<table>
<thead>
<tr>
<th>Found</th>
<th>2007</th>
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</thead>
<tbody>
<tr>
<td>Location</td>
<td>2-8 Yamadaoka Techno-Alliance 3F, Suita, Osaka</td>
</tr>
<tr>
<td></td>
<td>1-6-1 Hirabayashi-Minami Suminoe, Osaka</td>
</tr>
<tr>
<td>Business Domain</td>
<td>Chemical &amp; Fuels</td>
</tr>
<tr>
<td>Raised Capital</td>
<td>US$21Mil</td>
</tr>
<tr>
<td>Employee</td>
<td>50 (12 Ph.D holders)</td>
</tr>
<tr>
<td>Product/Service</td>
<td>Microwave Technology</td>
</tr>
</tbody>
</table>

**Company**

- Location:
  - [HQ • Basic Research]
  - [Manufacturing facility]

- Raised Capital: US$21Mil
- Employee: 50 (12 Ph.D holders)
- Product/Service: Microwave Technology
- Business Domain: Chemical & Fuels
## Management Team

<table>
<thead>
<tr>
<th>Title</th>
<th>Name</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-Founder, CEO</td>
<td>Iwao Yoshino</td>
<td>Iwao Yoshino serves as Chairman and CEO of the company. Prior to founding MWCC, he was involved in several start-ups as CEO/consultant. He started his career working for Mitsui &amp; Co., Ltd. in the chemical department. Iwao Yoshino received BA in Law from Keio University and MBA from UC Berkeley Haas School of Business where he was Hitachi MOT fellow.</td>
</tr>
<tr>
<td>Co-Founder, CSO</td>
<td>Yasunori Tsukahara</td>
<td>Yasunori Tsukahara serves as CSO of MWCC / Associate professor of Osaka University. Yasunori received Ph.D. Graduate School of Science · Osaka University, in 2003.</td>
</tr>
<tr>
<td>Director Controller</td>
<td>Tomoya Shimojo</td>
<td>Prior to MWCC, Tomoya worked for Deloitte Tomatsu and Kringle Pharma as a director/controller. He holds BA in Business from Kobe Univ. in 1996.</td>
</tr>
<tr>
<td>GM / Engineering</td>
<td>Hisao Watanabe</td>
<td>Hisao worked as a process manager at Toyo Engineering. He holds masters in Applied chemistry from Waseda University in 1978.</td>
</tr>
<tr>
<td>GM / Production Technology</td>
<td>Akinori Ishizuka</td>
<td>Prior to joining MWCC, Akinori was an assistant professor at Okayama University. Before joining Okayama univ, Akinori worked as chief engineer for Hitachi Plant. Tech. Ltd developing water treatment technology. He received Ph.D. in Engineering, from Grad. School of Science and Tech Chiba Univ.</td>
</tr>
</tbody>
</table>
Business Model

✓ What – Microwave Platform Technology
✓ Who - Chemical Companies
✓ How - Total solution R&D ~ Engineering

Process & Product Innovation
Our Service

R&D
【Basic Research
Bench Scale】

Pilot Scale

Engineering

Production

Lab.

Bench Scale Facility

Pilot Facility @Osaka Factory

Process Design

Production @Osaka Factory

From Basic Research to Manufacturing
New Process

New Product
Conventional VS Microwave

Selective、Direct、Uniform、Rapid、Internal
Design Process Based on Molecules
in detail...

【Alliance】
✧ Form alliance based on product/application.
✧ Basically one alliance partner per product/application.
✧ MWCC to provide basic research to process design. Customer to provide market needs.

【IP】
✧ MWCC to provide customer with exclusive rights for the target product/application. MWCC obtain rights to sublicense the IP to other non-exclusive target.

【Revenue Model】

R&D Phase
✧ R&D fee based on milestone payment.

Business Phase
✧ License model: lump-sum payment + running royalty
✧ J/V model: ①License fee、②Profit from Business、③Capital gain from J/V investment.
Science

How to design the reaction - temperature, frequency, what compounds to use in the reaction, etc.

Engineering

How to convey & distribute microwave into the reactor – simulation, material, etc.
Trial & Error

- Lab Scale
- 2t/d [Reactor G#1]
- 2〜4t/d [Reactor G#2]
- Test Reactor [Reactor G#3]*
- 12〜14t/d [Reactor G#4]**
- 10t/d [Reactor G#5]

New Technology
- Internal Structure
- MW Irradiation from bottom (hybrid irradiation)

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<table>
<thead>
<tr>
<th>Diameter (mm)</th>
<th>200</th>
<th>400</th>
<th>800</th>
<th>800</th>
<th>600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (mm)</td>
<td>2,000</td>
<td>2,000</td>
<td>1,200</td>
<td>3,000</td>
<td>5,500</td>
</tr>
</tbody>
</table>

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<tbody>
<tr>
<td>Application</td>
<td>BDF</td>
<td>Chemical</td>
<td>Chemical</td>
<td>Chemical</td>
<td>Chemical</td>
</tr>
<tr>
<td>Current status</td>
<td>Experimental use @ Saito Lab</td>
<td>Commercial use @ Kobe</td>
<td>Commercial use @ Osaka</td>
<td>Experimental Use@ Osaka</td>
<td>Commercial use @ Osaka</td>
</tr>
</tbody>
</table>

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*Initially experimental use, currently supplemental reactor @ Osaka
**Experimental use @ Osaka.

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2009 2010 2011 2012 2013
MWCC Microwave Scale-up Process

**Pase I: Lab**
- 5-500 ml / batch

**Pase II: Bench**
- 5-20 L / reactor

**Pase III: Pilot**
- 50-200 L / reactor

**Pase IV: Factory**
- 500-2000 L / reactor
- Throughput: 2,000-20,000 T /y
Make Wave,
Make World.