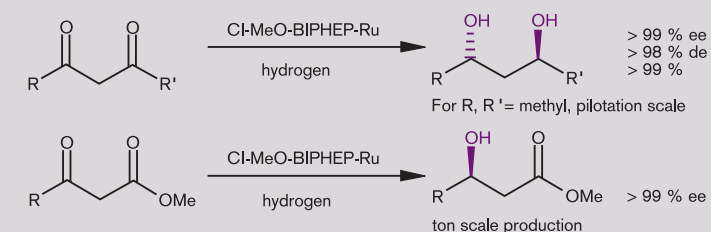
Saltigo is continuously extending its spectrum of synthetic methods, addressing the needs of future-oriented, technology-driven customers. We own a large and growing amount of intellectual property, including hundreds of patents and tens of thousands of proprietary procedures and processes. We apply our investment in innovation to your projects – by employing new synthetic routes, by improving syntheses and processes, and by

developing and using sophisticated procedures. Through our history with Bayer, we have inherited substantial knowledge in chemistry, process development, and engineering plus an intimate understanding of the demands and needs of the pharmaceutical industry. Our proven track record makes Saltigo your ideal partner.

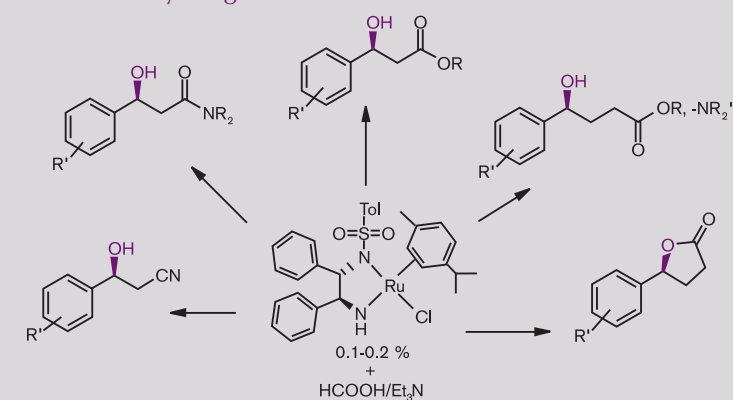
Selected key competencies in synthesis

- Asymmetric synthesis and chiral compounds
- Catalyzed coupling reactions
- Dealing with challenging chemistries
- Fluorine chemistry

Asymmetric hydrogenation



Asymmetric transfer hydrogenation



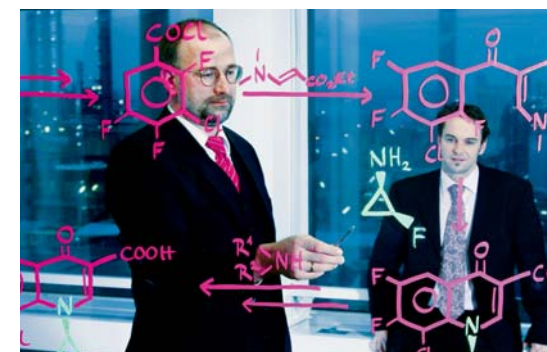
Asymmetric synthesis and chiral compounds

Enantiomerically pure APIs play an increasingly important role in the pharmaceutical industry. They account for about 50 percent of all new drug candidates.*

Besides classical resolution and chiral pool synthesis, Saltigo provides a variety of strategies to obtain pure enantiomers:

- Organometallic reactions, such as hydrogenation and transfer hydrogenation using chiral phosphines or amines as ligands for

- transition metals,
 - Organocatalysis, e.g. the use of polyoleucine as chirality template in Juliá-Colonná epoxidation
 - Enzymatic reactions employing esterases, lipases, isomerases, etc.
 - Simulated moving bed (SMB) chromatography for efficient, large-scale separation of racemic mixtures into enantiomers.
- * ACS data



Catalyzed coupling reactions

Carbon-carbon and carbon-heteroatom coupling reactions catalyzed by transition metal compounds are highly flexible and efficient tools for the preparation of substituted olefins and aromatics. Saltigo maintains cooperative external research relationships with academic, institutional and industrial partners all over the world to implement recent scientific progress in catalytic synthetic chemistry and technology on an industrial scale.

For example, we jointly develop coupling reactions originally discovered by Buchwald and co-workers at MIT. We have successfully adapted this chemistry to an industrial scale. In doing so, we have developed a large-scale external research relationships with academic, institutional and industrial partners all over the world to implement recent scientific progress in catalytic synthetic chemistry and technology on an industrial scale.



Dealing with challenging chemistries

Many organic compounds exhibit high combustion enthalpies or give rise to strongly exothermic reactions. Do you have all the expertise and equipment to manage the risks associated with potentially explosive substances such as peroxides or polynitro aromatics? If not, let Saltigo take care of your challenging chemistry.

