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Enabling Technology
Enabling Future

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Today’s Topics

1. Introduction
2. Titanium Shipments in Japan
3. Global Alliance
4. Enabling Technology, Enabling Future
5. Summary ~Our way to go~
1. Introduction

11th World Conference on Titanium

Kyoto
1. Introduction

The 11th World Conference on Titanium (Jun 3-7, 2007 Kyoto, Japan)
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The 11th World Conference on Titanium
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2. Titanium Shipments in Japan

Mill Products

MT
20,000
15,000
10,000
5,000
0

'96 '97 '98 '99 '00 '01 '02 '03 '04 '05 '06

Export
Domestic

MT: Metric Tons

Bar graph showing titanium shipments from 1996 to 2006, with red bars representing export and blue bars representing domestic shipments.
2. Titanium Shipments in Japan

Share by Applications
2. Titanium Shipments in Japan

Automobile Applications

(Photo: Courtesy of Akrapovic Company)
2. Titanium Shipments in Japan

Increased Applications in terms of %

- PHE
- Distributor
- Aerospace
- Automotives
- Ships/Marines
- Sport Leisure
- Consumer Goods
- Medical
- Soda-Electrolysis
- Others

Graph showing the percentage increases in different applications from 1993 to 2006.
2. Titanium Shipments in Japan

PHE (Plate Heat Exchanger)

(Photo: Courtesy of Alfa Laval K.K.)
2. Titanium Shipments in Japan

Decreased Applications in terms of %

- Power Plant
- Chemical Plant
- Desalination
- Architect/Construction
- Energy

<table>
<thead>
<tr>
<th></th>
<th>Y1993</th>
<th>Y2006</th>
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<tbody>
<tr>
<td>Power Plant</td>
<td>50%</td>
<td>45%</td>
</tr>
<tr>
<td>Chemical Plant</td>
<td>40%</td>
<td>35%</td>
</tr>
<tr>
<td>Desalination</td>
<td>30%</td>
<td>25%</td>
</tr>
<tr>
<td>Architect/Construction</td>
<td>20%</td>
<td>15%</td>
</tr>
<tr>
<td>Energy</td>
<td>10%</td>
<td>5%</td>
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</tbody>
</table>
2. Titanium Shipments in Japan

Sponge

MT
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0

Export
Domestic

JTS
2. Titanium Shipments in Japan

Shipment Comparison between FY2005 and FY2006
2. Titanium Shipments in Japan

Import and Export of Unwrought Titanium

![Graph showing import and export of unwrought titanium in Japan from 2001 to 2006e]
2. Titanium Shipments in Japan

New Capacity on Line

<SPONGE>
- OSAKA Titanium technologies Co.,Ltd. (+14,000mt)
- TOHO TITANIUM CO., LTD. (+12,000mt)
3. Global Alliance

Boeing has made strategic Partnership Risk Sharing Partners

MITSUBISHI HEAVY INDUSTRIES, LTD.

Kawasaki

SUBARU
3. Global Alliance

World major engine manufacturers have also made alliance with Japanese Companies.
4. Enabling Technology, Enabling Future

Competitive Edge
4. Enabling Technology, Enabling Future

JTS Process

- Continuous Reduction Process
- Effective Closed Recycle System
4. Enabling Technology, Enabling Future

* R&D ON NEW ALLOY FOR INDUSTRIAL APPLICATION

- GOLF
- MEDICAL
- AUTOMOBILE

* FUTURE APPLICATION

- FUEL CELL SEPARATOR
- OTEC (Ocean Thermal Energy Conversion)
- MEDICAL IMPLANTS
4. Enabling Technology, Enabling Future

GOLF
4. Enabling Technology, Enabling Future

MEDICAL
4. Enabling Technology, Enabling Future

AUTOMOBILE
4. Enabling Technology, Enabling Future

FUEL CELL SEPARATOR
4. Enabling Technology, Enabling Future

OTEC

(Ocean Thermal Energy Conversion)

(Photo: Courtesy of Xenesys Inc.)
4. Enabling Technology, Enabling Future

Composite opens New Era for Titanium
5. Summary ~Our way to go~

- Japanese Enabling technology contribute to continuing growth for World titanium industry and lead us to Enabling Future
THANK YOU