

Innovating the world of specialty chemicals for electronics and surface finishing

Nathalie Brunelle, Reinhard Schneider

DANS **ANNALES DES MINES - RÉALITÉS INDUSTRIELLES 2015/2 Mai 2015** , PAGES 78 À 81
ÉDITIONS **INSTITUT MINES-TÉLÉCOM**

ISSN 1148-7941

DOI 10.3917/rindu.152.0078

Date de mise en ligne : 08/06/2015

Article disponible en ligne à l'adresse

<https://stm.cairn.info/revue-realites-industrielles-2015-2-page-78?lang=fr>



Découvrir le sommaire de ce numéro, suivre la revue par email, s'abonner...
Scannez ce QR Code pour accéder à la page de ce numéro sur Cairn.info.



Distribution électronique Cairn.info pour Institut Mines-Télécom.

Vous avez l'autorisation de reproduire cet article dans les limites des conditions d'utilisation de Cairn.info ou, le cas échéant, des conditions générales de la licence souscrite par votre établissement. Détails et conditions sur cairn.info/copyright.

Sauf dispositions légales contraires, les usages numériques à des fins pédagogiques des présentes ressources sont soumises à l'autorisation de l'Éditeur ou, le cas échéant, de l'organisme de gestion collective habilité à cet effet. Il en est ainsi notamment en France avec le CFC qui est l'organisme agréé en la matière.

Innovating the world of specialty chemicals for electronics and surface finishing

Par **Nathalie BRUNELLE**

Directrice Stratégie Développement Recherche de la Branche Raffinage-Chimie, Groupe TOTAL.

et **Reinhard SCHNEIDER**

Président-Directeur Général d'Atotech

Atotech is the leading company in the electroplating sector based on worldwide sales. It is active in the markets for electronics (printed circuits, semiconductors) and general surface treatments (automotive, construction, furnishing).

Atotech has seventeen production sites worldwide, including seven in Asia, six in Europe, three in North America and one in South America.

The company's sales totaled 0,95 billion in 2014 (\$ 1,3 billion), primarily due to the growth in sales of electroplating equipment for the electronics market.

Atotech successfully pursues its strategy to differentiate its products through a comprehensive service provided to its customers in terms of equipment, processes, design of facilities and chemical products and through the development of green, innovative technologies to reduce environmental footprint. This strategy relies on global coverage provided by its technical centers located near customers.

Atotech intends to continue to grow in Asia, which already represents approximately 67% of its global sales. In order to strengthen its position in the electronics market, Atotech plans to increase and modernize its production capacity in Asia with new projects in Malaysia and China. By relocating production as close as possible to its markets, these projects are also part of its cost-cutting strategy.

Atotech is one of the world's leading suppliers of specialty chemicals, equipment, service and solutions for printed circuit board, advanced packaging and semiconductor manufacturing, as well as decorative and functional surface finishing. Atotech's expertise is in electroplating processes. Electroplating or metallization technology is used to deposit thin layers of metal on conductive and non-conductive surfaces via electrolytic or electroless processes.

Atotech was formed in 1993 by the combination of M&T Harshaw and Schering Galvanotechnik. Elf Atochem had acquired M&T Harshaw a few years before. Today Atotech is a 100 % subsidiary of the Total Group. The global headquarters and main R&D facilities are located in Berlin, Germany with regional HQ's and R&D hubs located in Rock Hill, South Carolina, USA and in Yokohama, Japan.



Photo © Atotech

Electronics plating systems (UNIPLATE P-LB-Cu) serving various end markets.

Atotech has two major business units:

- Electronics (EL division) offers chemistry and equipment for all production stages of the Printed Circuit Board (PCB) and Interconnect Substrates production (Desmear and Metallization, Panel and Pattern Plating, Surface Treatment, Final Finishing and Systems Technology). Atotech's direct customers are PCB producers around the world. The end markets served by the OEM customers are consumers, industrial and medical, military and aerospace and automotive electronics and the communication industry. The product portfolio is complemented by Semiconductor (SC) Technology segment which serves plating technology into the semiconductor manufacturing industry.

General Metal Finishing (GMF division) covers technologies for the entire spectrum of general metal finishing including Pretreatment, Decorative Coatings & Plating on Plastics, Corrosion Protection Coatings (Electroplating and Zinc Flake Coatings), Wear Resistant Coatings (Functional Chrome and Electroless Nickel), Functional Electronic Coatings, Paint Support Technologies and Auxiliary Equipment. Our customers supply end markets such as automotive, aerospace, construction, communication, furniture, sanitary and consumer goods. Automotive markets make up the largest part of the GMF end markets.

Atoech Quick Facts

- 1.1 BnUS\$ turnover
- 3,911 employees worldwide (56 % in Asia, 35 % in Europe, 9 % in the Americas)
- annual R&D spending > 10 % of sales
- 33 subsidiaries (15 chemical production sites, 2 equipment production sites) world-wide

Markets Factors and what Atotech stands for

Atotech is predominantly serving the global Electronics and automotive industries. The supply chains in these markets are strongly OEM driven. Atotech is faced with some basic requirements that need to be addressed :

- New Technology & constant innovation: As a technology company, we need to follow the roadmaps of our customers and OEMs in the electronics and automotive industries. That is the base line. Product life cycles getting shorter, technological innovations need to happen at a higher frequency. At the same time there is an increase in reliability requirements for the end products and the application range needs to extend to new materials.



General Metal Finishing: Plating on Plastics pilot line installed in Berlin Tech Center for development, customer samplings and qualification runs for automotive industry.

