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"One more step to promote the innovation with SYNOPEX"

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### History

<table>
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<th>Year</th>
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| 2010 | Developed RO (Reverse Osmosis) membrane filter  
       Started the tempered glass business |
| 2009 | Launched Water business  
       Selected the New Growth Enterprise and Awarded  
       FDA approval on filter for Food & Beverage, Pharmacy  
       Started mass-production of the all-in-one touch screen |
| 2008 | Founded the company building in Dongtan |
| 2007 | Developed the Nano membrane  
       Adopted automation system in the KEY-PBA production line  
       Established the SYNOPEX Inc. Electronic Public Corporation in Cheonjin, China |
| 2006 | Merged Sinyang P&P and Yoowon Telecom |
| 2004 | Started manufacturing the LCD module of Samsung Electronics |
| 1995 | Listed on KOSDAQ |
| 1990 | Acquired a patent on the packing sheet |
| 1989 | Acquired KS on the packing sheet |
| 1986 | Established the packing sheet facilities and started sales |
| 1985 | Established Shinjung Inc. |
About SYNOPEX

SYNOPEX is creating a new future by pursuing a fresh challenge and innovation

The global company, SYNOPEX that pursues green growth, is the eco-friendly company focusing on the Water business and IT business. We make and provide Advanced membrane system, High-performance filter, Environment-friendly packing materials and Mobile components to prominent domestic · overseas enterprises. SYNOPEX aims to be the best company that realizes innovative technological integration through synergy effects between organizations with core technologies of different fields.

We have developed eco-friendly packing materials, high-performance Nano-filter for advanced IT and various industries and supplied them to the major domestic · overseas companies, expanding the core mobile components business including touch screen, Key-PBA since we succeeded in manufacturing the first domestic touch screen for mobile in 2007. Especially, we have successfully localized Nano-composite separator membrane which is the core technology of Water business and we are growing into the leading company that has enough ability to cope with the future Water stress based on the accumulated know-how for material/design/construction/operation related to water business. We, SYNOPEX is doing our best to make and provide the products with a competitive cost and promise to contribute to improve the quality and cost reduction with the best quality and service.

Business Areas

**Water Business**
- Manufacturing Membrane (MF/UF/NF/RO)
- Material/Design/Construction/Operation
- Water Treatment System

**IT Business**
- Touch Screen
- Key-PBA
- FPCB

**Future Environment Division**
- Eco-friendly Packing Sheet
- High-performance Filter
- Nano Membrane
Water Business Group

Total Water Solution Provider adopting Membrane Technology

To improve the quality of life, SYNOPEX can cope with the New Smart Total Water Solution in small islands, coastal areas, disaster areas and place troubled from water shortage based on the highly advanced membrane technologies. We provide mid & small-sized water purification system, desalination system, wastewater treatment & reuse system and many other systems. We are continuously making efforts to improve high-performance filters and developing engineering technologies to secure the safe water and to survive in the global water challenge.
**Business Areas**

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**SYNOPEX Water Business Group**

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**Seawater Desalination System**

The system removes salt in seawater so that it can provide drinking water to the cities having difficulties of getting water services.

- Applying RO (Reverse Osmosis) membrane system, it can remove any pollutants including salinity and dissolved materials perfectly
- Compared to the Thermal process (MSF, MED, VCD), RO membrane system can reduce more energy consumption

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**SMDT (Synopec Mobile Drinking water feeding Trailer)**

SMDT (Synopec Mobile Drinking water feeding Trailer) is equipped with the power generator and water treatment facilities inside of the container.

- Supply sanitary and reliable water in small islands, coastal areas, disaster areas and places troubled with electricity
- Depending on the raw water quality, the treatment process can be modified easily to optimize customer’s satisfaction
- Remove the heavy metals and ionic materials through RO membrane
- Meet water demands promptly

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**Rainwater Reuse System**

The system is adopting the external Hybrid MBR instead of previous submerged membrane system reusing rainwater in wastewater treatment.

