



# NEWS LETTER 2006

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## SPE ASIA CONFERENCE REPORT

Packaging Science Institute Tadahiko Katusura

SPE Asia Conference had taken place from June 7 through June 9 at Cheju Grand Hotel in Jeju island, Korea. I was invited to the conference as a plenary speaker, so I will report the outline of this conference.

Jeju island, nestled on Pacific Ocean close to southern part of Korean peninsula, is a place of myths and legends with great hospitality to the travelers. The beauty of coral blue sea surrounding Jeju island, along with the eternal silence of Mt. Halla, is impressive to the visitors.

The conference was held for 3 days according the program. (See Conference Program.) On the first day, Welcome Banquet and Regional Report were held in the evening. The first regional report was presented from Dr. Izawa of Japan Section about the activity of SPE Japan. And then reports from SPE Taiwan and SPE Korea followed. Also the representative from the section of the south region in USA reported the activity of that section.

On the second day, I presented Plenary Lecture titled "Newest Trends of Blow Molding Technologies". In this lecture, new extrusion blow molding technologies, injection blow molding systems for PET bottles and technological trends of gas-barrier PET bottles were presented. After Plenary Lecture, two Invited Lectures and five general lectures were presented respectively in each session of "Polymer Processing & Additive" and "High Performance Materials". The "High Performance Materials" session was closed at 4:00 pm. After that, two general lectures of "Nanocomposites" session were presented.

On the second day, Poster Session was held from 1:30 to 3:00. In Poster Session, there were 8 presentations in "Polymer Processing & Additive", 11 presentations in "High Performance Materials" and 8 presentations in "Nanocomposites".

In the Invited Lecture titled "Latest Injection Molding Process Technology and its Equipment" presented Mr. Kenji Kikukawa (The Japan Steel Works, LTD), the novel molding technology of automotive parts by "Doe Slide Injection Molding" was introduced and there was a large audience.

On the third day, "Nanocomposites" session was held. First of all, Plenary Lecture titled "Polymer/Clay Nanocomposites by Melt Intercalation" was presented by Dr. Chul Rim Choe (Polymer Hybrids Research Center, KIST). After that, two Invited Lectures and one general lecture were presented and the conference was closed at 12:00 am.

Many people attended this conference and SPE ASIA CONFERENCE 2006 was closed successfully.



## In Celebrating the 50th Anniversary of the SPE Japan Section

Shinichi Izawa, President of the SPE Japan section

Born in the 20th century, the plastics industry had continued its high rate growth together with the petroleum chemical industry, while taking part thereof for the last half of the century, their production, utilization and consumption inheriting the vein even after entering the 21st century. Looking at the goings only in Japan, however, will give a realistic feeling that it is approaching a grave turning point, as evidenced by the standstill of the output growth and the demand for sophistication of products in about the last decade. Then taking advantage of the 50th anniversary of the SPE Japan section, I want to think about the future lack of self-conscious activities of the Japan's plastic engineers. Historically observing the field of Japan's plastic industry, it was just the first half of the 1960s when the annual output of homemade plastics reached one million tons per annum at last. The plastics industry, which had been initiated synchronous with the timing of introduction of the policy for attainment of a high degree of growth in the domestic economy, continued expansion at rates higher than the Japan's GDP growth, thus pulling off 7 times the growth rates higher than 200 mil t/5 yr over 35 years. During that span of time, it drifted at the mercy of waves of financial, political and economic upheavals from offshore, such as the Nickson shock, the 1st, and the 2nd oil shocks and the Plaza agreement, etc. But the general perspective attests to the progress made at the place aforementioned. For about 10 years thereafter between 1995 and 2006, it is obviously true that the plastics



industry in Japan was fully in doldrums in terms of output, annual growth rate about 0%. From global viewpoint, demand for the 4 major plastics which are particularly useful for level-up of the living of correspondence with the growing population, and consequently expansion of their supply has become necessary. In response to this situation, the annual average growth rate in the global production and consumption of plastics over the last decade is 6.6 %/yr, in witness of the situation that the output expansion is still at a high growth rate.

