

# COOKWARE COATINGS

WORLD BEST, WORLD FIRST



# Greetings

Korea Fine Ceramic Co., Ltd. also known as KFCC was established in 1987 with a slogan, "Technology for Human Happiness", and is the first company in the world who has developed, commercialized and supplied ultra-functional fine ceramic coating materials.

KFCC developed eco-friendly fine ceramic coating material being applied for various items and industries through constant research and development with sincere endeavor, gaining recognition for KFCC's technology and quality in the world market.

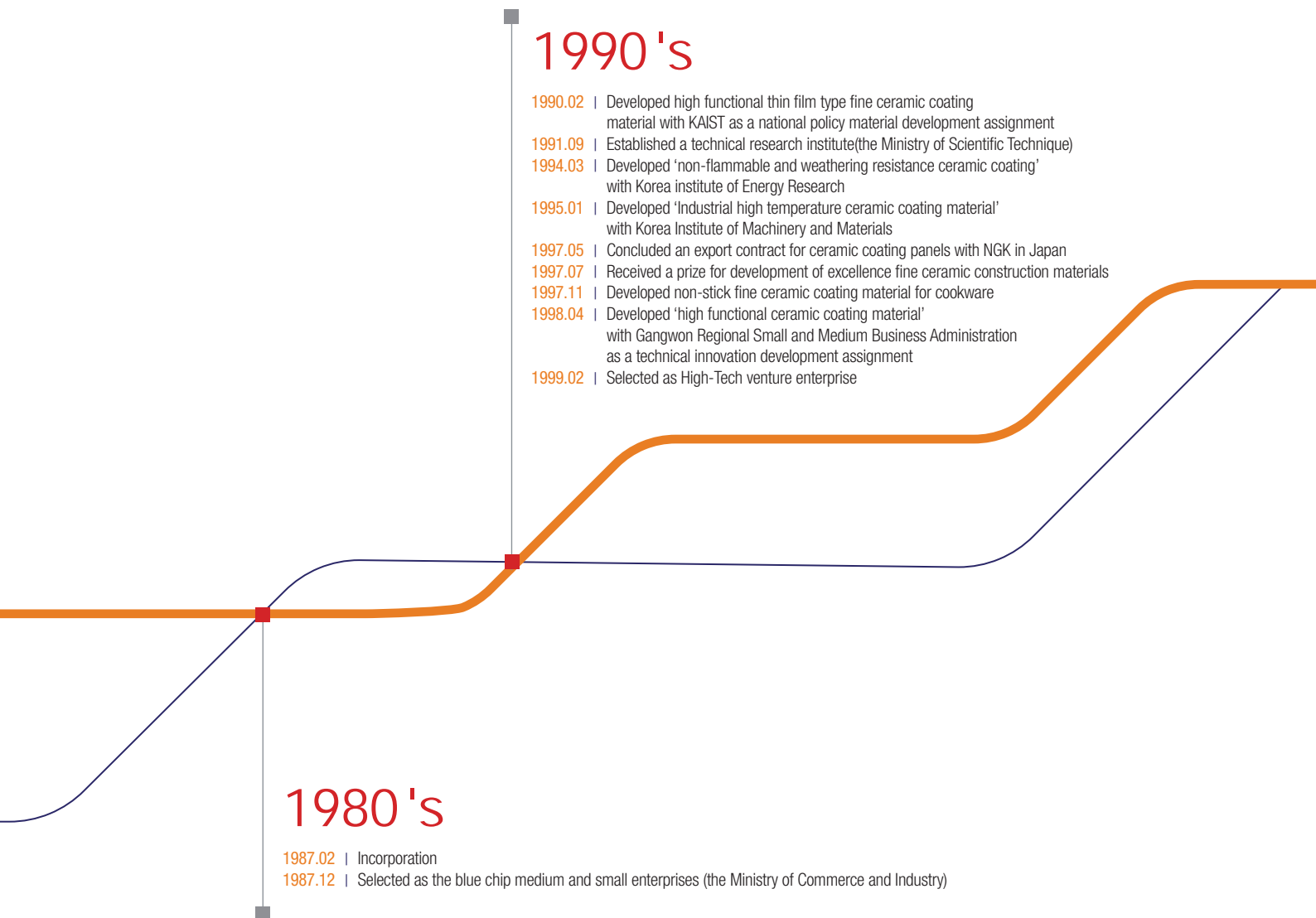
Based on the spirit of "Thinking about Human Happiness", KFCC keeps making constant effort and strive for continuous development. KFCC makes our lives comfortable and wealthy in various fields, even if KFCC's technology is hardly revealed in our lives.