- Easy to install and replace membrane
- Compact design including tanks, pipes, pumps and other equipment inside of the installation
- Easy to install additional membranes and facilities to meet target capacities by adding membrane modules horizontally

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**Mid & Small-sized Water Purification System**

The system provides clean and safe water to the rural villages where can’t have stable water supply by transforming valley water, stream water and groundwater.

- Perfectly remove pathogens, heavy metals, microorganism, turbidity, suspended solids and etc.
- By adopting automatic back-washing filtration system, no man power and no exchanging consumables are needed
Wastewater Treatment & Wastewater Effluent Reuse System

Wastewater Treatment System
The system is a combination of Membrane and physical, chemical, biological treatment facilities.
- Increased efficiency of water treatment, stable in change of flow and water quality
- Satisfied with the legal discharge standard

Wastewater Effluent Reuse System
The system treats the effluent from the wastewater treatment plant for industrial water to reuse.
- Remove particles, organic materials, ionic materials, T-N, T-P and color included in effluent
- Save water resources and decrease CO₂ for company competitiveness

Fluoride Wastewater Treatment M/F Membrane System
The system safely treats fluoride wastewater coming from the manufacturing process of LED, LCD, Solar products and semi-conductors to lower than disposal standard (10,000ppm to lower than 15ppm).
- Instead of clarifier needing big space for installation, membrane system can save the space for the compact composition
- The treated water quality and treatment efficiency can be improved by removing the particulates and chemical floc
- High recovery rate due to collecting whole concentrate water for reuse (recovery rate 95 ~ 99%, sludge disposal 1 ~ 5%)

High Concentrated Salt-Wastewater Recovery System
The system can recover 90 ~ 95% of salinity from the high concentrated salt-wastewater from salt-down process of Kimchi factories.
- Perfect separation of color, odor and organic materials from salt-wastewater
- Sanitary treatment process without any chemical used
- Small footprint due to compact process
- Automatic operation by PLC control

Pure/Ultrapure System
The system is applied as the pre-treatment step which directly filters groundwater and surface water to remove the suspended solids, viruses and algae for drinking water, industrial usage water and pure treatment.
- By adding after-treatment system, can produce ultrapure water of specific resistance
- Can be applied to the producing process of pure water for cosmetics, drug and semi-conductor industries
Livestock Wastewater Treatment & Resource System
Livestock wastewater treatment & resource system treats the waste from poultry businesses and ranches in odorless way and liquefy those fertilizers quickly.
- Can be added at the previous fertilizer producing process without big investment
- Increase the efficiency of the whole process by 25%
- Reduce the cost of equipment and management / Improvement on the farm products’ productivity by providing high-performance fertilizer

Foods Wastewater Treatment & Resource System
Foods wastewater treatment & resource system turns leftover foods into resources and filters out the water.
- Easy to maintain and low operating costs
- Minimize sludge production and produce the condensate (treatment connected with wastewater treatment plants)

Oil Wastewater Recovery System
The system can separate and filter the waste-oil from industrial wastewater using the special membrane.
- Reduce the amount of waste-oil up to 90%
- No need of other chemical injections due to physical treatment system
- Reduce outsourcing cost for treatment due to decrease of the amount of condensed oil wastewater under 1/10

Caustic soda Wastewater Recovery System
The system recovers caustic soda from its disposal process using the membrane system in mercerizing wastewater and also reuses recovered caustic soda in mercerizing process.
- Reduce amount of caustic soda used in the mercerizing process
- Reduce amount of wastewater production through reusing caustic soda
- Reduce manufacturing cost & maximize business profits through reuse of caustic soda
We have developed the high flow rate & high-performance filter for semi-conductor, LCD production line and the filter for various water treatments and provided them for the domestic · overseas companies. We are focusing on the core technologies such as Nano-composite separator membrane for advanced water treatment industry driving force of the new growth and leading to localize a high-performance filter that has considerable import dependency rate.

**High-performance Filter**

SYNOPEX has developed and provided not only a high-performance filter with Nano technology but also the water treatment filter for semi-conductor and LCD production line of major domestic · overseas companies.

