

KOREA REFRACTORIES CO., LTD

COMPANY INTRODUCTION

2024. 2. 27



한국내화(주)
KOREA REFRACTORIES CO., LTD.

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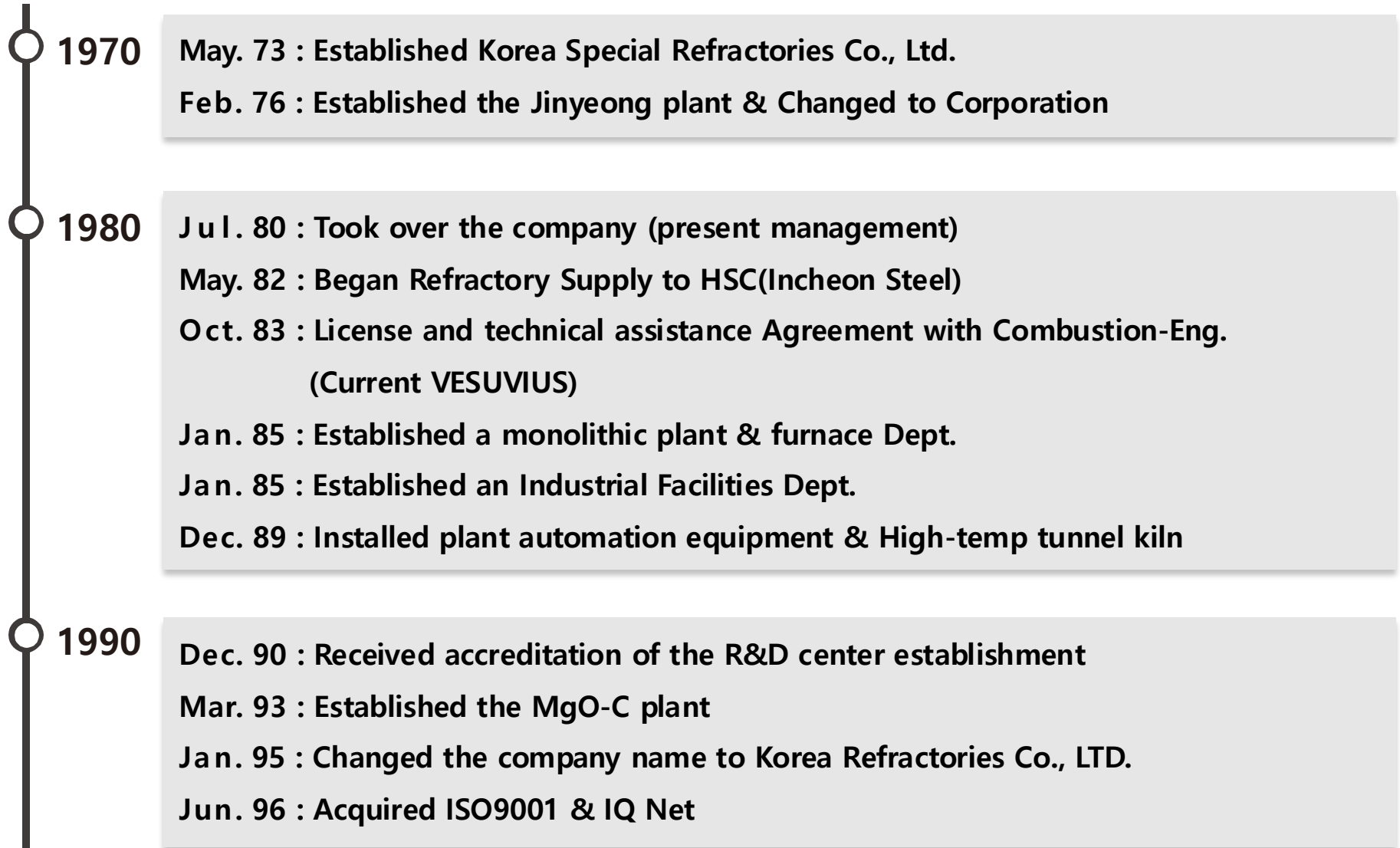
1. Company Profile

BEYOND THE REFRACTORIES...