KFCC won't be satisfied with the top position in the market, and even makes more efforts to expand its business in the global market with the entrepreneurial spirit for the greater value.

Thinking of social value, KFCC is a member of society doing its best anytime and anywhere to be a respectful company and will always get closer to happiness for all society members.

KFCC will constantly try its best to satisfy customers' demands, through making continuous research and development for being with you all the time.

Thank you.



## 2010's

- 2010.01 | Acquired certification issued from TUV Rheinland for food contact
- 2010.02 | Registered 'KFCC CERAMICA' as the trademark for US market
- 2010.05 | Registered 'KFCC CERAMICA' as the trademark for Canadian market
- 2010.11 | Received a prize, certifying "5 Million US Dollar Export Tower"  
| Received Trade Association President Award
- 2011.06 | Acquired qualification of the Korea-EU FTA certificate of origin
- 2011.12 | Received a prize, certifying "10 Million US Dollar Export Tower"
- 2012.07 | Acquired qualification of the Korea-Asean FTA certificate of origin
- 2013.07 | Acquired advanced technology and product certification (Ministry of Industry and Trade)
- 2014.05 | Established a KFCC China (Nantong City, Jiangsu Province)
- 2014.08 | Authenticated by the Government of Gangwon Province as a Centennial Business
- 2015.05 | Progressed the government project of regional key industry development "Development of high corrosion-resistant eco-friendly ceramic coatings for diversifying kitchen container materials" jointly with the Korea Institute of Industrial Technology
- 2015.06 | Selected as Global Hidden Champions
- 2015.07 | Obtained certification for accident-free goal achievement
- 2016.02 | Developed and Launched "ART EGIS", the 5th generation of non-stick ceramic coating material
- 2016.12 | Awarded Certificate for Contribution of High Tech Material Development
- 2017.03 | Conducted the government project "Development of production technology targeting small and medium-sized enterprises" with the Korea Institute of Industrial Technology
- 2017.11 | Registered patent for "Ceramic coating method and its coated kitchenware having intaglio and relief pattern"
- 2018.10 | Registered patent for "Ceramic coating material realizing surface split, and its coated product"
- 2019.06 | Acquired BS EN 13823: 2010+A1: 2014 European Fire Performance Certification
- 2019.10 | Acquired BS EN ISO 1716: 2018 European Fire Safety Test Certification

## 2000's

- 2000.07 | Acquired ISO 9001
- 2001.03 | Concluded an export contract for ceramic coating with Nippon Aluminum Co., Ltd.
- 2002.03 | Concluded an export contract for ceramic construction panels with Tostem Corporation in Japan
- 2003.05 | Supplied ceramic coating panels to the Tianjin Museum in China
- 2004.04 | Supplied non-flammable ceramic coating material and coated interior panels to subway stations and metro cars
- 2005.01 | Acquired the grand grade of HB mark (eco-friendly construction materials) (Korea Air Cleaning Association)
- 2005.03 | Acquired ISO 14001  
| Credited for CLEAN workplace (Korea Occupational Safety and Health Agency)
- 2005.05 | Credited for a company specializing in materials and parts (Ministry of Commerce, Industry and Energy)
- 2005.07 | Selected for the blue chip small and medium enterprises for export
- 2006.01 | Acquired German fire test safety certification (DIN 5510-2, ITC)
- 2006.02 | Acquired British fire test safety certification (BS-6853 : 1999, ITC)
- 2006.05 | Applied non-flammable ceramic coating to platform screen door in subway stations
- 2008.11 | Received a prize, certifying "3 Million US Dollar Export Tower"  
| Registered EU REACH pre-registration
- 2009.01 | Registered 'KFCC CERAMICA' as the trademark for the Korean market
- 2009.06 | Registered 'KFCC CERAMICA' as the trademark for the European market

## 2020's

- 2020.02 | Developed and Launched "ART FORTE", the 6th generation of non-stick ceramic coating material
- 2022.04 | Developed and Launched "G7", the 7th generation of non-stick ceramic coating material
- 2022.05 | Acquired Gangwon Global IP (Intellectual Property) Star Company Certification (Gangwon Economic Promotion Agency)
- 2022.11 | Selected as a strong small company in Gangwon-do  
| Registered patent for "Translucent coating method for kitchenware and kitchenware coated thereby"
- 2023.01 | Selected as a youth-friendly small strong company (Ministry of Employment and Labor)
- PRESENT | Exporting ceramic coatings all over the world  
| Applied and Registered 12 domestic and overseas patents in various fields such as cookware, construction, heating equipment and other industries