**Nano Composite Separator Membrane**

We have succeeded in developing the Nano-composite separator membrane in Sep, 2007 through cooperation with Korea Research Institute of Chemical Technology and focused on securing the original technology for a high-performance filter with nano technology. Nano composite separator membrane which strains the substance of 1~2nm or more is the high-performance filter and has excellent performance in permeation rate and removal rate of bivalent chromosome compared with other manufacturers.
NLP (Low Pressure) - Brackish Water, Drinking Water, Ultrapure Water

NLP series are the aromatic composite membrane elements developed by NANOFILM (applicable to brackish water desalination). It can work under the properties of low pressure operation; high permeate flow and excellent desalination. Furthermore, it also can work under the high properties of eliminating the soluble salt, TOC and SiO\(_2\), and is especially applicable to the manufacture of high-purity water for electronic industry and electric power industry.

NULP (Ultra Low Pressure) - Brackish Water, Drinking Water, Low Energy

NULP series are the ultra low-pressure aromatic composite membrane elements applicable to desalination of surface water and underground water. This product is well suited for conditioning of water for glass house irrigation. It can work under the ultra low pressure to reach as high permeate flow and salt rejection as regular low-pressure membrane element. It operates under approximately 2 thirds of the operating pressure of regular low-pressure composite membrane and achieves a salt rejection rate of up to 99.5% which can decrease the investment costs for such relevant facilities as pump, piping, and container, etc. and the operating cost for the RO system, thus increasing the economic efficiency.

NFR (Fouling Resistant) - Wastewater, Brackish Water, Drinking Water

NFR series are aromatic polyamide RO membrane elements which are newly developed by NANOFILM and it can be used in desalination of brackish water. It is characterized by ultra low-pressure operation, higher water productivity and excellent desalting property. Moreover, we make special treatment to the surface of membrane with unique technology to change its electrical charge and smoothness, increasing the hydrophilicity of membrane surface, thus decreasing the adhesion of contamination and microbe so as to lessen the pollution and extend the service life of elements.

NSW (Seawater) - Seawater, High Concentration Brackish Water

NSW series are aromatic polyamide RO membrane elements which are newly developed by NANOFILM and it is applicable to seawater desalination. By optimizing the structure of membrane elements, the NSW series increases the permeate flow, and requires fewer elements for its permeate flow. It is characterized in low operating pressure, small equipment investment, excellent rejection rate and reliable performance. Its high salt rejection can ensure producing the drinking water from seawater simply through one-stage RO system.
**UF (Ultrafiltration Membrane)**

Feed water passed through the membrane with high speed. High molecular weight materials & particles are circulated and eliminated by membrane to purify water & solvent. The filtration system is Cross-Flow type. Permeate water flows vertically against with the raw water flow direction so that membrane fouling doesn’t occur often and the system can maintain the stable flow rate. Especially, the UF membrane is made up of polyacrylonitrile(PAN) which is a hydrophilic material and it increases the membrane performance.

**Wafer Wastewater Membrane**

The membrane treatment system of wafer wastewater is applied at the existing method which requests the specialized company to dispose the produced wastewater in wafers manufacturing process. But by adopting the membrane system, the factory can dispose the treated water directly or can reproduce ultrapure water by applying the RO system which can reuse wafer wastewater so that company can save cost for manufacturing wafers.

**GS (Gas Separation Membrane)**

The membrane selectively filters certain gases among the gas mixture by the difference of solubility of the gas and diffusion velocity. This membrane is used at nitrogen enrichment, carbon dioxide separation, dehumidifying and purification of waste gas.

- Oxygen Enrichment Membrane: Increase the concentration of oxygen until 40% (maximum) in the air
- Nitrogen Concentration Membrane: Increase the concentration of nitrogen until 95-99% (maximum)

**CA (Controlled Atmosphere)**

Existing method of storing farm products and groceries has some problems of quality deterioration due to change of the taste, color, smell and cellular tissues. By contrast, the CA system is applied at the storing the foods by controlling the air reclamation. This system can store the foods for a long period without decomposition and restrain growth of products.
The company that considers environment

We are the only company that has KS Mark, ISO9001 / 14001 Certification, REACH registration in the same field and we have the outstanding competitiveness including the R&D Center and integrated production facilities. SYNOPEX which aims at Green Growth Company has provided eco-friendly environmental packing materials to the major domestic · overseas steel companies with continuous research and investment to develop environment-friendly products.

