



TOSOH THE CUSTOMER MAGAZINE



OUR ANNIVERSARY
FILM: 25 YEARS
TOSOH IN EUROPE

NO. #02
2014

CELEBRATION / CHANGES / CONFERENCE

TOSOH

THE FIRST

WORLD

WE ARE

TOSOH BIOSCIENCE

02 EDITORIAL DEAR READER

Dear reader, welcome to the ‚Anniversary Issue‘ of the Tosoh Bioscience customer magazine. This year we are celebrating the 25th anniversary of the Tosoh Bioscience office in Germany. We would like to use this opportunity to devote a whole issue of the customer magazine to this event and present some insights into Tosoh Bioscience GmbH and into the production site of our products of the Nanyo Complex in Japan.

We hope that you enjoy this review of Tosoh Bioscience GmbH's first 25 years.

ENJOY READING AND STAY INFORMED.

REGINA ROEMLING | MARKETING MANAGER
TOSOH BIOSCIENCE GMBH

It's new! It's stunning! It's purificational!!

"SUPER T" – THE MOVIE



The exciting story about antibodies, purification, the new TOYOPEARL Protein A HC and the Super T. Watch it here >>



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➤ TOSOH BIOSCIENCE GMBH
 ➤ IM LEUSCHNERPARK 4 | 64347 GRIESHEIM | T: +49 [0] 6155 7043700 | F: +49 [0] 6155 8357900 | INFO.TBG@TOSOH.COM

03 GREETINGS FROM TOSOH CORPORATION

It is with a great pleasure that I address in this special issue of the Tosoh Customer Magazine to celebrate the 25th anniversary of Tosoh Bioscience GmbH.

First of all, I would like to express my sincere thanks to our customers for the trust and invaluable feedback to us on our products and service, and congratulate my colleagues of Tosoh Bioscience GmbH on the 25th anniversary of the company.

Tosoh Bioscience GmbH was originally established in 1989 as a subsidiary of TosoHaas, which was founded in 1987 as a partnership between Tosoh Corporation and Rohm and Haas Company (now, Dow Chemical Company) to market HPLC columns and separation media such as TSKgel columns and TOYOPEARL separation media for life science, pharmaceutical and chemical industries in Europe.



Today, Tosoh Bioscience GmbH, as a wholly-owned Tosoh group company after the dissolution of TosoHaas in 2000, serves customers in Europe with a much wider range of liquid chromatography related products for use in analyzing and manufacturing products that support human life. One of our main focuses is to provide innovative products for the biopharmaceutical industry.

Looking back on the past years, the evolution of industries and research activities based on or relating to biotechnology has been astonishing. We at Tosoh Corporation are proud that Tosoh Bioscience GmbH has been witnessing it in serving and working with customers in Europe as a committed solution provider.

I look forward to seeing Tosoh Bioscience GmbH continue to play a valuable role in the changing landscape of technology and market in the coming years.

Tosoh Corporation will continue to strive together with Tosoh Bioscience GmbH in order to further provide our customers in various areas with newer solutions and continued dedicated support for customer as well as market requirements.

➤ MASAYUKI YAMADA
SENIOR GENERAL MANAGER - BIOSCIENCE DIVISION - TOSOH CORPORATION



04 25 YEARS IN EUROPE 79 YEARS IN JAPAN

NANYO COMPLEX THE HOME OF TSKgel & TOYOPEARL

TOSOH BIOSCIENCE GMBH IS A FULLY OWNED SUBSIDIARY OF TOSOH CORPORATION, THE MANUFACTURER OF ALL OUR TSKgel, TOYOPEARL AND EcoSEC PRODUCTS. MANY OF OUR CUSTOMERS KNOW OUR BRANDS BETTER THAN OUR COMPANY WHICH REFLECTS THE HIGH REPUTATION AND QUALITY OF THE PRODUCTS. WE DECIDED TO TAKE THE OPPORTUNITY OF OUR 25TH ANNIVERSARY IN EUROPE TO PROVIDE SOME INSIGHTS INTO TOSOH CORPORATION'S JAPAN-BASED NANYO COMPLEX AND THE LONG AND PROUD HISTORY OF OUR PARENT COMPANY.

Tosoh Corporation is a Japanese chemical company established in 1935. It comprises more than 130 companies worldwide and a multiethnic workforce in excess of 11,000 people. During the company's 2014 fiscal year - from April 1, 2013, to March 31, 2014 - the Tosoh Group generated net sales of US\$ 7.5 billion. The company makes and sells an astounding 1,500 products. And that doesn't include the various grades of those products or the over 10,000 additional parts that go into Tosoh's bioscience diagnostic systems.