# FEATURE OF 'CERAMICA'



# The world best technology for human happiness coming from KFCC

## What is the fine ceramic coating “Ceramica”?

- Ceramica is an inorganic Fine Ceramic Coating Material made from KFCC through “Low temperature-cured micro thickness ceramic dry film based on nano-technology and sol-gel process”
- KFCC Ceramica is the world's first mass-produced and commercialized fine ceramic coating material.
- “Ceramica” is the first sol-gel processed fine ceramic coating material formed from low curing temperature(80 ~ 250 °C), apart from so-called conventional ceramic such as porcelain enamel requiring high curing temperature(600 ~ 1,500 °C). This low curing temperature can easily access special substrates or applications which have low melting point.
- KFCC Ceramica dry film is known as nontoxic and eco-friendly coating material to human beings because the solvent of coating is just water and alcohol.



### High hardness

| The dry film is not easily scratched or damaged.



### Abrasion resistance

| With excellent durability, the coating film is not worn out even after long-term use.



### Non-stick

| Food does not stick to the coated surface while cooking



### Harmless to human beings

| KFCC Ceramica does not contain any toxic materials such as heavy metals, endocrine-disrupting chemicals, PFAS and carcinogens.



### Non-flammable coating film

| There's neither discoloration nor toxic gas from the coated dry film at high heat temperature.



### High-efficiency & Far-infrared rays

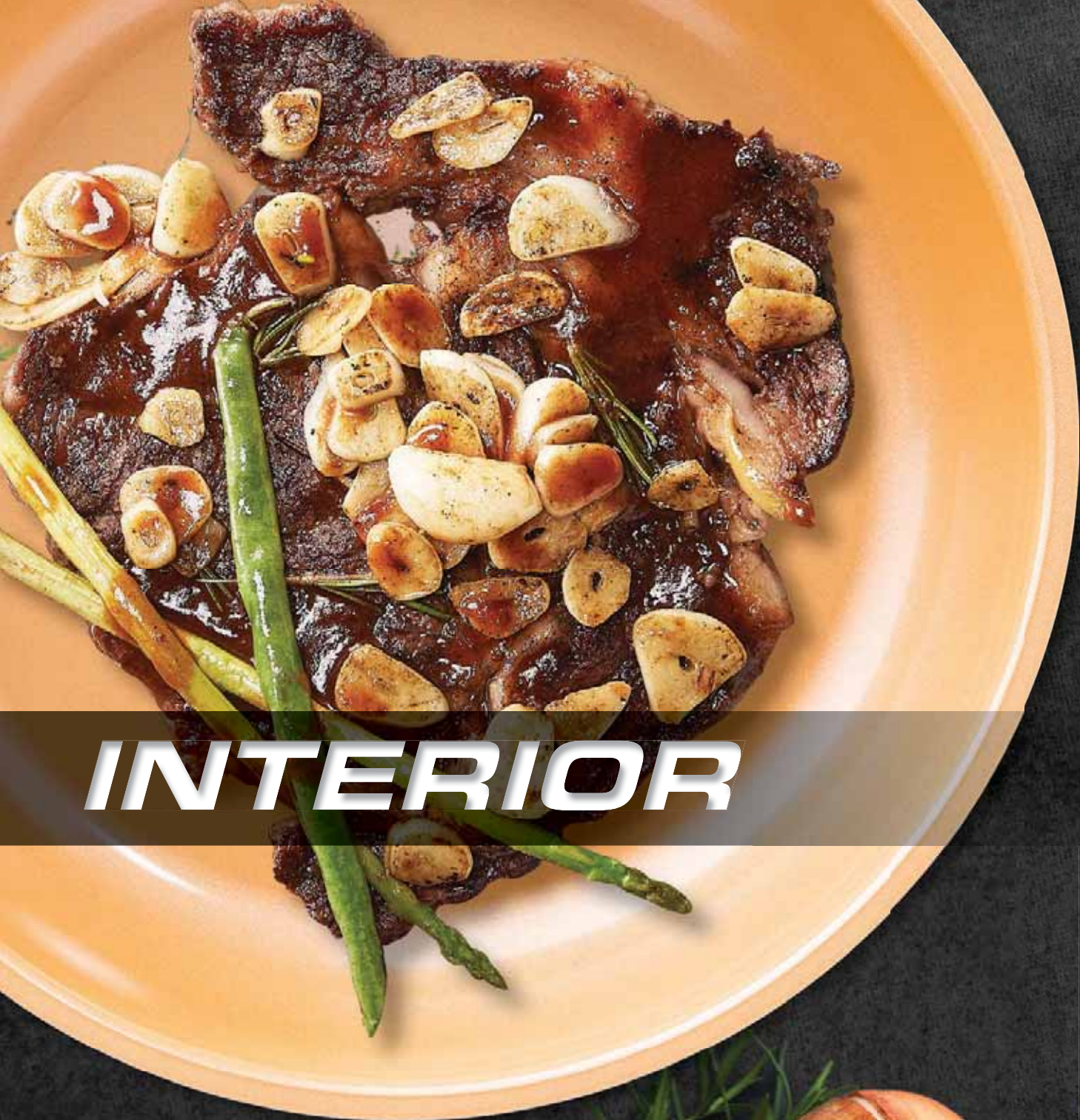
| More than 90% of far infrared radiation from the film makes food delicious and gives energy savings with reduction of CO<sub>2</sub> emission.