The Japan's status in terms of global plastics output may be assessed as follows. Since 1970, the share the Japan's plastics output accounts for in their global output ran up to 10% or more. For instance, before the last two decades, the Japan's output was 9,374 thous t/yr, as against the world's 81,058 thous t/yr, accounting for 11.6% thereof. Over the two years corresponding to the apex of the Japan's economic bubble 5 years thereafter, the Japan's was 12,630 thous t/yr, as against world's 98,900thous t/yr in '90, and the former 12,796 thous t/y, as against the latter's 100,300 thous t/yr, both accounting for the highest record of 11.3% share. A decade ago (the year of 1996), the Japan's 14,661 thous t/yr amounted to 11.3% of the world's, being 129,800 thous t/yr.

Although the Japan's historically maximum rate of plastics output had been attained at 15,224 thous t/yr in 1997, its share in the world's total output, being 143,400 thous t/yr, was found to have even declined to 10.6%. The Japan's share over the seven years from 1997-2003 had undergone continuous changes, declining from 10.6 to 9.3, 9.3, 8.3, 7.5, 7.0 and 6.7%. Such numeric clearly indicates termination of Japan's global output contribution.

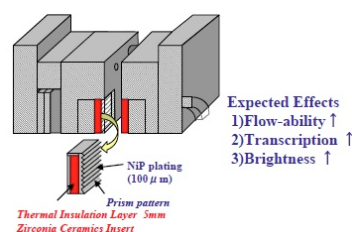
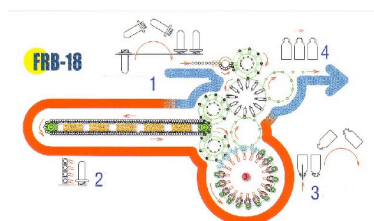
It is apparent that in the last decade, the status of the Japan's plastics industry has already globally achieved "a transition from quantity to quality". In other words, this obviously manifests that the industry has attempted to make transition to a leader in the production and application know-how for qualitative expansion of plastics, departing from the status of the quantitative expansion.

The plastics industry in Japan has quite different roles from those before that, the statistic numerals exactly corresponding thereto. It is a fact of life that the potential of the Japan's chemical industries are bolstering the up-to date industries including automobile, aeronautical, robot, IT, home appliance, electronics and computer industries, etc., to be globally competitive. Such sophisticated basic techniques could hardly be realized instantly, but it is a still further difficult issue to maintain them in competitive configurations.

The world has bipolarized into developing countries where escaping from destitute is a grave issue and developed countries which have pride in their sophisticated cultures brought about by their up-to-date technological developments. In what new direction Japan's plastics engineers should proceed in dealing with this situation is becoming clear gradually. The path is steep. The mission of we Japan's plastics engineers (technicians and explorers) who are top runners seriously embraces sophistication of manufacturing techniques of mass-produced plastics which are linked to the energy and resource savings. In conjunction therewith, we must continue taking cooperative bold steps to meet the users' demands for further functional sophistication entering Japan which is leading up-to-date industries. It is desired that we SPE members should go ahead, keeping in mind that large technical expectations are placed on us.

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## Event Record in 2005 (2005/7-2006/6)

Date	Place	Type	Title	Author
05-9-8	Tokyo	Regular	Development & Evaluation of High conductive Polymer	Yasuyuki Agari
05-11-8	Industrial Plaza of Ohta-ku	Open Seminar	<p>Mixing technology for mineral filler by using a twin screw extruder.</p> <p>The influence of the particle diameter of the inorganic filler (talc) and its mixing ratio and MFR of PP on the extrusion rate when the filler was mixed with PP using a twin screw extruder has been examined by testing. As for the filler mixing system, synchronous and side feeding systems have been investigated to clarify the mixing characteristics, thereby elucidating the mixing mechanism.</p> <p>The Characteristics of processability and properties for composites with VGCF-S.</p> <p>This company is going ahead with development of vapor-processed carbon fiber, VGCF-S, which is suitable for preparation of resin composites. The VGCF-S has a fiber diameter of 100nm, in contrast to several 10nm of the fiber diameter of the carbon nanotube (CNT). Due to this difference in the fiber diameter, distinct variations are brought about in characteristics, including moldability and compounding property of the composites. I will inform you of these facts and solicit your opinions regarding them.</p> <p>Fabrication and application of vapor grown carbon nanotubes.</p> <p>The carbon nanotube, being a tube of grapheme having a diameter of nano-size, has physical properties related to quantum theories which are attributable to its unique structure and configuration and other new ones of their own. The research and development has been pursued with very wide-ranging interest in its application in the nano-scale engineering and neo-electronics, etc.,</p>	<p>Jyunya Ishibashi Yamagata University</p> <p>Yuji Nagao Showa Denko</p> <p>Takuya Hayashi Shinshu University</p>