Company Name	Korea Refractories Co., LTD.
Representative	Byun Sung Hee
Date of Establishment	1st May, 1973
Capital	15.7 Million US\$ (Dec. 2023)
Sales Volume	316.7 Million US\$ (Dec. 2023) (1,300 KRW/US\$)
Number of Employees	595 (Dec. 2023)
Address	370, Musudeul-gil, Songsan-myeon, Dangjin-si, Chungcheongnam-do, KOREA
Affiliates	Foosung Holdings, Foosung, Firstec, Foosung Precision Industry, Ilkwang E&C, Tranit, Hantech, Ucon System, Oceans Global, Foosung Global, Foosung Corporation

2. History

BEYOND THE REFRACTORIES...



2. History

BEYOND THE REFRACTORIES...

- 2000**
 - Oct. 00 : Listed on the Korea Stock Market
 - Aug. 03 : Acquired ISO 9001(2000) & IQ Net
 - Dec. 07 : Turn-key Contract - HSC Integrated Steel Mill (Furnace Construction)
 - Apr. 08 : Took over the Seochon plant (Pulverizing division)
 - Oct. 09 : Held an opening ceremony of Dangjin plant
 - Oct. 09 : Signed with HSC on the maintenance work & refractories of integrated steel plant

- 2010**
 - Oct. 11 : Signed with HSC on refractories & construction of Blast Furnace #3
 - Jul. 12 : Signed with HHI for the Turkey Tufanbeyli CFBC refractories design, materials & SV
 - Dec. 14 : Signed with HSC on refractories for the Special Steel Mill construction
 - May. 16 : Signed with HSC for the EPC PJT of Heat transfer system in Forging Shop, Suncheon plant
 - Nov. 19 : Completion of Gunsan Porous Plug plant

- 2020**
 - Feb. 22 : Signed a Facility Supply Agreement of Saudi Arabia King Salman PJT
 - Jul. 12 : Commenced construction of CCN plant
 - Jan. 23 : Signed refractories Supply Agreement of Indonesia JAWA PJT
 - Mar. 23 : Signed refractories Supply Agreement of Iran NGL PJT

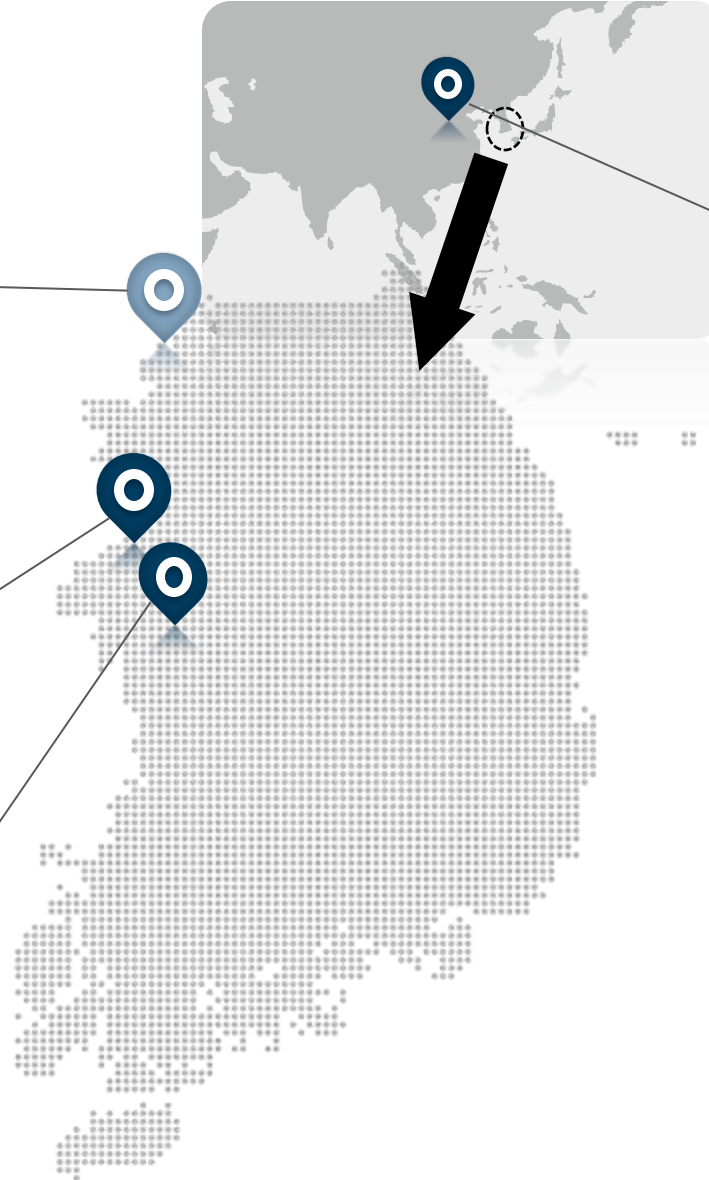
3. Factory Introduction

BEYOND THE REFRACTORIES...