### Various Colors

| KFCC Ceramica offers various colors, beauty, and splendor.





# INTERIOR





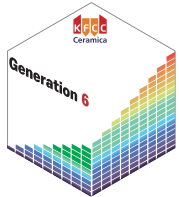
Non-stick performance is created by KFCC's outstanding technology based on durable physical feature of ceramics. KFCC Ceramica makes cooking easier and more comfortable to improve the life quality.

| G7 - The brand-new 7th generation ceramic coating material integrating KFCC's technology |



The G7 shows the best and the most durable non-stick performance among all so-called ceramic coatings in current generation.

| FORTE - The 6th generation ceramic coating material |



**ART FORTE 6.0**

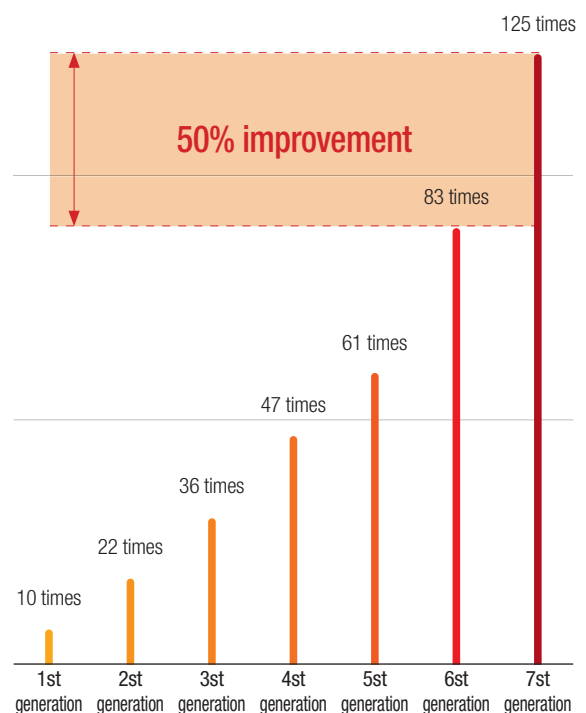
The ART FORTE shows excellent non-stick performance.

| ART EGIS - 5th generation ceramic coating material |



The ART EGIS is the steady selling coating that has been encouraged by KFCC customers for a long time.

#### Non-stick test (Pre-heating at 300°C)

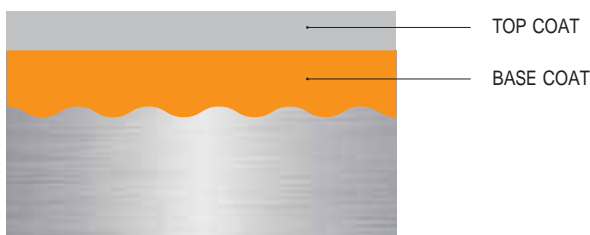


#### Non-stick test (300°C pre-heating type)

After cleaning a specimen with neutral detergent, heat it up at 300 for 30 minutes, then let it cool down. Fry 10 eggs in a row at 180~190°C without oil, and evaluate 1 cycle. The cycles can be repeated until the fried egg completely sticks to the dry film surface twice in a row.