- Cost pressure: Our industries are faced with decreasing consumer prices, shorter product life cycles, commodization of products, increasing production costs and, in the globalized market, with low cost competitors. Therefore, both industries set up cost down roadmaps that Atotech complies to by developing processes and equipment that enables savings for customers.
- Environmental Awareness: Atotech is expert in providing processes for depositing metals on conductive and non-conductive surfaces. This ultimately requires the use of chemicals. Over the past few years, consumer requirements, laws and regulations have changed to support sustainability. Law makers around the globe have passed ELV, WEEE, RoHS, REACH and REACH-like legislations that call for wider manufacturer responsibility and aim at banning dangerous substances. Societal influence has led some OEM and customers in our industries to take an even stricter approach to the use of dangerous chemicals. Thus, environmentally-conscious products are ready to have a major impact on the plating industry.

In such an environment it is obvious that success is not only based on the efficient manufacturing of electroplating chemicals and equipment. In contrast, customers do value high-level service by Atotech and the capabilities that Atotech has developed by not only being a supplier to our customers but a partner.

Therefore, Atotech strives to shape the future of the industries with:

- expertise,

- innovative ideas and approaches,
- a worldwide network of researchers and industry partners.

The foundation of our joint business

At Atotech, conducting business means adhering to an approach that considers staff, plant activity and corporate social responsibility with regard to customers, business partners and the economies and communities of the areas we serve. Therefore, we conduct our business in accordance with the principles of safety, compliance and sustainability.

Atotech's strategy: the key to success

Green Technology - Sustainable systems and chemical processes to reduce environmental impact

We are committed to leading the change toward greener plating technologies, and have oriented our corporate policy and product development accordingly. We already offer a comprehensive portfolio of environmentally-sound alternatives; along with our customers, we use raw materials more efficiently, minimize waste, conserve energy and protect the air and water. With our focus on sustainable technologies, we will continue to set benchmarks in the development of environmentally-sound plating processes in order to remove possibly carcinogenic (CMR-3), toxic (T) and highly toxic (T+) classified components.

Leading Technology - Meeting industries' current and future requirements

We are convinced that our products are the best. We combine the highest standards with the best possible price. We therefore precisely tailor our products to future market needs by aligning our research and development to industry's technology roadmaps. In order to be able to manage and execute such a wide array of R&D leads it is part of Atotech's strategy to enter joint development partnerships with customers, institutes and universities.

Best Local Service - TechCenters with production-sized plating lines for qualification and training

Atotech is literally "just around the corner" for customers and provide the best local service out of sales and service facilities in more than 40 countries. Our global TechCenters allow us to quickly carry out process & product samplings and analyses.

Production Know-How - Chemicals, systems and service solutions for the surface finishing and electronics industry

Atotech has comprehensive production know-how ranging from the supply of chemicals to factory planning. As an architect of complete system solutions, we are able to ensure that with every single element, our customers can implement the optimum solution at the highest standards.

To pursue our strategy in the long-term, we continuously invest in Research and Development, our TechCenters and in Sustainable Technologies.

Driving innovation for success in the industry

Atotech consider R&D a strategic factor for business activities and decisions. Atotech is steadily increasing the number of patents and patent applications. Being at the forefront of the next generation of technology is an extensive and cost-intensive exercise.

In order to be prepared for the challenges in the industry roadmaps Atotech invests in the continuous upgrade of R&D facilities, an ever-increasing number of PhDs working on diverse R&D projects, R&D collaborations within the industries. Whenever there is the possibility to gain know-how by an external acquisition, Atotech has already shown in the past that it is prepared to invest money in promising know-how.

Quick Facts

- +86 % more PhDs and +39 % more University Degrees since 2007
- >10 % of Atotech's total sales are invested in R&D
- more than 40 collaborations with OEMs, Tiers, Customers, Institutes and Universities
- more than 2,000 patents and 200 patent applications in 2014

Next level customer service

Atotech has a unique network of TechCenters around the world which elevates the capability for best local service. TechCenters are know-how clusters in Atotech's local organizations in which we can provide analytical and materials science services to customers. In addition, in local TechCenters customers can apply, test and qualify the new processes that Atotech brings to the market in the production-sized pilot lines installed there.

Atotech TechCenters allow to continually develop internal expertise, to encourage the exchange of ideas, and to provide a platform for training of employees, customers and OEMs.

Quick Facts

- 18 Atotech TechCenters worldwide
- 126,276 measurements run by materials science services in 2013, TechCenter Berlin
- 90,491 measurements run by analytical services in 2013, TechCenter Berlin

Committed to a sustainable future

For Atotech sustainability means combining environmental protection and social responsibility with economic success. The primary goal of the sustainability concept is to protect the environment, end users, production workers in the industries, as well as own staff. Our target is not only to comply with chemical regulations but to raise the standards even higher with our self-imposed commitment to eliminate all hazardous chemicals from our product range. The approach to sustainability is integrated into everything we do.

Together with customers, Atotech is driving the movement towards more environmentally-responsible chemical processes, plating equipment and auxiliaries. We have cultivated close relationships with the entire value chain and its industry leaders, governments and plating associations in order to lead the industry's movement towards sustainability. By investing in joint development projects with customers, OEMs, institutes and universities, we are actively expediting the development of sustainable technologies.

Quick Facts

- 1st Green Development Roadmap published in 2010
- 5 % reduction in toxic raw material usage by 2012
- in 2013, 40 % of our R&D projects were devoted to sustainable goals, compared to 34 % in 2010