Date	Place	Type	Title	Author
05-11-8	Industrial Plaza of Ohta-ku	Open Seminar	<p>as the theme. Here studies on the fundamentals and applications of the carbon nanotube are reviewed, promiscuously outlining the recent achievements and future possibilities</p> <p><b>Injection Molding of polymer matrix carbon nanotube composites.</b></p> <p>The carbon nanotube (CNT) is expected to be used as a sophisticated resin based composite materials, because of its excellent mechanical, electrical and thermal characteristics. This lecture expounds on the results of examinations on the mechanical, electrical and thermal properties of its test specimens prepared by dispersing the CNT into PP and PA resins by kneading, followed by extrusion molding, with making reference to the effects of surface treatment with CNT. Furthermore, results of assessment on the mechanical characteristics of the simple substance of CNT are announced.</p> <p><b>Olefinic Thermo Elastomer</b></p> <p>Special features of thermoplastic elastomer (TPE) and, among them, olefin TPE are outlined. Circumstances of the development of cross-linked olefinic TPE and cases of basic studies in the physical properties manifesting mechanism of olefinic TPE that have ever been undertaken heretofore, etc., are presented. Furthermore, concrete applications of olefinic TPE and their manifested physical properties are exemplified</p>	<p>Naoto Ohtake</p> <p>Tokyo Institute of Technology</p> <p>Yasuto Ijichi</p> <p>Sumitomo Chemical</p>
05-12-15	Tokyo	Regular	<p><b>Information Obtained from SPE's HP</b> A Hint at Automobile Materials” Mr. Masahide Tashiro, Research Association of Nano-structure Polymers, MSA Study Group (Ex-SRI Senior Consultant)</p> <p>As taken up as a theme in the executives' meetings, the paper type monthly (SPE) has ceased to published, and the information has become offered in the form of a PDF file, leading to a situation where the significance of being its member is called into question overseas. This discussion has given birth to an attempt at collecting information by turning to its membership for help in delving into the significance of the SPE's HP. What can we derive there from ?</p> <p><b>“Making PC Flame-Retardant with Silicone and Its Utilites”</b> Mr. Akio Nodera, Idemitsu Kosan K.K., Chemical Development Center, Resin Laboratory, Material Developing Sec.</p>	<p>Masahide Tashiro MSAI</p> <p>Akio Nodera Idemitsu Kosan</p>



Date	Place	Type	Title	Author
05-12-15		Regular	A non-halogen flame-retardant PC material has been developed with silicone copolymerized PC. The flame-retardancy of PC is improved with a very small amount of silicone by nano-dispersion of silicone therein. This technique is not only highly useful for upgrading the PC's heat resistance, durability and recyclability, but applicable for alloying PC.	Akio Nodera Idemitsu Kosan
06-2-7	Osaka	Regular	<p><b>Recent trends of Blow Molding</b> New technologies have recently made progress in the field of the extrusion blow molding of industrial parts and the injection blow molding of PET bottles. Recent trends of blow molding systems in these filed, especially PET bottle blow molding systems will be explained.</p> <p><b>Relation and consideration point among resin properties, molded part performance and molding technology</b> In order to develop molded parts with engineering plastics, a technical service activity is one of important sales strategies and now this activity continues as a solution business in other words. The reason is that a combination of resin property, design technology and molding technology is required for a prevention of defect which happens to occur in market and production line. Some examples of essential factor for an obstruction of stable production will be explained.</p>	Tadahiko Katsura Packaging Science Institute  Kikuo Takano
06-4-27	Tokyo	Regular	<p><b>"Analytical Techniques Relative to Film Formation and Development of Their Applications"</b> Mr. Toshitaka Kanai, Prime Polymer (Co., Ltd.), R. &amp; D. Division and Idemitsu Kosan (Co., Ltd.), Chemical Development Center Analytical techniques relative to representative film formation processes including formation by melt casting, inflation, tentering biaxial and tubular orientation, and the development of their applications relating to the forming conditions and design of resin suitable for each forming method, and further, cases corresponding to their acceleration and making film thinner, by making use of these techniques, are disclosed.</p> <p><b>Recent Progress in Polymer-Based Nano-Composites – Centering on PP Based-Nano-Composites</b> Mr. Kiyoshi Chujo, K. C. Research Detailed comments on synthetic methods of PP base nano-composites, particularly layer stripping type nano-composites, which have recently made a remarkable progress, are presented, after outlining the recent advancement of the polymer base nano-composites.</p>	Toshitaka Kanai  Prime Polymer   Kiyoshi Chujo, K. C. Research