\* One egg fry takes 100 seconds. \* Yellow shall not be broken during the test.

| Coating Film Composition - INTERIOR (2-COAT)





HGN, HGN PRO

MGN

***EXTERIOR***





Based on the excellent durability, KFCC Ceramica dry film grants contamination resistance with easy-cleaning function, and maintains the beauty of various colors for a long time.

#### | HGN |

HGN is KFCC's standard exterior coating material with excellent physical performance, gloss, and numerous colors.

#### | HGN PRO |

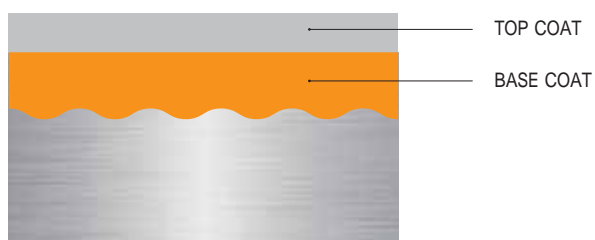
HGN Pro is a the high-gloss exterior coating material that realizes higher gloss than HGN while maintaining the main features of HGN.

#### | MGN |

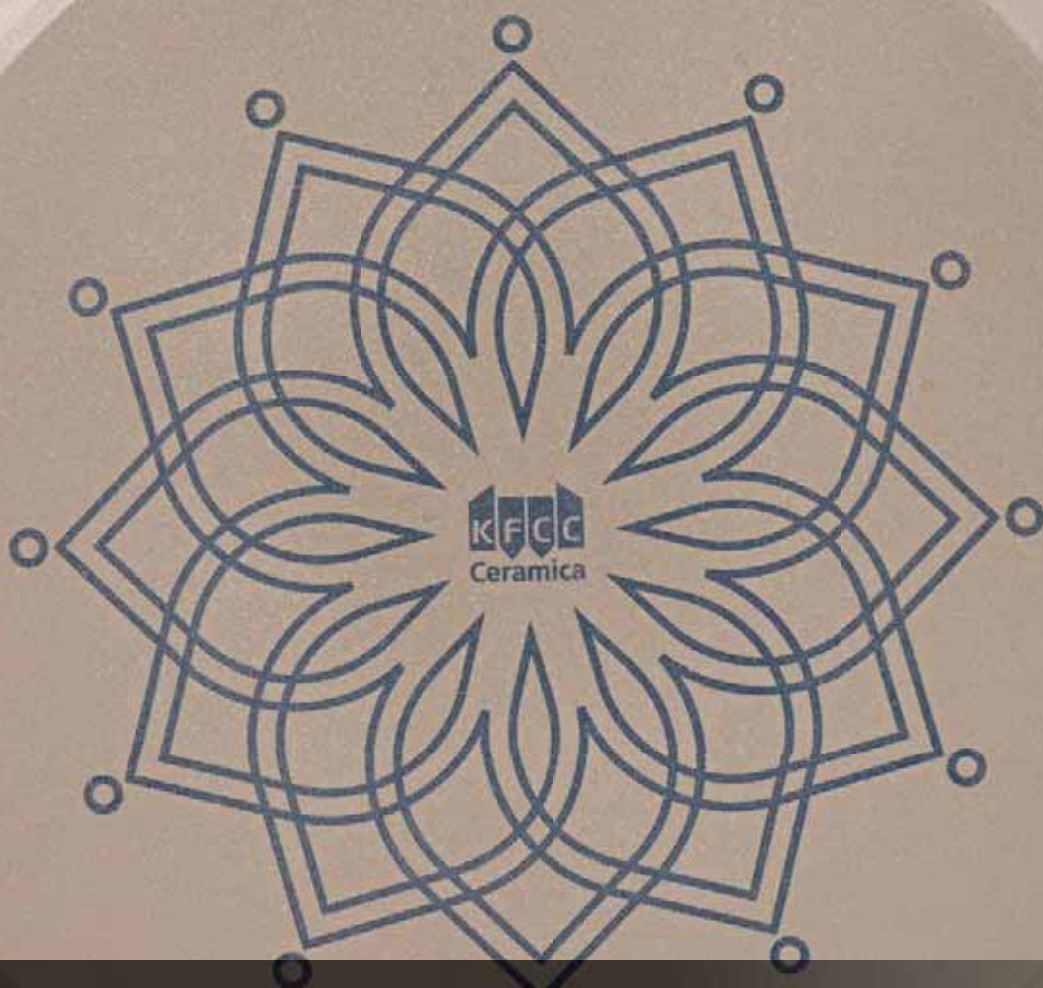
MGN is a semi-glossy exterior coating material for a dignified and luxurious texture by suppressing gloss.

