公司简介 / Introduction

大研简介
大研科技為美國SUNBEAMTECH Inc.於2002年與台大研發團隊合作，以生物事業
部營製投入生物技術材料領域，經歷五年研究發展，於2006年正式於台灣獨立為公
司並進行生產販售，目前主要業務為生物技術材料相關之代理、研發及製造。透過
位於台灣大學創新育成中心內的栽培總部，結合校內研發資源，盼能為客戶提供最
先進、最精確的服務。

大研優勢
技術與行銷為大研的核心能力，對於產品的研發，大研已投入逾五以上時數，技
術團隊將以台大研究、校友為主力、並結合國內法人研究單位，提供最完整的研
發與市場服務。在行銷方面，SUNBEAMTECH 透過與國際接軌以及行銷經驗，
讓大研在這方面有堅實的根基。

經營理念與願景
大研成立目標是成為全方位的生物科技公司，積極從事生物活性原料（bio-active
ingredient）研究開發，生產製造以及行銷生物技術材料相關產品。我們相信技術是
企業永續經營之本，將以發展創新先進之產品為使命，希望能立足台灣，放眼世界
為國內產業盡一份心力。

History
Bio-Function Technology (BF-Tek) is one of subsidiaries from SUNBEAMTECH Incorporation
which invests from digital section to bio-chemical industries. After development for 5 years,
BF-Tek was officially founded in 2006. Headquartered in National Taiwan University Innovation
Incubation Center, BF-Tek builds strong cooperation with universities and research organizations.
To be a major bio-material supplier with more than 400 customers in Taiwan, BF-Tek always
keeps learning and developing every moment.

Cooperation Vision
The mission of BF-Tek is to offer total solutions about bio-active ingredients to our customers.
We promise only the best quality and service will exist in BF-Tek.

With BF-Tek, there is always the
Better Future.
甚麼是 Aquafill® 水盈膜 / What is Aquafill®?

來自微生物發酵合成，通過特有專利流程，於生產流程環節進行無菌灌裝，
所採用生物醫用級原料，在細胞、組織等成形，全製程禁止使用化學溶劑，所
生產的Aquafill®水盈膜，在醫藥上被視為為最佳的皮膚替代物之一，可以縮短
傷口癒合時間與改善癒合效果，擁有穩定生物相容性與安全性；在美容應用
上，具有透明、超強服貼的特性，藉由其奈米纖維與組織吸收力強效活化成
分有效傳輸並持續吸收，同時符合清潔生產要求，為未來綠色工藝典範。

Aquafill® is synthesized by patented Acetobacter xylinum fermentation accompanied
with the purification, internal crosslink, and shape forming processes. State-of-the-
art Aquafill® shows the clear and transparent feature. With nano-fiber inside,
Aquafill® provides the best fitness and ODT performance than others. BF-Tek also
creates a solvent-free procedure to produce Aquafill®, this leads our Aquafill® the
excellent bio compatibility and safety.

大研科技大事記
2002年5月 SUNBEAMTECH生技事業部（大研科技前身）成立
2006年5月 大研科技有限公司正式成立
2006/08/25 大研一廠正式落成
2006/09/26 大研科技參加第一次海外展—第24屆廣州美博展
2007/05/27 沙田大湖科學園區二廠及新辦公室落成
2007/07/27 第七屆台灣生技展參展
2007/08/10 第七屆世界醫學美容展參展
2007/09/27 第17屆台北國際秋季美容化粧品展

Events
2002.5 Bio-material department of SUNBEAMTECH Inc. (then turned into BF-Tek) established.
2006.5 BF-TEK was officially founded in NTUIC.
2006.5 Keelung 1st factory started to operate.
2006.9 BF-Tek firstly exhibited in Guangzhou International Beauty & Cosmetic Import-Export Expo.
2007.5 Sijih 2nd factory and new office are opened.
2007.7 Bio Taiwan 2007 Conferences & Exhibition.
2007.8 4th Taiwan Medical Cosmetology Show 2007.
2007.9 17th Cosmetics Exhibition.
Introduction of Microbial Cellulose

In 1982, Johnson & Johnson Company applied series of microbial-cellulose (MC) wound dressing patents (US4538499: 465576: 4788146), this is the first medical applications of MC. After 4 years, a Brazilian company Biofill successfully developed 3 series of MC dressings, Biofill, Bioprocess, and Gengiflex. In 1991, several major Japanese companies like SONY, AJINOMOTO and government organizations which set up an interdisciplinary research program about MC application. Despite large investment in MC research, there is still the lack of efficient MC mass production techniques. Till 1997, an American company Xylos Corp, with members form Smith & Nephew, Johnson & Johnson, and Reneselaer Polytechnic Institute founded. Xylos overcame the production techniques and launched the product Xcel, the most expensive (US$USD250) and successful MC dressing on the world now. BF-Tek was authorized to produce start-of-the-art MC dressing Aquafil™ trademark property in Taiwan in the beginning of 2007. All CRO data will accomplish in 3 years. Besides, BF-Tek still try our best to look for new application possibilities of MC products.