In short, Tosoh supplies a multitude of industries with the finished products and with the raw materials to manufacture the products that have revolutionized and made possible modern civilization. Look around you. It is almost impossible to find a manufactured item that

does not include something from Tosoh. Paper cups, computers, hybrid cars, homes, solar panels, office buildings, highways, communication networks, drinking water, clothes, shoes, pharmaceuticals, printer inks, cell phones, watches. Even, for some people, teeth — made from Tosoh's superceramic, zirconia.

Central to this productivity and product omnipresence is Tosoh Corporation's main manufacturing hub, the Nanyo Complex. It is located in the Yamaguchi Prefecture on Honchu Island in western Japan. This sprawling complex is nothing less than a self-contained city with its own power generation plants, port and shipping, and, of course, manufacturing facilities.



The Nanyo Complex occupies some three million square meters of land in Yamaguchi, Japan, roughly the equivalent of more than 420 soccer fields. More significantly, it is home to the largest fully integrated manufacturing operations for their class of commodities in Asia, or what we call the vinyl isocyanate chain. This chain supplies much of the raw materials, utilities, and infrastructure for the Tosoh Group's commodity and specialty products. Input and output along the chain is managed to optimize cost competitiveness and quality. The result is a dynamically balanced commodities and specialties strategy that positions Tosoh for stable profitability and growth.

The Nanyo Complex's integrated manufacturing operations make Tosoh Japan's top producer of a variety of commodity chemicals, especially caustic soda and vinyl chloride monomer, each with a production capacity of more than a million metric tons a year. Globally, high-tech industries ranging from pharmaceuticals and health care to semiconductors, consumer electronics, and automobiles depend on Tosoh's sophisticated products and specialized offerings in high-value added bioscience, organic chemical, and advanced materials - principally supplied by the Nanyo Complex. This complex boasts the world's largest production capacity for high-purity zirconia powders and for electrolytic manganese dioxide, which it supplies to about 30% of the global dry cell battery market.

The Nanyo Complex, moreover, is a model of environmental responsibility. Like all Tosoh manufacturing sites in Japan, it has earned ISO 14001 certification for environmental management. It also shares with Tosoh's other Japanese manufacturing facilities an adherence to ISO 9000 series international standards in quality assurance for 100% of the products it manufactures.

Largely because of the Nanyo Complex's productivity, Tosoh is a world leader in high-performance liquid chromatography systems, analytical columns, and separation media. And Tosoh is constructing plants at the complex to keep pace with demand amid the rapid growth of other specialty niche markets. Tosoh decided in 2010 to double its production capacity for its liquid chromatography packing material TOYOPEARL. In 2012 the new TOYOPEARL plant started production for the global market after having passed extensive internal and external validation procedures. The capacity expansion ensures that Tosoh can comfortably achieve its immediate goal of supplying approximately 10% of the global separation media market for biomolecules.

The Separation Center, where the R&D for new product developments is performed, is located at the Nanyo Complex, too. Latest innovative products developed there are the ultra-high capacity Protein A resin TOYOPEARL AF-rProtein A HC-650F, the new generation of mixed-mode and salt-tolerant ion exchange resins, and UHPLC size exclusion columns for IgG analysis. With the power of the Tosoh R & D workforce and the Nanyo Complex at our back, we are looking forward to the next 25 years of successful business in Europe.



06 HISTORY

25 YEARS OF TOSOH BIOSCIENCE IN EUROPE

IN 1989 TOSHAAS GMBH, A JOINT VENTURE OF TOSOH CORPORATION, JAPAN AND ROHM AND HAAS, US STARTED BUSINESS IN EUROPE. THE PAST 25 YEARS SAW MANY CHANGES AND INNOVATIONS. IN 1989, BUSINESS WAS MUCH DIFFERENT THAN TODAY: EVERY EUROPEAN COUNTRY HAD ITS OWN CURRENCY, MOBILE COMMUNICATION JUST STARTED AND THE FAX WAS THE COMMON WAY OF COMMUNICATION. TODAY WE HAVE THE EURO AND COMMUNICATE THROUGH MAIL, INTERNET, AND SOCIAL MEDIA. ALONGSIDE THE SUCCESSFUL DEVELOPMENT OF THE GLOBAL BIOPHARMACEUTICAL INDUSTRY, THE BIOSEPARATION BUSINESS EXPERIENCED CONTINUOUS GROWTH.