Coating Type	EXTERIOR	EXTERIOR	EXTERIOR
Product name	HGN	HGN PRO	MGN
Non-stick = Easy-cleaning			
Gloss	50~70	65~75	10~20
Abrasion Resistance	300,000 cycles	300,000 cycles	200,000 cycles

#### | Coating Film Composition - EXTERIOR (2-COAT) |







# ***PAD, SCREEN PRINT***





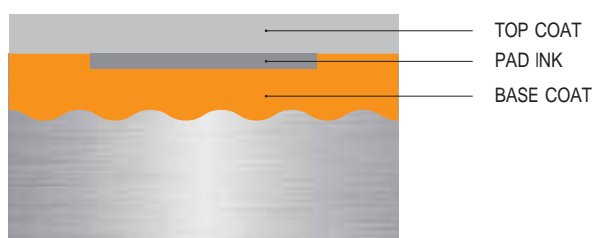
Pad and screen print coating has been developed by KFCC's experienced know-how and superior technology. Various patterns can be printed on the ceramic film, so that unique and graceful products can be made.

PAD PRINTING(PC), SCREEN PRINTING(SC) can be applied for both interior and exterior of cookware.

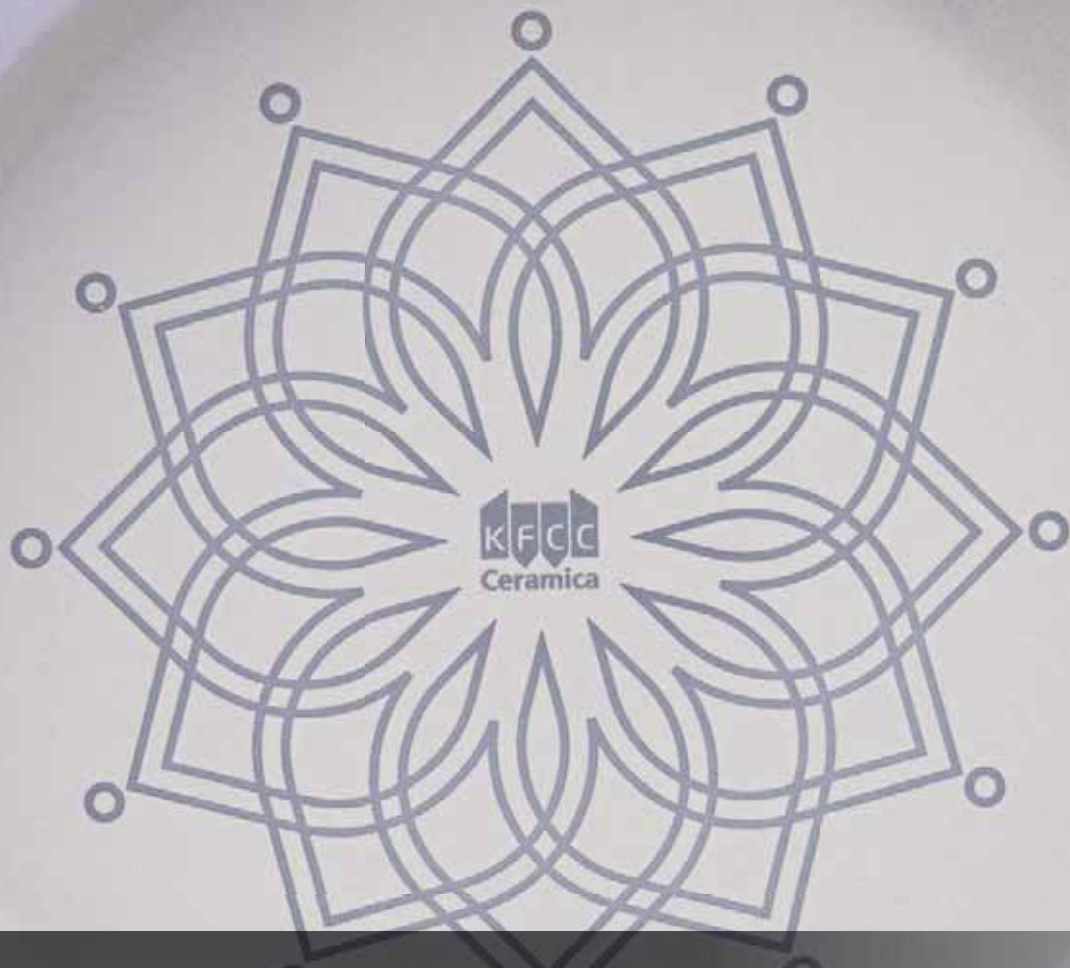


Coating Type	Unique Type	Unique Type
Product name	PC (PAD PRINTING)	SC (SCREEN PRINTING)
Non-stick = Easy-cleaning		
Gloss	45~65	45~65
Abrasion Resistance	200,000 cycles	200,000 cycles

#### Coating Film Composition - PAD, SCREEN







***AP PRINT***





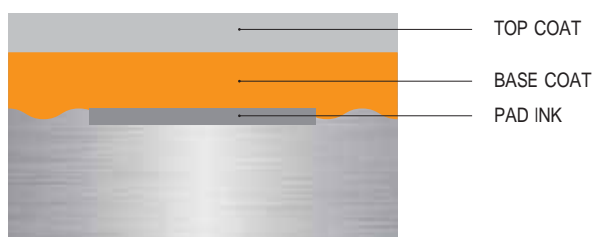


AP coating has been developed for simplifying process of PAD & SCREEN print coating application.  
This technology has been certified by patent registration.



Coating Type	Unique Type
Product name	AP
Non-stick = Easy-cleaning	
Gloss	45~65
Abrasion Resistance	200,000 cycles

