

## INCJ to invest in UniZeo

### Commercialization of innovative zeolite synthesis technology

**Tokyo, September 2, 2013**—Innovation Network Corporation of Japan (“INCJ”) announced today its decision to invest in UniZeo Co., Ltd. (“UniZeo”), a company that develops innovative technology for zeolite synthesis. Zeolites have a broad range of applications including as catalytic or adsorption agents. The investment will provide UniZeo with a maximum of ¥6 billion in funding required to establish its synthesis technology, and for the development of future manufacturing technology.

Zeolites are minerals composed mainly of silicon dioxide and aluminum oxide. A number of types are known to science, differing according to their crystalline structure. Within the crystalline structure are numerous fine pores of less than one nanometer (one millionth of a millimeter) in diameter, allowing chemical substances to be sifted at the molecular level and to be captured within the pores. Moreover, despite being a solid, zeolites have acidic properties similar to those of hydrochloric acid and sulfuric acid. Leveraging these properties, they are widely used as adsorbents and catalysts in processes such as treatment of automotive exhaust gases and synthesis of petrochemical products. However, traditional methods of zeolite synthesis have faced issues such as high cost, and the types of zeolites which can be put to practical use have been limited. In addition, it has not always been possible to use the most appropriate zeolite for each application.

To overcome these issues, Nippon Chemical Industrial and world-renowned Professor Tatsuya Okubo and Dr. Keiji Itabashi of The University of Tokyo Graduate School joined to research and develop OSDA-free zeolite synthesis technology which can synthesize high-quality zeolite at low-cost and in a range of compositions. The technique eliminates the need for organic templates (organic structure-directing agents; OSDA), which had been necessary in traditional synthesizing techniques. To commercialize this achievement, Dr. Yasuo Yamazaki, the former head of the development at Nippon Chemical Industrial, acquired that company’s intellectual property for OSDA-free zeolite synthesis technology and independently established UniZeo.

UniZeo is aiming for fabless commercialization of OSDA-free zeolite synthesis technology by specializing in the research and development of the technology and jointly developing manufacturing technology with major materials manufacturers to outsource manufacturing at the mass production stage. By using the most appropriate zeolite for each application, the technology

offers the promise of green innovation\* in a wide range of processes.

While providing UniZeo with the funding required to establish future synthesis and manufacturing technology, INCJ will also provide managerial support such as dispatching external directors, strengthening UniZeo's business-development framework, and supporting the development of strategic partners. INCJ is providing this support so that UniZeo can overcome the barrier of mass production while acquiring scale-up support from major corporations to become a model for venture materials companies that have commercialized unique platform technology resulting from sophisticated research by academia.

#### **About UniZeo Co., Ltd.**

Established: May 2013  
Outline: R&D, manufacture, and sales of zeolites produced using OSDA-free zeolite synthesis technology  
Location of headquarters: Hongo, Bunkyo-ku, Tokyo  
Representative: Dr. Yasuo Yamazaki

#### **About Innovation Network Corporation of Japan (INCJ)**

The INCJ was established in July 2009 as a public-private partnership that provides financial, technological and management support for next-generation businesses. The INCJ specifically supports those projects that combine technologies and varied expertise across industries and materialize open innovation. The INCJ has the capacity to invest up to ¥2 trillion (approx US\$25 billion).

To date, the INCJ has invested approximately ¥650 billion in a total of 46 projects and is currently focused on a broad range of areas from green energy, electronics, IT and biotechnology to infrastructure-related sectors such as water supply. The INCJ maintains a hands-on approach to investment, engaging in the business development of cutting-edge core technologies through intellectual property funds, expansion of venture companies and aggressive overseas development through initiatives such as restructuring and mergers of tech businesses and acquisitions of foreign companies.

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\* Green innovation refers to innovative change and the expansion of science, technology, and social systems to ensure sustainable social development with respect to global environmental concerns. This includes innovative use of energy and creation of greener social infrastructure.

Press contacts:

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Strategic Planning Office

Itou / Aida / Mochizuki

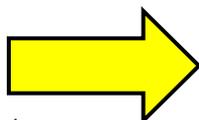
21st Floor, Marunouchi Eiraku Building

1-4-1 Marunouchi, Chiyoda-ku Tokyo

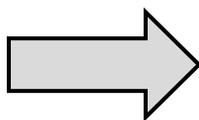
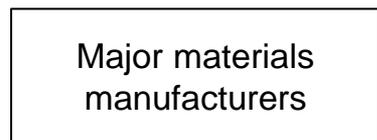
TEL : +81-3-5218-7200

# [Appendix] INCJ to invest in UniZeo, a company engaged in the commercialization of revolutionary zeolite-synthesis technology

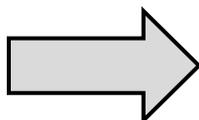
Target: UniZeo Co., Ltd.  
 Outline: R&D, manufacture, and sale of zeolites, manufactured using OSDA-free synthesis technology developed by The University of Tokyo and Nippon Chemical Industrial  
 Investment: Maximum ¥600 million



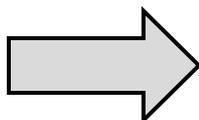
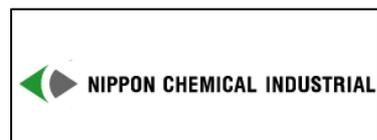
Investment,  
Partnership development



Manufacturing technology,  
Mass production



Joint research



Head of development left to establish UniZeo and acquired intellectual property from NCI

## UniZeo

- UniZeo produces high performance zeolites. The synthesis technology without using organic structure-directing agents (OSDA) was newly developed.
- Fables manufacturing technology with major materials manufacturers will be developed..

### Characteristics of OSDA-free zeolite synthesis

Low cost

High degree of freedom  
in composition

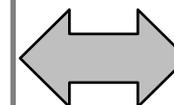
High quality

### Applications

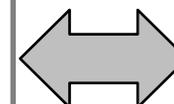
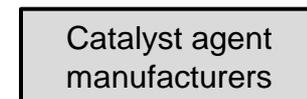
- Catalyst agent in the treatment of automotive exhaust gases  
⇒ Improved adsorption and degradation of exhaust gases
- Catalyst agent in the petrochemical field  
⇒ Improved efficiency in petroleum refining and synthesis of chemical products



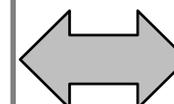
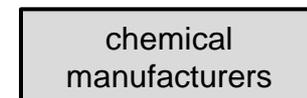
Source: Catalysis Society of Japan website



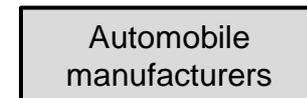
Joint research



Joint research



Joint research



- Acquire support from major corporations for scale-up and commercialization of unique platform-materials technology researched by academia
- Aim to enhance each potential catalytic application of zeolites and achieve a broad range of green innovation