Material Connecting the World

HWASEUNG Material
Hwaseung Material

Invisible power that leads the world
and creates the future
Beyond representing Republic of Korea,
Hwaseung Material is taking a big step toward
the world’s leading companies

Since its foundation in 1978 as Dongyang Chemicals, Hwaseung Material is the nation’s number one company in materials
through continuous change and innovation.

Based on the 40 years of accumulated technology, we continued to invest in technology and achieve management innovation,
resulting in the development of 1,500 types of Compound such as CMB, TPE, Silicon, and etc.
We’ve come to provide best products and technologies and gain international acknowledgment.
Hence we are expanding business area to engineering solution field, based on the unique core technology,
while also concentrating on the development of new high functional eco-friendly material,
which will be the springboard for the future growth.

Hwaseung Material proceeds to the greater future with the vision of world class material company.
Through global management, in which customers’ needs are quickly satisfied anywhere in the world,
Hwaseung Material will firmly establish trust and reliability of quality for all of its products and
create the foundation for the new future of industrial society.

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Lead!
The Material World

From the largest domestic CMB manufacturer to the leader of world class materials industry

Hwaseung Material, deeming that the materials industry is what’s leading the world’s progress, provides the best products and technology. Innovating unremittingly, Hwaseung Material is creating new values for the future.
Believe!
Global Company, Continuous Growth

With the best technology and reliable quality, global competitiveness is enhanced.

Hwaseung Material is expanding the investment on R&D for the development of the core technology and the first-class products. At the same time it continues to improve the development capability and manufacturing technology. Especially in 2012, for the first time in the country as CMB&TPE manufacturer, Hwaseung Material built 270L Banbury Mixer No.5 Line, proving its superior technology and production capacity. We are expecting new future and globalization for the long-term growth by expanding global network and foreign capital investment.
The Way of Growth

Hwaseung Material is establishing the long-term development strategy until 2020, and systematically preparing for the growth in the future. While expanding global network and foreign capital investment for the company’s globalization, Hwaseung Material is going to create new future values as we continued to improve business structure.

1978. 09 Dongyang Chemicals established
1996. 01 Hwaseung Material established
2004. 03 ISO9000:9001 Certification obtained
2005. 03 New establishment of 2nd factory and new line
2006. 02 Establishment of affiliated technology institute / SQ Mark obtained (Hyundai & Kia Motors)
2006. 02 Hwaseung Material factory in China (HWASEUNG SPECIAL RUBBER (TAICANG) CO., LTD.) established
2007. 07 Hwaseung Material factory in India (HWASEUNG MATERIAL INDIA PRIVATE LTD.) established
2009. 12 ISO/TS 16949 2009 Certification obtained
2010. 12 New establishment of new line (Mixer No. 4 Line)
2012. 06 New establishment of 3rd factory and new line (270LB/B Mixer No. 5 Line)

Overseas Company

Based on the ability as number one domestic market share, we built the global production system with branch offices in China and India, and are putting relentless effort toward world no. 1 in materials industry as we research and develop high-value brand.

HSR HWASEUNG SPECIAL RUBBER (TAICANG) CO., LTD.

HSMI HWASEUNG MATERIAL INDIA PRIVATE LTD.
Trust!
Your Promise

Righteous principle and honest heart....
Faith to keep the promises with customers....

Global CMB Brand Representing Hwaseung Material

High-functional Eco-Friendly TPE Material

CFRP | GFRP
Valuable material for future

Total Solution in advanced materials industry
Global CMB Brand Representing Hwaseung Material

As the largest domestic CMB maker, Hwaseung Material, with a stable base on the domestic market, has been exporting its own brand XENOMER to all over the world.

We manufacture the best high functional, high quality CMB products in the nation

CMB products are exceptionally superior compared to other products in terms of its function and regular quality, as they are produced with innovative mixing technology and production process. From the general compound such as EPDM, NBR, CR, NR, and Butyl, to the specialized compound like Florine, ACM, ECO, and CSM, various products acquire outstanding quality for customer satisfaction. Hwaseung Material’s CMB is widely applied in automotive parts (Weather Strip, Hose, vibration proof, etc) that require high degree of safety, durability, and heat resistance. Furthermore, with more than 100,000 tons of productivity and technology, Hwaseung Material established branches in Taicang, China and Chennai, India in order to stabilize local production and expand overseas market with more competitive products.