└ Coating Film Composition - AP ┐

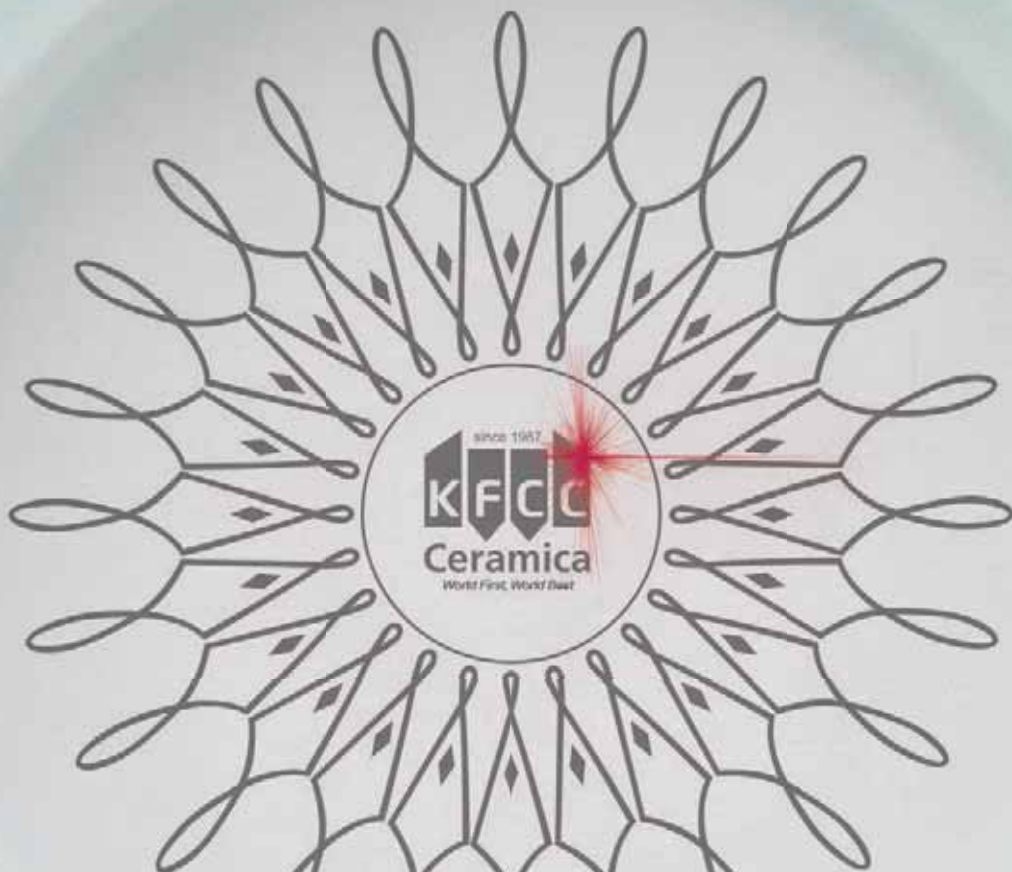


TOP COAT

BASE COAT

PAD INK





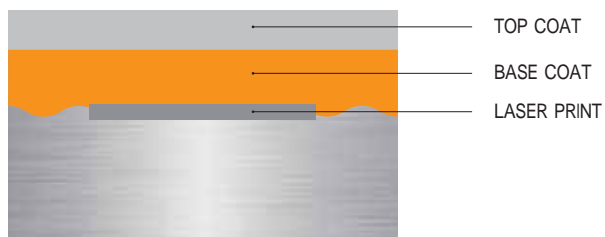
# ***LASER PRINT***



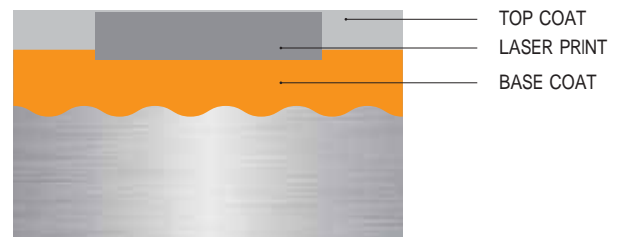
Laser Print can be replaced from PAD & SCREEN print, and applied on various types of KFCC coating dry film to decorate patterns easily for both interior and exterior of cookware.

Product name	LASER (INTERIOR)	LASER (EXTERIOR)
Non-stick = Easy-cleaning		
Gloss	45~65	45~65
Abrasion Resistance	200,000 cycles	200,000 cycles

Coating Film Composition - LASER (INTERIOR)



Coating Film Composition - LASER (EXTERIOR)



# **“KFCC Technology Research Institute who commercialized ceramic coating first in the world”**

**The world best ceramic coating is provided to the customers all the time.**

The new technology for the future will be constantly continued by active research and development with quality verifications to enhance confident use for customers.



# PERFORMANCE TEST



## Non-stick (Pre-heated condition)

| After cleaning a specimen with neutral detergent, heat it up at 300°C for 30 minutes, then let it cool down at room temperature. Fry 10 eggs in a row at 180~190°C without oil and evaluate 1 cycle.(Each egg fry must be done for 100 seconds.) Count how many cycles with eggs are done until a fried egg completely sticks to the coated surface twice in a row.

Depending on  
Generation type



## Adhesion

| 2mm width cutting to make 25 blocks by Cross Cut Guide / checking peel-off using adhesive tape.

25/25