In July 1989, Dr. Juergen Friedle, together with a small team, founded TosoHaas GmbH, Stuttgart, a joint venture of Tosoh Corporation, Japan and Rohm and Haas, US. The German company was responsible for selling and distributing Tosoh chromatography columns and resins as well as the Rohm and Haas Amberchrom™ resins across Europe, the Middle East, and India. At that time biotechnology was a young industry: the first biologic – recombinant human insulin – was launched some years before and the human genome project was still in the planning process. TSKgel HPLC columns for size exclusion chromatography such as the SW and PW series were already well established in Europe. TOYOPEARL media, introduced in 1979, was quite a new development and specifically designed for use in biopharmaceutical production.

TosoHaas GmbH experienced continuous growth and in 2001, Tosoh Corporation Japan took a controlling interest and converted the company to a wholly Tosoh subsidiary, re-named Tosoh Biosep GmbH. The same process occurred with our American sister company, Tosoh Bioscience LLC. Now all responsibility for sales of Tosoh columns and resins worldwide were under one roof. The lost Amberchrom products sales with the separation from Rohm and Haas were quickly replaced by sales of Tosoh products.

In 2002, all Tosoh affiliated separation and diagnostic related companies were unified under the name Tosoh Bioscience. All supply chain services for the Bioscience group were centralized in one place at the former diagnostic subsidiary in Tessenderlo, Belgium. Today Tessenderlo is still the distribution hub for the European Tosoh business with a dedicated team to handle all enquiries, orders and requests in an efficient and professional way.

The team based in Stuttgart is now solely focused on sales, marketing, and technical support. All resources are directed into dealing with the Tosoh products and customers. A specialized sales team looks after all customer requests and enquiries, maintaining a close relationship with TSKgel and TOYOPEARL users. The renowned Chromatography Workshops have been held for 17 years now. The courses provide a comprehensive background to bioprocess chromatographic purification. Over time more than 500 participants used this opportunity to broaden or refresh their chromatography knowledge.

In 2008 the EcoSEC semi-micro GPC system was introduced to the European market. A high temperature GPC system, the EcoSEC-HT, combined with suitable GPC columns joined the product family this year. Latest developments in TOYOPEARL process resins, such as an ultra-high capacity Protein A resin for antibody manufacturing and a mixed-mode resin, as well as innovative (U)HPLC columns, have further contributed to continuous growth.

The year 2015 will mark again an important milestone in the history of Tosoh in Europe. Tosoh Bioscience GmbH will move from its current location in Stuttgart to the Frankfurt Rhine-Main Metropolitan Region, a bustling cultural and financial center situated in the heart of Europe. Read more on page 7.

We are looking forward to the years to come and feature our silver jubilee with a new clip on our YouTube channel.

➤ [HTTPS://WWW.YOUTUBE.COM/WATCH?V=SG-KEWD3B0Y](https://www.youtube.com/watch?v=SG-KEWD3B0Y)



07 OUTLOOK

TIMES THEY ARE CHANGING - WE ARE MOVING OFFICE

AFTER 25 SUCCESSFUL YEARS IN STUTTGART, TOSOH BIOSCIENCE WILL CENTRALIZE OFFICES, PRESENTATION AND LABORATORY FACILITIES OF BOTH SUBUNITS, THE SEPARATION BUSINESS UNIT AND THE DIAGNOSTICS BUSINESS UNIT, IN THE RHINE-MAIN AREA FROM JANUARY 2015 ON.

The new site in Griesheim is close to Frankfurt Airport, the busiest airport by passenger traffic in Germany and one of the three largest airports in Europe. In addition it is very close to the highways A5 and A67, two of the central highways linking the northern and southern parts of Germany. Thus, the new location will be easy to reach for customers and cooperation partners, but also for colleagues from other Tosoh subsidiaries in Europe and overseas.

The new location is not only easily accessible it will moreover offer more space for offices and laboratories. In addition to office space and the application lab it will also host facilities for instrument demonstrations of both, separation and diagnostic systems, as well as training facilities.

The German Diagnostics team will also move their headquarters from Berlin to the new joint office in Griesheim. Tosoh Bioscience Diagnostics is a global leader in the development, manufacture, and commercialization of In Vitro Diagnostics (IVDs) for medical applications. The diagnostic solutions comprise Automated Immunoassay (AIA) systems and HPLC based diabetes and thalassemia screening systems along with state-of-the-art laboratory data management and laboratory automation solutions.