head office	
Business	Refractories
Capacity	100,000 Ton / year
Customers	HSC, HHI, Doosan

Seocheon Factory	
Business	Pyrophyllite Powder
Capacity	50,000 Ton / year
Customers	KCC

Gunsan Factory	
Business	Porous Plug
Capacity	1,200 Ton / year
Customers	HSC



New East Refractories	
Business	Bricks
Capacity	40,000 Ton / year
Customers	HSC, YK Steel

2023 Sales :

316.7 Million US\$

Classification	2023 Sales
Refractories	143.5
Installation & Maintenance	33.0
Construction	112.2
Industrial furnace	22.5
Powder	5.5
Total	316.7

4. Business Unit

BEYOND THE REFRACTORIES...



Refractories

- ◆ Customer : Hyundai-steel
- ◆ Capacity : 141,200 Ton / year
- ◆ Products : All Refractories Cargo



Installation & Maintenance

- ◆ Customer : Hyundai-steel
- ◆ 360 Technical Workers in the Steel Mill
- ◆ Professional Steel Mill Maintenance



Powder

- ◆ Customer : KCC
- ◆ Capacity : 38,400 Ton / year
- ◆ Products : Pyrophyllite Powder



Industrial Furnace

- ◆ Customer : Hyundai-steel, KCC, Doosan Enerbility
- ◆ Industrial Furnace Design and Construction

5. Refractory Products

BEYOND THE REFRACTORIES...

▶ Monolithic Refractories



- Castables Refractories
- Plastics
- Mortars
- Gunning Materials

▶ Shaped Refractories



- High Alumina Bricks
- High Silica Bricks
- Unburned Bricks
- Precast Refractories

▶ Functional Refractories



- Porous Plug
- Stopper
- Shroud Nozzle
- SEN (Submerged Entry Nozzle)

6. Installation & Maintenance

BEYOND THE REFRACTORIES...

▶ Development of the system for Maintenance, Construction & Education

Maintenance

- Blast furnace
- Blast furnace wall
- Steelmaking
- Continuous casting
- Lime calciner furnace
- Heating furnace



Education

- Refractory lining technician training programs
- Continuous level-up training
- Set up the stabilized working condition



Construction

- Construction of 3 blast furnace
- Construction of 6 batteries for cokes ovens
- Construction of 9 hot stove of B/F
- Construction of 6 lime calciners
- Construction of 7 reheating furnace

6. Installation & Maintenance

BEYOND THE REFRACTORIES...

- ▶ Maintenance technology that realizes customer satisfaction with cutting-edge construction equipment



Main Runner Installation Machine



Shotcrete Machine



Tundish Spray Machine



Gunning Machine



Hot Repair Spray of Converter



RH Repair Spray



Tundish Installation Machine



Ladle Installation Machine











7. Industrial Furnace

BEYOND THE REFRACTORIES...