Date	Place	Type	Title	Author
06-6-14	Tokyo	Regular	Introduction of 50 Ideas that changed Plastics from Plastics Technology Vol.51, October Issue.  One of the Plastics Technical Journals, Plastics Technology published a 50 years Memorial issue entitled 50 Ideas that Changed Plastics in October 2005, based on many opinions of experts and various records. Interesting contents ranging from Materials, machines and processing technology will be introduced.  Characteristics and Applications of TOPAS Cyclic Olefin Copolymer	Susumu NAGAI  Plastics Technical Association, Osaka  Hirozumi Shimomura (Polyplastics Co. Ltd.



Open Seminar November 2005  
ANTEC 2006 report

Regular meeting September 2005

Hiroshi Ito of TIT

During ANTEC 2006, the social meeting of SPE Japan section was held at the Japanese restaurant in Charlotte. The participant was mainly ANTEC conference participant and the number of participants was 17 persons. The participants also were Japanese professors, researchers, consultant representatives of Japanese company in the U.S. etc. The information for plastics industry and engineering in the world including Japan and U.S. were discussed and exchanged. The difficulties talk which cannot be heard was usually heard from all the participants, and we had spent a pleasant and useful day. The social meeting was a great success. Finally, I greatly appreciate attending all delegates to the social meeting on behalf of an executive committee of SPE Japan section. The social gathering is also due to be held next year.



The Social meeting 2006 at Charlotte

- |                               |                               |
|-------------------------------|-------------------------------|
| Tatsuhiro Nagamatsu           | Sumitomo Chemical Co.,        |
| Osamu Murakami                | Mitsubishi Electric Co.,      |
| Hiroshi Ito                   | Tokyo Institute of Technology |
| Yuki Iseki                    | Sumitomo Chemical America     |
| Hiromi Kita                   | National Institute of         |
|                               | Technology and Evaluation     |
| Akihiko Goto                  | Osaka Sangyo University       |
| Takahide Otsuka               | TAKA OTSUKA                   |
|                               | ASSOCIATES, Inc., USA         |
| Kazumi Yamaguchi              | Industrial Technology Center  |
|                               | of Wakayama Prefecture        |
| Mrs. Yamaguchi                |                               |
| Masaya Kotaki                 | Kyoto Institute of Technology |
| Kyoto Institute of Technology |                               |

Hiroyuki Hamada  
Kyoto Institute of Technology  
Takashi Kurose  
University South Mississippi  
Wan-Gyu Hahm  
Tokyo Institute of Technology  
Sho Nakai  
Kyoto University

Koji Yamada  
The Osaka Municipal Technical  
Research Institute  
Kayo Yamada  
Ciba Specialty Chemicals  
N.O-Charoen  
Kyoto Institute of Technology

SPE Japan Section Director Meeting July 2005-June 2006



Oida, Harada, Asayama, Itho, Tomari  
Tashiro, Katsura, Izawa, Nagai, Chujyou

The Director Asayama died suddenly on August 21.  
Close against a report of your loss,  
I regret it and pray its soul may rest in peace heartily.