Features of Aquafil™

Clarity
Aquafil™ is synthesized by patented Acetobacter xylulun fermentation and compressed with the purification, internal crosslink, and shape forming processes. State-of-the-art Aquafil™ shows the clear and transparent feature.

Aquafil™水凝膜特點

清透無瑕 / Clarity
Aquafil™水凝膜透過特有專利菌種發酵生產，於恆溫恆溼環境進行無菌培養，所採集纖維膜再經純化、交聯、成型等步驟，全製程禁止使用化學溶剤，使用時呈現晶瑩剔透的視覺效果。

Aquafil™ is synthesized by patented Acetobacter xylulun fermentation and compressed with the purification, internal crosslink, and shape forming processes. State-of-the-art Aquafil™ shows the clear and transparent feature.
奈米級纖維 / Nano-fibers

Aquafill™水凝膠具有3D立體纖維結構，具有良好保濕鎖水能力；
更由於Aquafill™水凝膠纖維直徑約30-100nm，可以將所攜帶之
精華液及活性成分直接輸送至皮膚底層，全程呵護無死角。

With 3D structure inside, Aquafill™ can be a wonderful carrier of any active
ingredient. Also the specific nano-fibers (30-100nm) of Aquafill™ make a
perfect fitness and coverage to users' skin and provide the highest
transportation efficiency.

- 上圖為Aquafill™水凝膠SEM圖，當纖維增強直徑約小於100nm。
  - 80000X SEM diagram of Aquafill™: all fiber diameters are less than 100nm.

- 下圖為Aquafill™水凝膠使用前後微鏡圖片，表面光滑整齊。
  - Before use, Aquafill™ has a smooth surface image.
  - After use, there is a skin topology on Aquafill™.
**Aquafill水盈膜與其他面膜材質比較**

<table>
<thead>
<tr>
<th>Aquafill水盈膜</th>
<th>純纖維素布面膜</th>
<th>溶液面膜/水膜面膜</th>
<th>生物纖維面膜</th>
<th>與傳統膜布面膜相比的優勢</th>
</tr>
</thead>
</table>

#### 來源
- 工業製造，對工廠環境要求極高，
- 水質要求非常高，
- 業者須定期進行品質控管。

#### 品牌
- 工業化生產，
- 品質控制嚴格，
- 無極端化及保養環境控制。

#### 平均纖維直徑
- 1000nm以上，無對皮膚刺激。
- 纖維細長，並可有效附著於皮膚。

#### 外觀性
- 白色布膜，
- 透氣性佳，
- 不易掉造成。

#### 保濕度
- 較一般纖維布面膜好，
- 相較於
- Aquafill水盈膜的保濕效果佳。

#### 使用效果
- 常見到較一般纖維布面膜好，
- 相較於
- Aquafill水盈膜的保濕效果佳。

#### USP薄型無刺穿發膜，
- 無細纖維筆直細長，
- 有效減少刺穿發膜。

#### 業者專利保養技術，
- 可有效改善皮膚狀況，
- 有效
- 適於各類膚質使用。

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**保濕鎖水能力**

Aquafill水盈膜可攜帶200倍水分，高單位精密濃縮

*State-of-the-art Aquafill™ can contain 200 times liquid inside, which means Aquafill™ is a superior mask material and better carrier of active ingredients.*

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**ODT封閉傳輸效應/Occlusive Dressing Treatment**

ODT封閉傳輸技术和透皮吸收技術，卵巢層鎖住肌膚，體溫上升並強化毛細孔張開，

*為有效成分經由細胞孔導入肌膚內，達成吸收入效。

Raise of skin surface temperature leads to skin-pore opening and makes activities easily penetrate into human dermis.
### Compare Table