## Abrasion Resistance (Wet Condition)

| Place stainless steel scrubber(MSBL-45G) on dry film surface settled on Taber abrasion tester, and fill out 0.5% detergent water, then carry out the back-and-forth abrasion cycle based on 1 kg weight load with 60 rpm speed. (The worn scrubber must be replaced in every 50,000 cycles.) Substrate should not be exposed by dry film peel-off after standard cycles following coating types.

Depending on  
Coating type



## Corrosion Resistance

| Boiling 10% salt water for 8 hours, leaving it for 16 hours at room temperature as 1 cycle / Evaluating corrosion after 3 cycles.

Clear



## Corrosion Resistance

| Boiling 10% salt water(95±2°C) for 20 hours, and checking corrosion.

Clear



## Pencil Hardness

| Drawing line as 100mm × 5 times with 1 kgf at 45° angle / no scratch, peel-off after checking by naked eyes.

Above 9H



# DATA SHEET

Coating material Type	INTERIOR					
Generation (Product name)	1st Generation (NH)	2nd Generation (NW/ART)	3rd Generation (ART PLUS)	4th Generation (ART DIOS)	5th Generation (ART EGIS)	6th (FORTE)
Non-stick = Easy-cleaning						
Gloss	45~65					
Abrasion Resistance	200,000 cycles				300,000 cycles	
Chemical Resistance						
Extraction Test						
PFOA content						
FDA conformity						
RoHS						
LFGB						

	EXTERIOR			UNIQUE			
7th Generation (G7)	HGN	HGN PRO	MGN	PC	SC	AP	MAGMA
	50~70	65~75	10~20	45~65			
500,000 cycles	300,000 cycles		200,000 cycles	200,000 cycles			500,000 cycles
PASS (Solvent / Acid / Alkaline resistance)							
PASS							
NOT DETECTED							
PASS (US FDA CFR 175.300)							
NOT DETECTED							
PASS							



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