- High quality CMB Products of the Largest Domestic Market Share
- Innovation in uniform quality through optimal technology
- Production of variety of products according to their use and function
- Excellent function and properties of vibration proof, waterproof, soundproof, etc
- Superior feeling and elasticity, mechanical and physical properties
- Outstanding weather resistance, chemical resistance, ozone resistance, heat resistance, oil resistance, etc
Various CMB Products and Applications

| NR, SBR, BR | Out-sole, Rubber Mat, Mounting Packing, Fender, Conveyor Belt, Rubber Membrane, Industrial Anti-abrasion Hose, Tank or Can Lining |
| CR, CSM | Wire Cover, Conveyor Belt, Mounting Rubber, Tank or Can Lining, Anti-corrosive Packing, Anti-corrosive Roll, Heat Resistance Belt, Dust Cover |
| NBR, EAR, H-NBR, ACM | Oil Seal, Gasket, Oil Hose, Print Roll, Trans Mission Seal, Wheel Sealing, Crankshaft, Steering, Suspension System Sealing, Air Cleaner Hose, Timing Belt, Fuel/Oil Hose, "O"ring |
| EPDM, IIR | Roofing Sheet, Wire Cover, Steam Hose, Conveyor Belt, Automotive Weather Strip, Window Gasket, Heat Resistance Conveyor Belt and Hose, Radiator Hose |
| FKM, ECO | Automotive Fuel Hose, EGR Hose, Vacuum Diaphragm, Industrial Packing and Seal |
XENOMER / CMB / APPLICATION
Brake Hose  Air Conditioning Hose  Power Steering Hose  Low Pressure Hose (Fuel / Oil / Water)
TPE brand of Hwaseung Material, THERMOPRENE is acknowledged for its excellence in quality in domestically and internationally in automotive part companies including those in Japan, China, India and USA.

New Eco-friendly material independently developed by Hwaseung Material

To address rising international concerns on environment and resources, THERMOPRENE of Hwaseung Material has developed futuristic material that has elastic properties of rubber and recyclable properties of plastic. From low to high temperature, it maintains excellent flexibility as rubber, while also being superior in mechanical strength, heat resistance, chemical resistance, and weather resistance. Special functions can be assigned as per processing methods, enabling the application in variety of fields.
■ 자동차 부품 (Tire제외): Hose, Tube, 각종 Window profile, Sheet류 등

■ 건축자재 : Window seal, Gasket, Strip, Joints, 완충제 등

■ Foot wear : Logo, 갑피 등

■ 기타 : 각종 Hose, Grip, Plug, Packaging, Fluid Delivery, Tube, Belt, Tip 등

■ 사용가능 온도 : -60℃ ~ 135℃

■ 경도범위 (Shore type : 35A ~ 50D

■ 낮은 비중(0.88 ~ 0.97)으로 최종제품의 경량화 가능
Automotive Parts

*Improved fuel efficiency through lightweight:* 15~25% lighter than EPDM rubber

*Eco-friendly material recycling scraps:* VOCs, RoHS Satisfactory performance / Excellent chemical resistance, weather resistance, durability, heat resistance, and excellent processability

Air Intake Hose, Safety Belt Cover, Weather Strip Glass Run, Boots

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Industrial Parts & New Technology

*Recyclable Eco-friendly material:* Superb electrical insulating properties, impact resistance, weather resistance, and low temperature brittleness,

Various color manifestation

Diaphragm, Side Wall Cover, Top Side Cover, Tank Bender
Hwaseung Material is focusing on the advanced material development such as thermoelectric device that combines nanotechnology through future technology, advanced antibacterial material, composite material, and other high-tech materials.

Creating new values in the future with innovative new material development

Hwaseung Material is expanding investment in Eco-friendly antibacterial material and thermoelectric device that grafted nanotechnology, the future new material enterprise, and advanced composite material fields that can replace conventional metal sector.

In the future, Hwaseung Material is planning to manufacture automotive components using high-strength lightweight polymer composite material, thermoplastic FRP material, and parts in defense and aviation sectors. New materials business area of the future will be the core competency of Hwaseung Material in becoming the world’s best technology material enterprise.
CFRP  GFRP  APPLICATION

Aircraft, Space Sector
Lightweight and thermal stability, high strength, etc.

Automotive, Rail Sector
Maximize energy efficiency in vehicles by lighter weight (40% lighter than aluminum).

Defense Industries
Thermal shielding composite materials, light weight structures, and protective materials (bulletproof material).

Marine Field
High strength, high elasticity, weather resistance, vibration absorption, abrasion resistance, etc.

Wind Energy Sector
Lightweight, high strength, etc.