<table>
<thead>
<tr>
<th>Source</th>
<th>Non-woven Mask</th>
<th>Crystal / Jelly Mask</th>
<th>Normal Medicinal Cellulose Mask</th>
<th>Aquafill&lt;sup&gt;TM&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Made from</td>
<td>Traditional textile industry, cheap and fast, but it requires too much energy to produce and leads to environmental issues.</td>
<td>&quot;petroleum industry&quot; - an extreme &quot;chemical&quot; and &quot;artificial&quot; product.</td>
<td>Made from &quot;petroleum industry&quot; - an extreme &quot;chemical&quot; and &quot;artificial&quot; product.</td>
<td>Patented process for medical use, 100% natural, pure and safe.</td>
</tr>
<tr>
<td>Uniform</td>
<td>Uniform</td>
<td>Not stable, there are strength, thickness issues.</td>
<td>Uniform</td>
<td>Uniform</td>
</tr>
<tr>
<td>Average Fiber Diameter</td>
<td>Above 1000 Mm, this can’t really fit to your skin. No. This is a film instead of a fabric.</td>
<td>Fibers range from 30-300nm, but it has an unstable quality.</td>
<td>Fibers range from 30-100nm with a uniform quality.</td>
<td>Aquafill&lt;sup&gt;TM&lt;/sup&gt; mask is clear, soft and has an excellent &quot;aquafeel&quot;</td>
</tr>
<tr>
<td>Feature</td>
<td>White fabric.</td>
<td>Passable.</td>
<td>The mask appears in a white with poor transparency.</td>
<td>Extremly excellent, Aquafill&lt;sup&gt;TM&lt;/sup&gt; provides unbelifable fitnessthat you can use it without pausing daily works or action.</td>
</tr>
<tr>
<td>Fitness</td>
<td>Bad.</td>
<td>Passable.</td>
<td>Good. But it has an unstable quality and still worse than Aquafill&lt;sup&gt;TM&lt;/sup&gt;</td>
<td>Extremly excellent, Aquafill&lt;sup&gt;TM&lt;/sup&gt; moisture skin up to +60% variation after 30 minutes use.</td>
</tr>
<tr>
<td>Moisture Ability</td>
<td>Bad.</td>
<td>Passable.</td>
<td>Good. But it has an unstable quality and still worse than Aquafill&lt;sup&gt;TM&lt;/sup&gt;</td>
<td>Extremly excellent, Aquafill&lt;sup&gt;TM&lt;/sup&gt; moisture skin up to +60% variation after 30 minutes use.</td>
</tr>
<tr>
<td>Effect</td>
<td>Bad.</td>
<td>Passable.</td>
<td>Maybe it is better than normal masks, but still needs to be certificated.</td>
<td>ODT system forces all active ingredients to penetrate into human derm effectively. &quot;Transmembrane data will accomplish in the end of 2007.&quot;</td>
</tr>
</tbody>
</table>

### Q & A

1. Q. 為什麼使用非現成產品更進行化妝品的趨勢推廣？
   - What is the mainstream of cosmetics now?
   - Non-woven Mask / Crystal / Jelly Mask / Normal Medicinal Cellulose Mask / Aquafill<sup>TM</sup> | Cosmeceutical applications.

2. Q. 醫療美容與醫美及美容有何不同？
   - What is the difference between "cosmeceutical" and "cosmetic"?
   - A. 醫療美容是使用專用在醫療領域上的醫療產品，通過醫療級，適用於美容的患者，配合美容領域的治療效果。
   - B. 医疗美容和医美都是在医疗领域，但医疗美容更注重医疗，在皮肤上，而医美美容更注重美学的提升。
   - Cosmeceuticals often refer to the solid theory studies and well safety tests, both offer the extra competitiveness better than traditional cosmetics.

3. Q. 什麼特色是美容業美容產品所應具備的？
   - What are the features of cosmeceutical?
   - A. 醫療美容產品應具備的 a.天然有機成分 b.生化技術應用 c.中藥入脈 d.活性化學品 e.核酸結構
   - 作為生物材料的鹿角蜜膏、大東Aquafill<sup>TM</sup>水凝露完全符合上述要求，將是初度將醫療美容結合於台灣。
   - B. 醫療美容產品應具備的 a.天然有機成分 b.中藥入脈 c.生化技術應用 d.核酸結構
   - 讓我們能以台灣製造，大東Aquafill<sup>TM</sup>水凝露完美符合上述要求，是第一次結合醫療美容於台灣。

4. Q. 大東Aquafill<sup>TM</sup>水凝露有何特性？
   - What are the features of state-of-the-art Aquafill<sup>TM</sup>?
   - A. 大東Aquafill<sup>TM</sup>水凝露具有 a.生化技術應用 b.中藥入脈 c.生化技術應用 d.核酸結構
   - As the leader in cosmeceutical, BF-Tek is honored to introduce the state-of-the-art Aquafill<sup>TM</sup> to our customers, the best weapon to win.

