

Comprehensive centers providing one-stop services to Japanese and foreign companies wishing to start businesses in Hyogo-Kobe

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## Seeking materials for a better life.

Establishing a production, research and development base for lithium-ion battery materials in the city of Kobe

Umicore is a leading materials technology company of Belgium with a history of nearly 200 years. Under the motto, "Materials for a better life," the company, aiming to optimize the use of limited resources and to minimize its environmental impact, is developing its business globally. In FY 2010 the Group boasted total sales exceeding 1 trillion yen with an operating profit of around 38 billion yen. Since establishing its first sales office in Tokyo in 1926, Umicore has developed its business in Japan by constructing plants in Ibaraki Prefecture and Kanagawa prefecture and by establishing a Joint Venture with Nippon Shokubai with a manufacturing plant in Himeji.

In this article excerpts from a lecture by Umicore Japan's Representative Director and President Luc Gellens (held in November 2011) will be introduced.



### Utilizing high-tech materials over and over again.

Umicore's business philosophy is centered on the creation of solutions for a wide range of hi-tech materials, using its expertise in chemistry, material science and metallurgy. Metals have this unique characteristic that they are infinitely recyclable without losing their properties and Umicore distinguishes itself by recycling products that contain its materials, once these products reach the end of their life. Closing the materials loop is at the heart of their business and contributes to the efficient use of scarce natural resources.

In recent years, in response to the major trends in society, Umicore has committed to manufacturing materials for photovoltaic power generation and for secondary batteries, which are necessary for laptop computers and mobile phones as well as for electrified vehicles.

### Establishing a new plant on Kobe Port Island.

The market for lithium-ion batteries for portable products, such as tablet devices and smart phones, has grown tremendously over the last 10 years and will continue to thrive. Furthermore, the demand for hybrid vehicles and electric vehicles is expected to more than double in the next 10 years.

To respond to this trend, Umicore decided to establish a production plant for lithium-ion battery materials and a technical center in Japan. Kobe Port Island was selected from among all the possible sites in Japan Capital investment was approximately 4 billion yen. While the current surface area of the Kobe Plant, which started operation in 2011, is 3,700 square meters, the total site area is more than 20,000 square meters and offers plenty of space for expansion. The facility will hire approximately 40 highly trained employees in its first phase. In the long term

plan, the company hopes to continue the development of its activities and to offer more employment opportunities for highly skilled people.

### Things made possible by Kobe's location.

Kobe has an extensive transportation network that allows convenient access to Umicore's customers. The city is blessed with research institutes and universities, offering a rich environment for exchanges between local and overseas researchers. Moreover, Kobe is a cosmopolitan port town open to international companies and foreigners. Besides the excellent infrastructure the city also has a large pool of well educated human resources and enjoys a rich quality of life. The substantial support Umicore received from the local government was one of the important factors in the selection of Kobe. This selection provided Umicore with a major advantage: it was able to secure an extensive site that would enable expanding the business in the future to quickly respond to market demand.

### Further growth from the city of Kobe and Hyogo Prefecture.

Japan, a country that is committed to becoming a leader in the green economy and which has created a favorable environment for promoting inward investment, is the third largest economy in the world. Many of the world's leading companies in the battery industry are Japanese companies. Materials technology companies such as Umicore gain great opportunities and benefits both in the domestic and export markets by entering Japan.

Kobe is important for Umicore due to its proximity to its current and future customers, and for the concentration of advanced technical expertise in the neighboring area. Based on the beneficial relationship with the city of Kobe and Hyogo Prefecture, the company wishes to further increase its presence in this area.



### Umicore Japan K.K., Kobe Plant

Location: 4-2-8 Minatojima-minami-machi, Chuo-ku, Kobe City

Site area: 20,723 m<sup>2</sup>

Surface area: 3,693 m<sup>2</sup>

Objective: Factory for cathode material and a technical center

Products: Cathode material for NMC (nickel, manganese, and cobalt)

Employees: Approx. 40 (full production)

### Umicore Japan K.K.

Head Office: 1-2-3 Aoyama, Minato-ku, Tokyo  
Representative Director and President: Luc Gellens  
Year of establishment: 2002  
Employees: 90

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## The concentration of next-generation energy-related industries has been advanced in the Kansai area, mainly in Hyogo-Kobe

With the convenience of a metropolitan area and a traffic network open to the world, the city of Kobe and Hyogo Prefecture have attracted attention as a hub for offices, production centers and physical distribution bases. In the Kansai region, in which Hyogo-Kobe is located, the concentration of next-generation energy-related industries, such as lithium-ion batteries (Kansai holds over 80 percent share of the domestic market) and photovoltaic panels (same as over 70 percent share), is currently advancing. Here, we explore the backdrop to the great vitality of the communities in the Kansai area.



### Next-generation energies now drawing attention

How should we strike a balance between the global environment and economic activity when we are constrained by a limited amount of resources? This question has never been asked as strongly as it is today. Next-generation energies are expected to be recyclable and have a low global environmental load as an alternative to conventional energies, such as petroleum. It is also important to refine technologies for the efficient use of acquired energies, in addition to seeking new energy sources in solar light, wind power and biomass. The development of the secondary battery field (storage-type batteries), which has realized the miniaturization of mobile devices and the commercial use of eco-cars, is also indispensable for the practical use of new energies and will play an important part in the realization of "lean" power networks (smart grid).