▶ Korea Refractories develops Materials, Energy and Environmental Technologies



Total Engineering Service

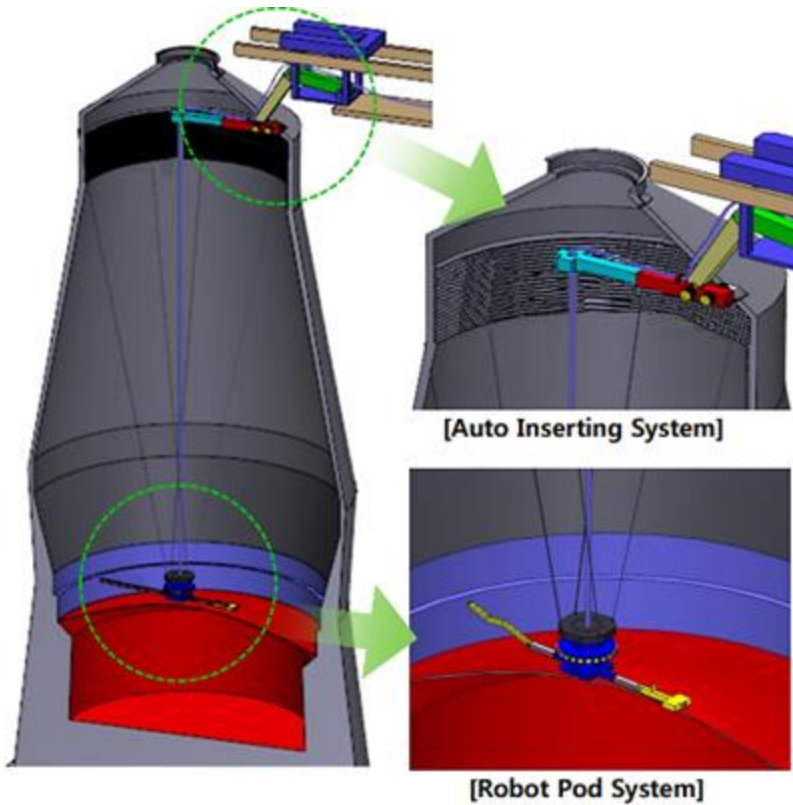
Reheating Furnace	Melting Furnace	Boiler	Incinerator	Stack
 Continuous reheating furnace	 Al melting furnace	 Thermal power plant	 Daily waste incinerator	 Thermal power plant stack
 Heat treating furnace	 Glass melting furnace	 CFBC Boiler	 Industrial waste incinerator	 Combined heat & power plant stack

▶ Enhance productivity achieve stable working condition cost reduction

8. Blast Furnace Wall Repair

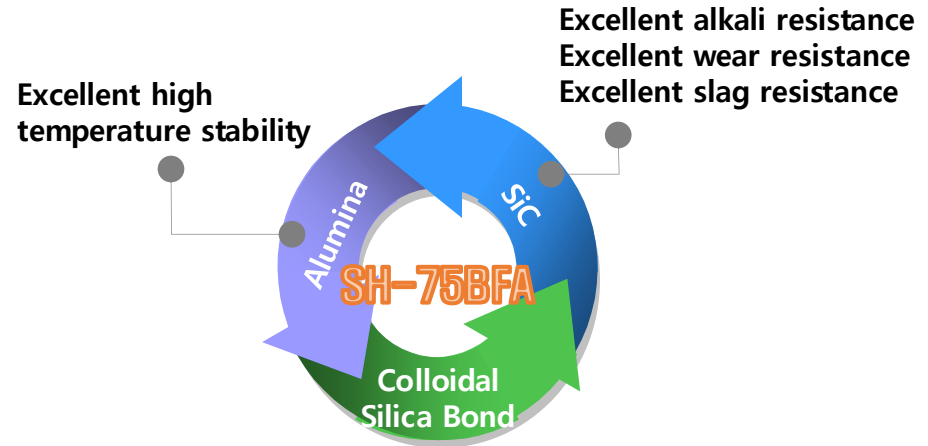
BEYOND THE REFRACTORIES...

▶ Construction diagram



▶ Training of construction experts

▶ Refractory properties



Excellent heat resistance and high temperature properties

→ **Development of high-life blast furnace wall repair material**

▶ Performance (2018~2023)

Classification	HSC B/F 1	HSC B/F 2	HSC B/F 3
Amount	125 Ton	150 Ton	224 Ton

9. R&D Center

BEYOND THE REFRACTORIES...



[문서번호: Zsig-0721-MpV1-02a1]

제 19901127 호

기업부설연구소

- 연구 소 명: 한국내화(주)부설
[소속기업명: 한국내화(주)]
- 소 재 지: 충청남도 공주시
충남동 14로
- 신고 연월일: 2013년 10월 2일
(최초인정일: 1990년 12월 15일)

※ 변경내역: 소정지 변경

「기초연구진흥 및 기술개발지원에
대한 법 시행령 제16조제1항 및 제2조
같이 기업부설연구소로 인정합니다.