Architecture, Construction Sector
Reducing construction duration, corrosion resistance (seawater environment), lightweight, etc.

Electrical, Electronics, Sports fields
Electrical insulation, shock absorption, vibration damping, high elasticity, etc.
Leading globalization with advanced technology – Hwaseung Material Engineering

Global industrial environment demands a more differentiated and reliable quality. This is precisely the reason why companies with their backbone in production make vast investments in technological development of production process and capacity expansion. It is very crucial to be equipped with the process that maximizes production efficiency and high technology for the materials industry with various processes such as accurate mixing technology of raw materials, heating, cooling, inspection, and packing.

Hwaseung Material Engineering’s long-standing know-how’s comprehensively controls technologies of the entire processes and provides the best process.
Hwaseung Material entered field of engineering with its experience in establishing headquarter and overseas branches and factories including China, India, etc.

Based on many engineering experiences including CMB/FMB Plant, Weighing System area, Extrusion Production Plant area, and etc, Hwaseung Material provides ground-breaking solutions through creative and innovative engineering technology management from CMB / FMB Plant engineering and equipment production to equipment automation control solution.

Plant Engineering Division

**R & D**
- Equipment System Optimization Consulting
- Determination of Standard Equipment Specification
- Control Programming Design
- Mechanical Drawing Design

**Operation**
- Equipment Installation, Pre-Commissioning, and Initial Production
- Hand-Over after Plant Operation Training

**Maintenance**
- Maintenance and A/S of Plant after Installation and Operation

**Sales**
- Mixing Equipment Sales
- Weighing Equipment Sales
- Subsidiary Equipment Sales
- Equipment Consulting
Know!
Your Potentiality

Advancing the technology of the future to the present,
Creating the foundation of the affluent world,
Strong determination and latent power....
Since the beginning of the establishment, Hwaseung Material has continued to be engaged in the development of own technology, and now realized core technologies in accurate weighing of materials and production process of raw materials including the mixing technology of over 1,500 Compound.
The biggest competitiveness’s of Hwaseung Material is own core technology and advanced production facilities. Hwaseung Material’s own know-how called Exact Weighing Technology measures raw rubber and various drugs thoroughly inspected, minimized the error in mixing, and produces uniform quality products. This technology considers all aspects related to quality such as hardness of product, vulcanization time, material properties, curing, and etc. On the other hand, applying Pneumatic Plug Conveying System, FUZZY Control Cooling System, Distributed Control System (DCS), new factory was built, which became the new standard of CMB manufacturing factory.
Leading Facilities
Hwaseung Material, possessing a world class CMB & TPE producing technology and advanced manufacturing system, produces more than 190,000 tons of High value-added Compound annually.

In 2012, as a CMB manufacture facility, the first large Mixer(270L) Pneumatic Plug Conveying System applied factory was established. Based on own technology, the new facility was able to realize economic effectiveness through mass production and rationalization of production process, ultimately leading to the production supply with high competitiveness.

### Main Equipment Capability

<table>
<thead>
<tr>
<th>Line</th>
<th>Plant</th>
<th>Machine</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMB</td>
<td>1st Factory</td>
<td>Mixer No. 1(190ℓ)</td>
<td>12,500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mixer No. 2(190ℓ)</td>
<td>16,700</td>
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<tr>
<td></td>
<td></td>
<td>K/D No. 2(75ℓ)</td>
<td>3,400</td>
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<tr>
<td></td>
<td></td>
<td>K/D No. 3(150ℓ)</td>
<td>12,200</td>
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<td>K/D No. 4(140ℓ)</td>
<td>6,700</td>
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<tr>
<td></td>
<td></td>
<td><strong>Subtotal</strong></td>
<td><strong>51,500</strong></td>
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<tr>
<td></td>
<td>2nd Factory</td>
<td>Mixer No. 3(180ℓ)</td>
<td>13,600</td>
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<tr>
<td></td>
<td></td>
<td>Mixer No. 4(190ℓ)</td>
<td>13,600</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Subtotal</strong></td>
<td><strong>27,200</strong></td>
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<tr>
<td></td>
<td>3rd Factory</td>
<td>Mixer No. 5(270ℓ)</td>
<td>20,400</td>
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<tr>
<td></td>
<td></td>
<td><strong>Subtotal</strong></td>
<td><strong>20,400</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td><strong>99,100</strong></td>
</tr>
<tr>
<td>TPE</td>
<td>1</td>
<td>Ø 70 Twin Extruder</td>
<td>2,050</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Ø 73 Twin Extruder</td>
<td>2,050</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Ø 70 Twin Extruder</td>
<td>2,050</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Ø 80 Twin Extruder</td>
<td>2,350</td>
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<td><strong>Subtotal</strong></td>
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<td><strong>8,500</strong></td>
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<td><strong>Head Quater Total</strong></td>
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<td><strong>107,600</strong></td>
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<tr>
<td>HSR</td>
<td>CMB</td>
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<td></td>
<td>Mixer No. 2(195ℓ)</td>
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<td>Mixer No. 3(270ℓ)</td>
<td>20,400</td>
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<td>K/D No. 1(150ℓ)</td>
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<td>K/D No. 2(75ℓ)</td>
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<td><strong>Subtotal</strong></td>
<td><strong>54,400</strong></td>
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<tr>
<td>HSMI</td>
<td>CMB</td>
<td>Mixer No. 1(195ℓ)</td>
<td>12,000</td>
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<td>Mixer No. 2(195ℓ)</td>
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<td></td>
<td>K/D No. 2(75ℓ)</td>
<td>3,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Subtotal</strong></td>
<td><strong>25,000</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Overseas Branches Total</strong></td>
<td></td>
<td><strong>79,400</strong></td>
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<tr>
<td></td>
<td><strong>Grand Total</strong></td>
<td></td>
<td><strong>187,000</strong></td>
</tr>
</tbody>
</table>
Leading Quality