### Why Kansai?

In recent years, the next-generation energy-related facilities of various companies have concentrated in the Kansai area, especially in Hyogo-Kobe. The Osaka Bay coastal area, in particular, boasts a concentration of production centers and development bases for lithium-ion batteries and solar batteries, and is also called "Battery Bay." With many research institutes including those of universities, this area has long been blessed with rich human resources in the research field. Also, the area has inherited the accumulated expertise of the manufacturing industry from the tradition of the Hanshin Industrial Zone. Another valuable feature of this area is that, while equipped with substantial traffic infrastructure for all of its land, sea, and air routes, it still has room to accommodate large factories that intend to enter the area.

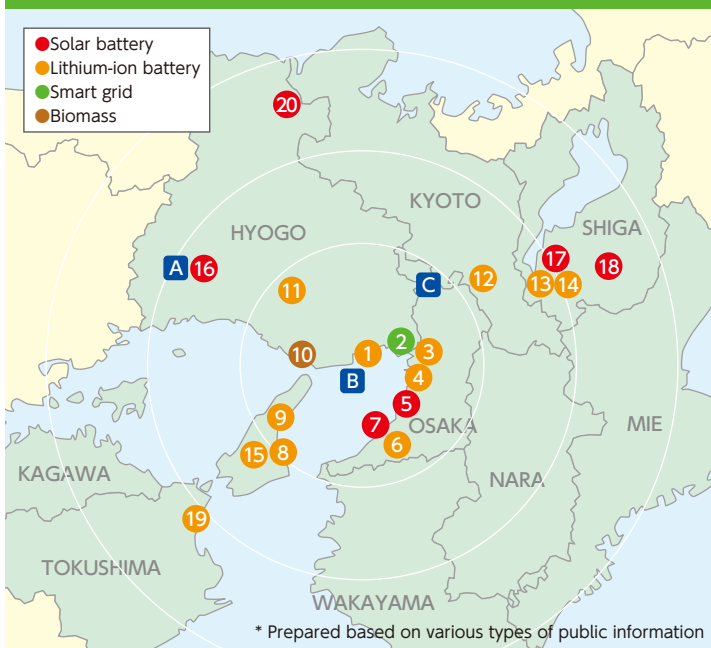
In 2011, Umicore, a Belgian material technology company, established its production and research center for the materials of lithium-ion batteries on Port Island in Kobe. Toyo Gosei, a

chemical product manufacturer, branched out onto a coastal area of Awaji Island facing Osaka Bay, and has since produced electrolytic solution, which is indispensable in the production of lithium-ion batteries. Both companies have mentioned the facts that their client battery makers are located in the surrounding areas, and that they were able to secure a sufficient amount of space, as major reasons for their advancement.

### Increasing demand in the future

The market for next-generation energy-related industries, such as secondary batteries, is expected to increasingly expand in the future. Even amid stiff competition, the vitality of communities in the Kansai region continue to be enhanced by the sustainable flow of business advances from companies that are attracted to the existing companies in the area. Hyogo-Kobe, forming the core, will continue to provide support and act as a stage for business advancement for companies seeking their own development.

### Examples of next-generation energy-related facilities in the Kansai area



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| 1 Umicore Japan K.K. Kobe Plant  | 13 Lithium Energy Japan Ritto Plant                  |
| 2 Mitsubishi Electric Corporation Itami Works (Currently implementing demonstration)                 | 14 Lithium Energy Japan Kusatsu Plant                |
| 3 TÜV Rheinland Japan Ltd. Kansai Technology Center (tentative) (in full operation since April 2012) | 15 Sanyo Energy Nandan Co., Ltd. Panasonic Group     |
| 4 Energy Company of Panasonic Group Suminoe Plant  | 16 Fujipream Corp. Harima Technopolis Kouto Factory  |
| 5 Sharp Corporation Sakai Plant  | 17 Kyocera Corp. Shiga Yasu Plant                    |
| 6 Sanyo Energy Kaizuka Co., Ltd. Panasonic Group   | 18 Kyocera Corp. Shiga Yokaichi Plant                |
| 7 Energy Company of Panasonic Group Nishikinohama Plant  | 19 Energy Company of Panasonic Group Tokushima Plant |
| 8 Energy Company of Panasonic Group Sumoto Plant   | 20 Kaneka Solartech Corporation                      |
| 9 Toyo Gosei Co., Ltd. Awaji Factory (To be in operation in 2012)                                    |  |
| 10 Kawasaki Heavy Industries, Ltd. Technical Institute   |  |
| 11 Energy Company of Panasonic Group Kasai Plant   |  |
| 12 Lithium Energy Japan  |  |
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|--|
| A Harima Science Garden City                     |
| B Kobe Biomedical Innovation Cluster, Computer K |
| C Saito Life Science Park                        |