The new office is currently being renovated and adopted to our needs. We are looking forward to a smooth transfer of all activities to the new location at Leuschnerpark 4 in 64347 Griesheim in December 2014.



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ANNOUNCEMENT CALL FOR ABSTRACTS

9TH HIC/RPC BIOSEPARATION CONFERENCE 2015

THE HIC/RPC BIOSEPARATION CONFERENCE SERIES PROVIDES A UNIQUE FORUM FOR IN-DEPTH DISCUSSIONS ON DOWNSTREAM BIO-PROCESSING RELATED TO HYDROPHOBIC INTERACTION, MIXED-MODE AND REVERSED PHASE CHROMATOGRAPHY. THE 9TH HIC/RPC BIOSEPARATION CONFERENCE WILL BE HELD FROM MARCH 16-19, 2015 IN SLIEMA, MALTA. SLIEMA IS LOCATED ON A PENINSULA ACROSS THE OLD MARSAMXETT HARBOUR FROM THE CAPITAL VALLETTA, A UNESCO WORLD HERITAGE SITE.

With the call for abstracts the scientific committee headed by Professor Dr. Alois Jungbauer (University of Natural Resources and Life Science (BOKU), Vienna, Austria) encourages scientists from academia and industry to submit abstracts for the 9th HIC/RPC Conference. Submitted abstracts should be related to one of the following topics:

Fundamentals of HIC and Multimodal Chromatography

(Models to describe or predict hydrophobic or multimodal interaction; Protein structures at high salt concentrations)

Industrial Applications of HIC or Mixed-Mode

(Control of process variables; HIC/RPC/Mixed-Mode in Batch or continuous processes, Economic drivers to select HIC/RPC/Mixed-Mode)

New Developments in Packing Materials and Operating Conditions

(Novel materials; New eluent modifiers/additives; Characterization of media; Interactions base matrix – ligands)

New Antibody Formats and Antibody-Drug-Conjugates (ADCs)

(How can HIC or Mixed-Mode contribute to efficient purification of new drug formats)

HIC for Bionanoparticle, Virus and VLP Purifications

The conference will seek to maintain an optimal balance of fundamental science/engineering and important industrial advances/ applications.

The registration fee for the HIC/RPC Conference covers not only the conference itself but also the hotel accommodation, an excursion, and all meals. Early registration will end December 12. In order to encourage industry to send young professionals to the conference a new category will be offered for 'junior participants' with a discounted registration fee.

➤ TO SUBMIT ABSTRACTS FOR THE 9TH HIC/RPC BIOSEPARATION CONFERENCE PLEASE VISIT THE CONFERENCE WEBSITE
WWW.HIC-RPC.ORG



NEWS & EVENTS | MEET TOSOH BIOSCIENCE

MEET TOSOH AT TRADESHOWS AND CONFERENCES OR JOIN ONE OF OUR RENOWNED WORKSHOPS

UPCOMING EVENTS

| | | |
|----------------|------|--|
| ➤ NOV. 05 - 07 | 2014 | ➤ ISPPP CONFERENCE 2014 WÜRZBURG [GERMANY] |
| ➤ DEC. 02 | 2014 | ➤ BIOSEPARATION FORUM CHROMATOGRAPHY DUBLIN [IRELAND] |
| ➤ JAN. 28 - 30 | 2015 | ➤ SCM-7 AMSTERDAM [THE NETHERLANDS] |
| ➤ FEB. 11 - 12 | 2015 | ➤ BIOINNOVATION LEADERS SUMMIT BILS 2015 LONDON [UK] |
| ➤ MAR. 16 - 19 | 2015 | ➤ 9TH HIC/RPC BIOSEPARATION CONFERENCE 2015 SLIEMA [MALTA] |
| ➤ APR. 14 - 15 | 2015 | ➤ BIOPROCESS INTERNATIONAL EUROPE DÜSSELDORF [GERMANY] |
| ➤ JUNE 21 - 25 | 2015 | ➤ HPLC 2015 GENEVA [SWITZERLAND] |

UPCOMING EVENTS

| | | |
|----------|------|--|
| ➤ AUTUMN | 2015 | ➤ CHROMATOGRAPHY IN PROCESS DEVELOPMENT & PRODUCTION/ BASIC COURSES STUTTGART [GERMANY] |
|----------|------|--|

➤ FIND THE LATEST UPDATES ON WWW.SEPARATIONS.EU.TOSOHBIOSCIENCE.COM/WHATSNEW/CALENDAROFEVENTS