From the raw materials to the final product, subdivided management and inspection of each production process in terms of work order, batch, and pallet contribute to the stability as well as enhanced productivity.

Furthermore, by making everything in the production line barcoded and making into database, more rational production strategy could be promoted.
In addition to the rigorous testing process of product, Hwaseung Material adopted advanced management system in all production processes, in order to accomplish management innovation and quality renovation. MES (Manufacturing Execution System) and POP (Point Of Production System), managing whole process from order booking to shipment in real-time, firmly solidify the framework of quality management, and at the same time maximize customer satisfaction.

**Best Quality**

By making all of the procedures into data in real-time, we were able to achieve management innovation and quality renovation.

- **Point Of Production System**
  It is a barcode system to establish real-time production system from receipt of raw materials to the stock management. Grasping the status and movement of shipments, it prevents delivery of defective product and effectively manages the record and stock.

- **Manufacturing Execution System**
  It unifies work order, optimizes process, and obtains quality related data by collecting production information data in real-time.

- **Human-Machine Interface**
  In order to help people understand the current process better at site, it considers the convenience of workers the most and enables them to execute their task easily, without error.

- **Statistical Process Control**
  Test Data Integrated Management System
  Through integrated analyses and sharing of process and quality information such as basic (standard per mixture) criteria, test data, process capacity, certificate issue, and etc, and recording those data concomitantly to the computer, we constantly improve the quality based on analyzed statistics.
Green Management for Perfect Harmony
Green environment for the future of humanity is the most critical mission

Hwaseung Material continuously carried out environmental management activities so the global environment is conserved and nature and technology progress in harmony. While actively responding to the environmental regulations within and outside the country, Hwaseung Material has set up its own rigorous management standard and regularly executed inspection and check-ups to pursue a sustainable future. In particular, applying eco-friendly advanced manufacturing system to production facilities, we were able to reduce pollutants generated during the processes and respond to future environment.

Realization of Eco-friendly manufacturing plant

Pneumatic Plug Conveying System applied to Hwaseung Material’s manufacturing facility prevents scattering of fine powder and minimizes contamination during production process. This realizes pleasant work environment and largely decreases environmental pollutants and green house gases. In addition, the world’s first Fuzzy control cooling system reduces energy usage and minimizes carbon emission quantity.

Environmentally friendly product development

Hwaseung Material developed futuristic eco-friendly products, such as TPE, antibacterial material, and composite material, to deal with the emerging environmental and resource problems of the 21st century. We will contribute conservation of the global environment consistently by preventing depletion of resources and developing recyclable eco-friendly products.

Various environmental cleanup activities

Hwaseung Material has been performing variety of environmental cleanup activities internally and externally. Since the beginning of its establishment, Hwaseung Material has been consistently pursuing air pollution prevention and environmental improvement with regular environmental cleanup activities such as ‘one person one river campaign’ and ‘one person one mountain campaign.’

Membership Awareness Improvement

Through information share and PR activities about environment, safety, health, and energy, Hwaseung Material is trying to instill environmental awareness in the members’ daily lives and voluntarily participate in the activities.
Innovative Change for
Tomorrow's Materials