2013년 10월 2일
한국산업기술진흥
위원회

CERTIFICATE OF APPROVAL

KOREA REFRACTORIES

205, WISEBELL-GIL, SONGJUN-WOON, SONGJUN-KOREA

Korean Standards Association hereby certifies that the Management System of the above is found to meet the requirement certification detailed below:

CERTIFICATION No. QMS-4754
STANDARD KS Q ISO 9001:2

SCOPE OF CERTIFICATION: DESIGN, DEVELOPMENT, PRODUCTION AND SALES OF BRICK, FIRE CLAY BRICKS, SPECIAL BRICK REFRACTORY BRICKS, IR-ALUMINA CATHODE CASTABLES, SPECIAL CASTABLES, INSULATION REFRACTORIES, PORTLAND CEMENT, PLASTIC AND BRICK REFRACTORIES

VALID FROM 08 June 2023
VALID UNTIL 07 June 2026

Date of Issue: 04 May 2023

KOREAN STANDARDS ASSOCIATION

CERTIFICATE OF APPROVAL

KOREA REFRACTORIES CO., LTD.

274, MINJEEUL-GIL, SONGJUN-ANMYEON, DANGGINSI-GUN, CHUNGCHONGNAMPDO, KOREA

Korean Standards Association hereby certifies that the Environmental Management System of the above organization has been assessed and found to meet the requirements of the standard and scope of certification detailed below:

CERTIFICATION No. EMS-1532
STANDARD KS I ISO 14001:2015/ISO 14001:2015

SCOPE OF CERTIFICATION: DESIGN, DEVELOPMENT, PRODUCTION AND SALES OF IR-ALUMINA BRICK, FIRE CLAY BRICKS, SPECIAL REFRACTORY BRICKS, REFRACTORY BRICKS, IR-ALUMINA CATHODE CASTABLES, SPECIAL CASTABLES, INSULATION CASTABLES, REFRACTORY MORTARS, PLASTIC AND BRICKING MATERIAL REFRACTORIES

VALID FROM 13 May 2022
VALID UNTIL 12 May 2025

Date of Issue: 08 April 2022

KOREAN STANDARDS ASSOCIATION



- ▶ Research personnel specialized in refractories
- ▶ Advanced refractory analysis and research equipment
- ▶ Holds intellectual property rights related to refractory materials
- ▶ ISO 9001 / 14001



9. R&D Center

BEYOND THE REFRACTORIES...

▶ Patents

No .	Title
1	Local Heating Furnace
2	Trolley for Heating Furnace
3	Development of Spray materials for Pool runner by using silicon slurry
4	Impeller for Molten Iron Agitation
5	Immersion vessel for preventing melted loss of gas injection tube
6	Main Runner Castables for Blast Furnace using Wasted Sludge of Solar-silicon
7	Shroud Nozzle for a Continuous Casting Equipment and Gasket Therefor
8	Porous Plug
9	Shroud Nozzle for a Continuous Casting Equipment and Gasket Therefor
10	Refractory Indicator Brick and Steelmaking Ladle using the Same
11	Method for Operating Steelmaking using Combustion Chamber of Electric Furnace and Combustion Chamber Structure of Electric Furnace
12	Apparatus for Preventing Drain of Slag and Vortex Prevention Apparatus
13	Nozzle Containing Carbon and Purging Plug Comprising the Same

10. Overseas Sales References

BEYOND THE REFRACTORIES...

	Project	Sales
2012	Rabigh Oil Boiler (Saudi Arabia)	Refractory Supply (1,093 Ton)
	Tufanbeyli CFBC Boiler (Turkey)	Refractory Design, Material Supply, Supervision (5,244 Ton)
2013	Raipur PC Boiler (India)	Refractory Supply (315 Ton)
	Mong Duong2 PC Boiler (Vietnam)	Refractory Supply (265 Ton)
	Al Khalij PJT Oil Boiler (Libya)	Refractory Supply (246 Ton)
2014	Jeddah South Thermal Power Plant (Saudi)	Refractory Supply, Supervision (376 Ton)
	SHUQAIQ Steam Power Plant (Saudi)	Refractory Supply, Supervision (376 Ton)
2016	Vihn Tan4 PC Boiler PJT (Vietnam)	Refractory Supply (191 Ton)
	Morupule A thermal power plant PJT (Botswana)	Refractory Supply (116 Ton)
2018	Chile storage SPA (Chile)	Refractory Supply (160 Ton)
2022	RDF Incinerator (Indonesia)	Refractory Supply (600 Ton)
	King Salman PJT (Saudi)	Casting & Forging Facility (23,000,000\$)
2023	FFBL POWER COMPANY (Pakistan)	Refractory Supply (150 Ton)
	JAWA PC Boiler PJT(Indonesia)	Refractory Supply (370 Ton)
	NGL PJT(Iran)	Refractory Supply (390 Ton)
	Vesuvius Foseco (Japan)	Refractory Supply (100 Ton)
2024	NFE PJT(Qatar)	Refractory Supply (270 Ton)
	King Salman PJT (Saudi)	Refractory Supply (260 Ton)

11. Contact

BEYOND THE REFRACTORIES...