### Organization of SPE Japan Section 05-06

	Name	Company
President	Shinichi Izawa	Tokyo Inst. of Technology
VICE PRESIDENT & MEMBERSHIP CHAIRMAN	Toshihiko Harada	Osaka Ind. Res. Association
TREASURER & EDUCATION CHAIRMAN	Junya Ishibashi	Yamagata University
COUNCILOR	Kiyotaka Tomari	Osaka Municipal Tech. Res. Inst.
PROGRAM CHAIRMAN	Tadahiko Katsura	Hoso Kagaku Kenkyusho
NEWSLETTER EDITOR	Masahide Tashiro	MSA Institute
DIRECTOR, PLANNING	Kiyoo Katou	Asahi Chem. Industry Co.
DIRECTOR, PLANNING	Takahiro Asayama	Plastics Age Co.
DIRECTOR, PLANNING	Akiyoshi Kobayashi	Toshiba Machine Co.
DIRECTOR, PLANNING	Masao Sumita	Tokyo Inst. of Technology
DIRECTOR, PLANNING	Youichirou Makimura	Takiron Co.
DIRECTOR, PLANNING	Hiroshi Yoshida	Zeon Kasei Co.
DIRECTOR, PLANNING	Hiroshi Ito	Tokyo Institute of Technology

	Name	Company
DIRECTOR, PLANNING	Naohisa Oida	Sumitomo Bakelite Co
DIRECTOR, PLANNING	Toshitaka Kanai	Idemitsu Industries Co
ADVISER	N.TAKASHIMA	(Past President 76~80)
ADVISER	S.NAGAI	(Past President 87~88)
ADVISER	K.CHUJO	(Vice President 93~98)
ADVISER	K.OGINO	(Vice President 97~98)

Membership of Japan Section

Join to SPE

Family Name	Last Name	Company	Joined Date
Arai	Tooru	Denki Kagaku Kogyo	2005.7.28
Suzuki	Osamu	JAICI	2005.9.19
Kuriyama	Takashi	Yamagata University	2005.10.12
Harada	Tatakiyo	Chisso Corporation	2005.11.8
Kaneko	Toru	Toho Tenax Co Ltd	2005.11.8
Matsumoto	Kazuya	Toho Tenax Co Ltd	2005.11.8
Takei	Hiroshi	Chisso Corporation	2005.11.8
Yamamuro	Takashi	Nippon Electric Glass Co Ltd	2005.11.8
Fukutani	Kazuhisa	Kobe Steel Ltd	2005.11.28
Kobayashi	Koji	Toyobo Co Ltd	2005.12.6
Nagai	Yozo	Japan Polyethylene Corporation	2006.2.15
Arai	Masayuki	Japan Polypropylene Corp	2006.3.8
Kiji	Toshimitsu	Kyoraku Co Ltd	2006.4.3
Nagamatsu	Tatsuhiro	Sumitomo Chemical Co Ltd	2006.4.7
Murakami	Osamu	Mitsubishi Electric	2006.4.10
Asada	Masahiro	Kaneka Corporation	2006.4.10
Hahm	Wan-Gyu	Tokyo Institute of Technology	2006.4.10
Aoki	Tatsuya	CCI Corporation	2006.4.19
Ishii	Izumi	Japan Polypropylene Corporation	2006.4.25
Kotaki	Masaya	Kyoto Institute of Technology	2006.5.16
Masaki	Yoshinori	Sumitomo Plastics America Inc	2006.5.17
Fujita	Yasuhiro		2006.5.17
O-Charden	Naronbchai	Kyoto Institute of Technology	2006.5.17

Family Name	Last Name	Company	Joined Date
Nagaoka	Tsutomu	Kobe Steel Ltd	2006.5.25
Ishikawa	Tomohiro	Tosoh Corporation	2006.6.2
Hirai	Takaaki	Sekisui Plastics Co Ltd	2006.6.2
Enomoto	Yasuhiro	The Furukawa Electric Co Ltd	2006.6.2
Tanaka	Masato	Japan Polyethylene Corp	2006.6.8
Harada	Hiroshi	Sekisui Chemical Co Ltd	2006.6.8
Matsumoto	Mitsuhiro	Maruzen Petrochemical Co Ltd	2006.6.8
Kurokawa	Masaya	Starlite Co Ltd	2006.6.21
Maeda	Kouichirou	Zeon Corporation	2006.6.21

Withdrew from SPE.

Family Name	Last Name	Company	Suspended Date
Hojo	Hidemitsu		2006.6.30
Yui	Hiroshi		2006.6.30

### Editor's report

It was busy time that I edited the newsletter 2005 as Mr.Asayama suddenly died. The reason is that we had busy time that we authorized new bylaws of SPE Japan Section and collected new section members, in addition, we changed the roll of some directors. I expect the reunion will start the proceeding of our SPE Japan Section.

October 2006  
NewsLetter Editor Masahide Tashiro

