1. COMPANY INTRODUCTION

Introduction to the Company

Representative

Mr. Sunggie Lee – CEO & CTO/Ph.D

History & Progressive Business


2004: Purified and restored petroleum-contaminated soil 458.64m³ at the air force unit in Seong-nam. (Dailbiotech 1700).

2006: Exported Dailbiotech 1600 (restoration of soil contaminated by dioxin, agrichemicals) to Sweden SUEZ-SITA; obtained import permit from the Swedish Agricultural Administration for Dailbiotech product (Certificate). Won the first prize at the Korea 100 Great Patent Products Awards.

2007: Entered a contract with SK-Construction & DM for receiving an order in consideration of purification of soil contaminated by petroleum compounds. Incheon Soilsite 300,000m² is treated by Dailbiotech 1700 product.

EuroBio 2007, Key-Note Speakers of GREEN AND WHITE BIOTECH

Bioremediation of soils/ water (phytoremediation / Biorestauration)

http://www.eurobio-event.com/conferences.php

Won the silver medal prize at the Korea Invention Patent Exhibition 2007.

2008: Entered a contract with Korea-Hydro & Nuclear Power Co. for receiving an order in consideration of purification of insulator-oil contaminated from PCBs.

To receive an order for purification of soil and sea water (Yellow sea) contaminated by petroleum oil compounds, the contract is now expected between Dailbiotech and Korea Government (US Army Site and Department of Defense & Environment)

To receive an order for restoration of soil contaminated by dioxin, PAH & Petroleum oil, negotiation is being progressed with EU & ME-Bioremediation and Oil Company.

Dailbiotech and Sweden Company is in cooperation for soil restoration and bioremediation.

2009: Dailbiotech and Sweden STPC are in cooperation to distribution of dailbiotech products for soil restoration and environmental bioremediation from northern Europe.

Dailbiotech product is certified in Seoul National University-formal test of LPP project.

Pohang TKP (petroleum Oil pipe Line of US-army) project is accomplished by used dailbiotech 1700 (restoration of petroleum contaminated soil).

2010: Dailbiotech product is land farming tested in Camp Sears site of LPP project, By used dailbiotech 1700 (restoration of petroleum contaminated soil of US army site).

2011: Dailbiotech product is application and tested in foot and mouth disease of soil sink site of Korea. By used dailbiotech 1200 is restoration of soil sink site contaminated by leachate of foot and mouth disease of Korea
<table>
<thead>
<tr>
<th>Order</th>
<th>Application No.</th>
<th>Applicant Country (date)</th>
<th>Applicant</th>
<th>Title</th>
<th>Registration No. (date)</th>
<th>Inventor</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>PCT/KR00/00747, (WO01/14526)</td>
<td>Europe (Britain, Sweden Finland, France, Germany) (2002.3.20)</td>
<td>Lee Sunggie</td>
<td>Bacterial consortium EBC1000 and a method using the bacterial consortium EBC1000 for remediary biologically recalcitrant toxic chemicals contained in industrial wastewater, waste materials and soils</td>
<td>U.S US6383797B1 (2002.5.7) Australia759338, New Zealand517647, China1177035, Japan3673496, UK-Europe1210407</td>
<td>Lee Sunggie</td>
</tr>
</tbody>
</table>
2. TECHNOLOGY/PRODUCT INTRODUCTION
※ 기술 또는 제품 소개를 영문으로 한두 페이지로 요약(매칭분야 (협력 기술이전 투자유치 및 시장개척 R&D, , ,)에 대한 설명 포함, 그림 등 사용 가능)

Outline and Features of the Technology
Overview and Necessity of the Technology
Among the major three environmental problems, environmental hormones (endocrine system disrupting substances) are the most serious and currently can be categorized into 140 kinds. Most of them contain chlorine compounds and heavy metals. For several decades, these substances have contaminated the air, soil, water and food chain for human beings along with the industrial revolution, economic development, and contamination of the environment on the Earth. Even the atomic amount density can cause continuous biological amplification through the food chain and maximization of invisible toxicity, and these have resulted in behavioral disorders and cancer in humans and animals. Disruption in generative functions is accelerated, such as reduction in sperm count and destruction of the immune system. A fatal effect on generative function is endangering the survival of humankind, and the danger is continuously increasing.

For multi-chlorinated biphenyl substances, harmful substances of poly-chlorinate biphenyl have been researched and reported about microorganism reactions under laboratory conditions, in which the micro density level and anaerobic are below 1mg/kg; however, there is not much of trials for direct research under conditions that are aerobic, high density, various same kinds PCBs, and from the soil of the actual site. Chlorine solvents such as PCE have been tried under anaerobic conditions using microorganisms, but there have been difficulties in cost for facilities and the efficiency of treatment. Besides, there are trials by incineration thermal treatment, neutralization by chemicals, solidification by high-pressure compression, cleansing, and reclamation. However, costs are significantly high and there are side effects (increase in secondary contamination such as dioxin and imbalance of the ecosystem). Therefore, there have not been many trials for treating dioxin in any radical aspect. Also, toluene and PAHs still have so many limits in biological treatment, and even a basic approach is difficult regarding tar-acid, which is a by-product from the petrochemical industry.