Our high safety standards apply to the handling of highly challenging chemistries. The Saltigo culture of always considering safety

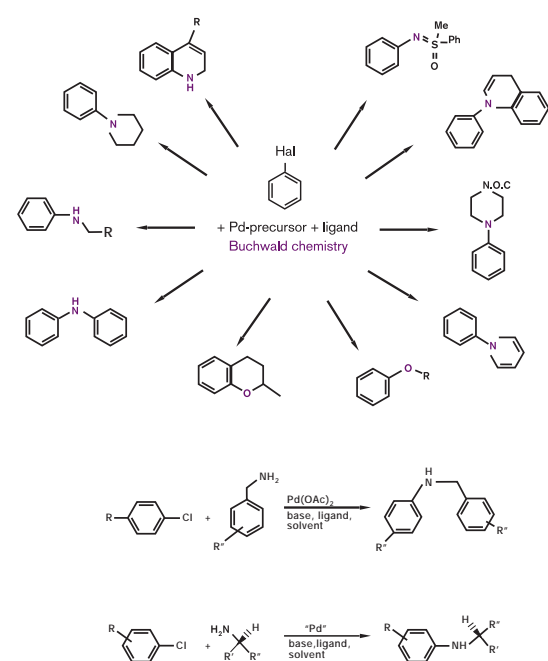
aspects at every stage of the development process makes us ideally suited for implementing production solutions involving challenging chemistries. We also have immediate access to state-of-the-art analytical facilities to perform DSC and other calorimetric methods. With these high standards and our extensive support systems, we are in an excellent position to safely handle corrosive or highly toxic substances such as hydrazine, chlorine, phosgene, or cyanides, in addition to energetic compounds.



Fluorine chemistry

The introduction of fluorine into organic substrates is a key competency at Saltigo even on a large scale. We rely on more than four decades of experience in employing challenging reagents such as anhydrous hydrogen fluoride, and have developed a set of proprietary HALEX catalysts. The latter allow us to perform reactions with superior selectivity and excellent yield. We also use highly efficient, proprietary agents such as Fluorinox® for the replacement of hydroxyl or carbonyl groups by fluorine. Isolation of the desired product from the non-toxic, inert and water-soluble amide by-product is especially simple and fast.

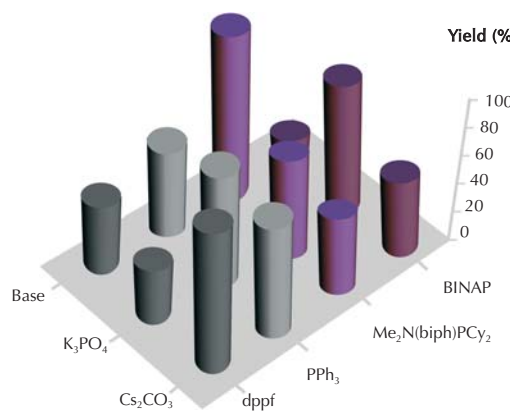
Application



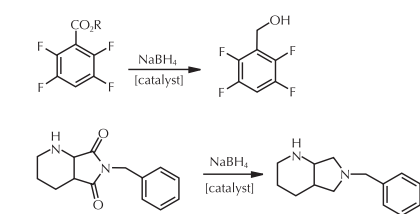
Technology

Buchwald-Reaction [CN-coupling]

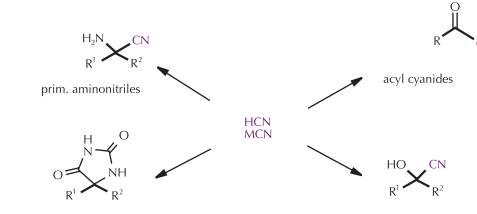
- Saltigo has a license (S. Buchwald, MIT) for the application of palladium-catalyzed coupling chemistry
- Run on 2,000 liter scale
- For the production of amines, ethers, others
- High selectivity



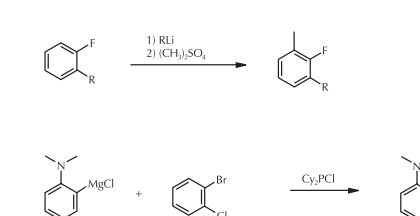
Diborane



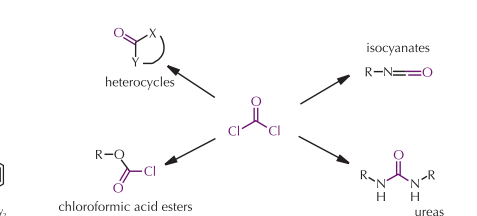
MCN/HCN



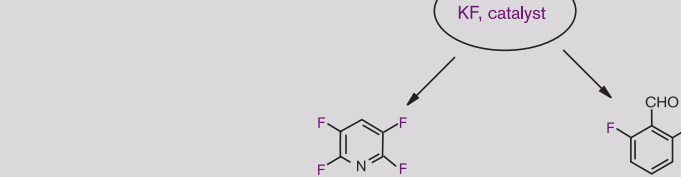
Organometallics



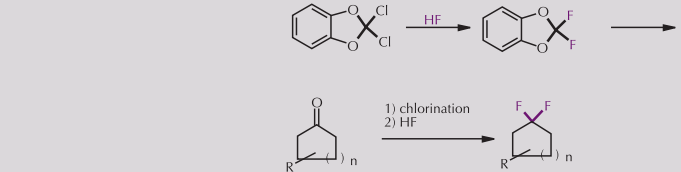
Phosgene



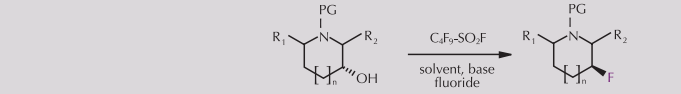
HALEX reaction



Fluorination with hydrogen fluoride



Fluorination of chiral compounds





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