5. Q. 大東Aquafill<sup>TM</sup>水凝露及一般金屬離子生物鍊難有何不同？
   - What is the difference between Aquafill<sup>TM</sup> and "Bio cellulose mask"?
   - A. 大東Aquafill<sup>TM</sup>水凝露在使用異物時，能啟動肌膚的修復能力，具有生物鍊難離子所沒有達的獨特配方，具有優良的固定力。
   - Aquafill<sup>TM</sup> is synthesized by patented Acidobacterium fermentum fermentation with the purification, internal crosslinking, and shape forming processes. State-of-the-art Aquafill<sup>TM</sup> shows the clear and transparent feature, ultra softness, and the stable quality control different from bio cellulose masks.

6. Q. 為什麼我們選擇採用大東Aquafill<sup>TM</sup> "氷敷面膜"？
   - Why should company carry Aquafill<sup>TM</sup>?
   - A. 大東Aquafill<sup>TM</sup>氷敷面膜有著低耗無菌優勢、其對眼周及美容特區公司產能帶來更優化，提升品牌價值及銷售額。
   - State-of-the-art Aquafill<sup>TM</sup> can bring a whole new vision to company to promote its own brands, increase the revenue, and benefit both customers and companies. Aquafill<sup>TM</sup> is the best weapon to win.

7. Q. 為什麼大東公司要和BF-Tek一起合作？為什麼公司帶來最大的優勢？
   - Why should company carry BF-Tek? What is the biggest advantage to company?
   - A. 大東Aquafill<sup>TM</sup>氷敷面膜一向以優生技術領導，對醫療領域中的競爭者有著短視。BF-Tek與大東公司合作，具有強大的研發背景，共同開發出具有獨特性的產品，為客戶提供更優質的服務。
Microbial cellulose is synthesized by Acesobacter xylinum shows vast potential as a novel wound healing system and skin substitutes. The high mechanical strength and remarkable physical properties result from the unique nanostructure of the never-dried membrane.


Microbial cellulose (MC) production was intensively investigated in the 1980s by several major Japanese companies and governmental organizations, such as Biopolymer Research Co., under MITI and Ajinomoto, Shikoku, Riko. National and well-funded up to cost 45 million.


The first efforts to commercialize Microbial cellulose (MC) on a large scale were initiated by Johnson & Johnson and many companies in the early 1980s. However, Johnson & Johnson Company did launch any commercial product out of their inventions, most probably due to the problems with the development of an efficient, large-scale fermentation system. Microbial cellulose (MC) commercial production was intensively investigated in the 1980s by several major Japanese companies and governmental organizations, such as Biopolymer Research Co., under MITI and Ajinomoto, Shikoku, Riko. National and well-funded up to cost 45 million.


In 1996, a US-based corporation negotiated exclusive licensing agreements with Johnson & Johnson use their patent on cellulose-based wound care product and obtains FDA approval on its products which marketed on 2003. We expect certain that more players will soon join this multi billion-dollar market.


Contaminated with MC, ductile membrane shows large area that can hold a large amount of water up to 100 times of its dry mass, and at the same time display great elasticity, high wet strength and conformability.


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The treatment of chronic wounds involves the application of different materials that provide a moist wound-healing environment that is necessary for optimal healing. Wound dressing play an important role in the entire management of these types of wounds. And recent reports on applications of Microbial cellulose (MC) dressing in the treatment of chronic wounds suggest that it displays properties superior to other existing wound-healing materials.


Microbial cellulose (MC) can repair damaged skin, and its bioactivity is important in tissue repair and wound healing. Microbial cellulose (MC) can also be used as a wound dressing material to prevent infection and promote healing.

From Fontana et al., advantages of using Microbial cellulose (MC) as a biological dressing have been confirmed in more than 350 treatments. The authors mentioned the following advantages: immediate pain relief, reducing scarring, biocompatible, enable introduction of medicines into the wound, faster healing, improved exudates retention or reduced time of treatment as well as reduce cost. From Fontana JD Acesobacter cellulose pellet as a temporary skin substitute. Applied Biochemistry and Biotechnology 1990.

Microbial cellulose (MC) has been used to treat chronic wounds. In addition, it has the potential to regenerate damaged skin. Microbial cellulose (MC) has been used as a wound dressing material to prevent infection and promote healing. Microbial cellulose (MC) has been used to treat chronic wounds. In addition, it has the potential to regenerate damaged skin.


Microbial cellulose (MC) is an excellent alternative to traditional wound dressings. Microbial cellulose (MC) can be used to provide a moist environment, which is necessary for optimal healing.

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We definitely think that due to the unique 3-D nanostructure, Microbial cellulose (MC) membranes virtually replicate the wound surface at the nano-scale level and create optimal moist conditions for wound healing and skin regeneration.


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