E-mail: sales@jungil.net

Korean Contact No. 02-6224-7000 (For Sales)

Indian Contact No. +91 99869 12356 (For Technical)


12. Affiliated Companies

BEYOND THE REFRACTORIES...

Business Area	Company	Main Business
Chemistry	Foosung	Refrigerants, Specialty Gas
	Foosung Holdings	Domestic Holding Company
	Foosung Global	Overseas Holding Company
Refractories, Construction	Korea refractories	Refractories, Construction
	Ilkwang E&C	Construction, Architecture, Civil projects
	Hantech	Static Equipment, Tanks
Defense industry, Vehicle	Firstec	Defense industry
	Tranit	Automobile Exterior/Interior Part
	Foosung Precision Industry	Automobile Air Conditioning, Aluminum, Fluoropolymer
	Uconsystem	Industrial drones
Trade	Foosung Corporation	Basic Chemical Materials, Refractory Raw Materials Trading
	Oceans Global	Food Trading

Thank you





특허증
CERTIFICATE OF PATENT


특허 제 10-1309710 호
Patent Number: 10-1309710

발명자: 동북사할란에 기해

위키 발명은 「특허법」에
의하여 등록되었습니다.

2018년 01월 04일

특허청
Korean Intellectual Property Office



특허증
CERTIFICATE OF PATENT


특허 제 10-1429139 호
Patent Number: 10-1429139

발명자: 동북사할란에 기해

위키 발명은 「특허법」에
의하여 등록되었습니다.

2018년 09월 07일

특허청
Korean Intellectual Property Office



특허증
CERTIFICATE OF PATENT


특허 제 10-1543573 호
Patent Number: 10-1543573

발명자: 동북사할란에 기해

위키 발명은 「특허법」에
의하여 등록되었습니다.

2018년 09월 07일

특허청
Korean Intellectual Property Office



특허증
CERTIFICATE OF PATENT


특허 제 10-1750335 호
Patent Number: 10-1750335

발명자: 동북사할란에 기해

위키 발명은 「특허법」에
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2019년 06월 19일

특허청
Korean Intellectual Property Office



특허증
CERTIFICATE OF PATENT


특허 제 10-1778230 호
Patent Number: 10-1778230

발명자: 동북사할란에 기해

위키 발명은 「특허법」에
의하여 등록되었습니다.

2019년 09월 07일

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Korean Intellectual Property Office



특허증
CERTIFICATE OF PATENT

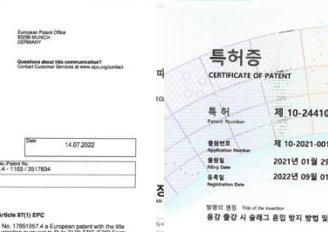
특허 제 10-2441034 호
Patent Number: 10-2441034

발명자: 동북사할란에 기해

위키 발명은 「특허법」에
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2022년 09월 01일

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Korean Intellectual Property Office



특허증
CERTIFICATE OF PATENT


특허 제 10-2036793 호
Patent Number: 10-2036793

발명자: 동북사할란에 기해

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2019년 10월 21일

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CERTIFICATE OF PATENT

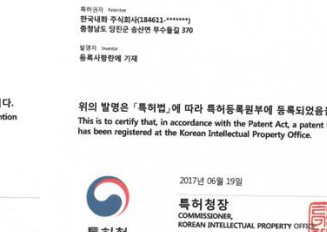
특허 제 10-2037441 호
Patent Number: 10-2037441

발명자: 동북사할란에 기해

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2019년 10월 22일

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특허증
CERTIFICATE OF PATENT


특허 제 10-2037441 호
Patent Number: 10-2037441

발명자: 동북사할란에 기해

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2019년 10월 22일

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CERTIFICATE OF PATENT

특허 제 10-2037441 호
Patent Number: 10-2037441

발명자: 동북사할란에 기해

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2019년 10월 22일

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