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**VCI (Volatile Corrosion Inhibitor) Treated Paper**

The packing material which preserves the product from corrosion is very effective at anti-rust. It is the most suitable to pack the exports for a long distance which is applied to pack the steel product, vehicle, aircraft tire, shadow mask for TV · monitor.

**Building Paper**

It preserves the product from permeation of external moisture and various waterproof papers are available depending on the purpose of packaging. SYNOPEX’s building paper is applied to pack the steel materials, machinery, high-class paper.

**Cardboard**

A cardboard which is the substitute for metal packing materials is applied to protect the interior and exterior of steel materials. The easy and simple packing is suitable for heavy materials and it can be customized in various ways.
Synopex presents a new business model standing on a merger between conventional business & IT enterprise. And Synopex intends to promote the leverage through the technological approach for the innovations and to reach the apex in the end.
Customized care for the customers

SYNOPEX Generalizing IT Business

Touch Screen

Global company that leads technical innovation

SYNOPEX has made the first electrostatic capacity type touch screen in Korea and developed, manufactured a touch module including touchpad, touch screen and provided them to the leading domestic, overseas mobile phone companies.

The leading company, SYNOPEX that goes ahead of customer’s needs deposits ITO on the window directly to make a piece of window (tempered glass) to be a touch screen. As a result of this, we are producing the next generation integrated touch screen with a high permeation rate and polishing appearance, stable yield rate.

Systematic • Specialized • Customized System

We have provided the optimum product and service through operating take force team system for the customers and are trying to secure the quality and competitive price through Quality Control Team’s prompt and correct analysis, measurement, R&D Center’s continuous research, development.

1. IQC list
   shape, size, function, feature, RoHS(Restriction of Hazardous Substances), reliability
2. PQC list
   Whole products management
   (shape, size, function, feature, destruction)
   (Every day, line and model), reliability test
2-1. CTQ (critical to quality) list
   along with each model’s feature
3. OQC list
   shape, size, function, feature, RoHS(Restriction of Hazardous Substances), reliability
4. CS System
   within 24 H analysis problem and within 48 H solve the problem. Always support customers request.
SYNOPEX Generalizing IT Business

Mobile KEY-PBA

KEY-PBA for mobile equipment

We are producing the core component KEY-PBA that inputs data to mobile terminal unit and operates various functions by assembling different components such as dome, motor, speaker through Surface Mount Technology (SMT) process for FPCB (Flexible Printed Circuit Board).

PBA for a printer

SYNOPEX that has the prominent technologies on Surface Mounted Technology (SMT) for electronic components is producing the compact and high-quality PBA for a printer with the minimum defect rate.

Producing KEY-PBA and assembling SUB (Ass’y)

- **KEY-PBA**: Producing SLIM KEY-PBA, RIGID/FLEXIBLE KEY-PBA, LCD SUM KEY-PBA
- **SUB ASS’Y**: producing CON’ TO CON’ ASS’Y, SP K/MO TO ASS’Y, IRDA ASS’Y
- Assembling and producing integrated KEY-PBA including injection material

Procuring competitiveness through developing next generation KEY-PBA and cost reduction

- **KEY-PBA**: Producing SLIM KEY-PBA, RIGID/FLEXIBLE KEY-PBA, LCD SUM KEY-PBA
- **SUB ASS’Y**: Producing CON’ TO CON’ ASS’Y, SP K/MO TO ASS’Y, IRDA ASS’Y
- Improving productivity through Array Type Key-PBA

Automatized Facilities

- Improving the quality, productivity through automatized MIC SOLDORING
- Automatized attachment of DOME SHEET
- Improving productivity and effectiveness through a dual type behavior inspector
Global Network

Synopex leads Water business, IT business and Future environmental business.
Also Synopex is growing into the leading company for Global green growth through synergy effects between affiliates with the best quality and service.