As a solution to such problems confronting humanity, the subject technology is an attempt to establish biological restoration technology that removes environmental hormones, which are endocrine disturbance substances and contaminate the Earth’s environment in a fundamental level, by making use of an eco-friendly method finding a new naturally effective microorganism existing in the ecosystem of soil and water.

Features, Advantage and Competitive Power of the Technology
Dailbiotech 1000 can be used to retrieve soil and timber contaminated by PCP and organic chlorine compounds and utilized for purification of wastewater, wastes, extracted water from reclaimed land contaminated by non-degradable toxic materials. In the case of soil and timber contaminated by PCP, 99% efficiency was reported, which is much superior degradation efficiency in comparison to products from the US. Dailbiotech 1100 shows over 90% degradation effect on high-density waste acid and waste alkali substances dumped in the ocean using more than 10 kinds of effective microorganism consortia. Dailbiotech 1200 is a mixture of 1000 and 1100, and a more efficient product when applying to complex contamination situations. Dailbiotech 1300 can be used for purification restoration for soil contaminated by petrochemical substances such as toluene and PAHs. Dailbiotech 1500 shows efficient biodegradation effect on water and soil contaminated by high-density TCE and PCE. Also, Dailbiotech 1600 is attracting great attention from North America and Europe as the product demonstrates efficient biodegradation effect on water and soil contaminated by high-density PCBs and dioxin. Dailbiotech 1700 is an excellent product that cans effectively bio-degrade complex harmful substance
petroleum tar acids accumulated in water, petrochemical industrial complexes, and soil.

A. Import Permit of the Swedish Ministry of Agriculture for Dailbiotech products (Certificate): Dnr 38-2158/06.

B. To advance to the US market, the harmlessness of the Dailbiotech products have been certified from a safety test on components performed in the laboratory under FDA.

These are groups of microorganism separated from nature, and then composed. These are various natural bacterial strains with various degradation functions. There has neither been known case that contaminants were degraded by aerobic methods, nor successful examples reported for bio-degradation of PCBs and dioxin, so far. High-density subject materials (such as PCBs over 500 ppm) can be removed by microbial consortiums formed by the subject product under aerobic conditions, in an eco-friendly way at low cost. Beginning with advanced countries, industrialized nations in the world are discharging more and more non-degradable harmful substances that had been dumped in the ocean, by cleansing, reclaiming, incinerating, compressing, and solidification. An environmental restoration method that can purify and retrieve using new microorganism biodegradation can have a discriminating character for advanced markets.

The same competitive power is limited to petroleum-degradable microorganism, and there is almost no case that can be compared with the product of the technology owner regarding environmental hormone biodegradation, except petroleum. The reason for this is that the subject technology is an eco-friendly treatment method for contaminated soil and water (subterranean water and ocean, etc.) that can biologically degrade chlorinate organic compounds such as PCBs and PCP, known as representative environmental hormone substances, and non-chlorine organic compounds such as toluene.

The cause for developing the subject technology is necessity for bio-purification of the environment (soil, subterranean water, ocean) contaminated by petroleum and environmental hormones including various organic chemicals by composing microorganisms separated from nature.

Rival companies' biological purification methods are mainly for degradation of non-chlorinate organic chemicals that are easily degraded. However, the subject technology is capable of purifying and restoring environments from contamination by non-chlorine organic chemicals as well as chlorinates organic chemicals that are essentially non-degradable, and this is a unique advantage of the subject technology. Generally, environments contaminated by non-degradable chlorinate organic chemicals have been treated by a method that is to separate contamination material from soil and incinerate it, due to technological limits in biological treatment. For soil contaminated from easily degradable non-chlorinate organic chemicals, biological degradation was achieved by optimization of aboriginal microorganism condition in nature. The subject technology is original in its superiority in degradation effect on non-degradable compounds (recalcitrant toxic chemicals).

### Difference with Similar Technologies

<table>
<thead>
<tr>
<th>Rival or similar technologies</th>
<th>Superiority and major differences</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>chemical-physical purification technology: soil steam extract method, air crush technology, soil cleansing, solvent extraction, solidification-stabilization, thermal desorption, vitrification, incineration,</td>
<td>Advantages: It can be parallel with other technologies and utilized the right away. Easy installation of equipment. Disadvantages: Limited in degradation range. High-cost structure, creation of large amount of</td>
<td>Dailbiotech bio-remediation technology can overcome the limitation of existing bio-remediation technology.</td>
</tr>
<tr>
<td>etc.</td>
<td>secondary pollution material</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>-----------------------------</td>
<td></td>
</tr>
</tbody>
</table>
| Bioremediation:  
   In situ bioremediation,  
   Bioventing,  
   Ex situ bioremediation,  
   Phytoremediation, etc. | Advantages: Effective where pollution level is low  
Low cost, can be combined with other technologies  
Disadvantages: Inefficient to chlorine organic compound |