

# **MATSTERBATCH POLYMER ADDITIVES**

**VCI PRODUCTS &  
POLYMER ADDITIVES  
BY KOREXIM COPORATION**

# 1. VCI MASTERBATCH

## 1. Description :

VCI masterbatches find applications in films which are used to protect ferrous and non ferrous metal components from corrosion. Metal components contained within VCI film will be protected from corrosion whilst they are stored or transported to their final application.

Caution must be used when extruding these materials as they can only be processed at low temperatures. This means that polymer selection for the film is critical to ensure the most benefit is received from the additive masterbatch.

Products : VCI masterbatch / VCI film / VCI powder / VCI liquid / VCI desiccant, etc.

| ITEM  | Dosage percent                | Application                                 |
|-------|-------------------------------|---|
| MB102 | 2%<br>(2:98 = MB102:PE resin) | For Ferrous & Non-Ferrous<br>(Nitrite-Free) |
| MB103 | 3%<br>(2:98 = MB102:PE resin) | For Ferrous & Non-Ferrous                   |



# 2. ANTI-BLOCKING

## 1. Description :

Anti-blocking additives are lubricants, migrating to the polymer surface, providing excellent slip effect and good anti-blocking performance. They are mainly used in polyethylene and polypropylene. These additives offer solutions to processing problems, caused by internal friction and tackiness of polymers, including slipstick effects, sticking of film layers to each other (blocking), mold contamination and excessive equipment wear.

In elastomer, our slip and anti-blocking agents will act as a processing aid, thus improving the mixing, extrusion, and calendaring behavior of elastomeric compounds. Our high purity refined slip and anti-blocking additives are offered under the trademark H-Tech.

| ITEM   | Applicable Resin | Property & Usage          |
|--------|------------------|---------------------------|
| 107    | PE               | For mid-sized foaming     |
| 108    | PE               | High density/transparency |
| 010-55 | PE               | High transparency         |
| 402    | PE               | Slip, Blocking            |
| 5915   | PP               | OPP, CPP                  |
| 109    | PU               | PU                        |
| 104    | PE               | For mid-sized foaming     |

# 3. SLIP(1)

## 1. Description :

Slip masterbatches are based on amide additives which migrate to the surface of the extruded/molded plastic product and offer a mono molecular layer. It prevents blocking of adjacent polyolefin film surfaces to each other when brought into contact together during manufacturing such as blown film production. It reduces the co-efficient of friction of the polyolefin film surface very smoothly. It ensures superior handling properties in automotive pack aging application and also doesn't affect the sealing and printing properties. These are mainly used in mono/multilayer films, etc.

| ITEM | Applicable Resin | Property&Usage    |
|------|------------------|-------------------|
| S230 | PE,PP            | High Slip         |
| S240 | PE,PP            | High Transparency |
| S402 | LDPE             | High opening      |
| S200 | PE,PP,PS         | Non-Dissolution   |
| S271 | PS,ABS           | for Styrene       |

# 3. SLIP(2)

## 2. Function

Slip additives are added to reduce the surface coefficient of friction of polymers and are used to enhance either processing or end applications.

High and low level slip additives are available and immediate and slow acting performance can be engineered into the masterbatch.

Food contact approved grades are available.

Combinations with antistatic and anti-block products for use in the film industry offer cost effective, multi-use masterbatches.

Application Examples : For Film, sheet, injection molding and others

# 4. ANTI-STATIC AGENT

## 1. Description :

Plastic is insulator against electricity and therefore, when static from friction or conduction of electricity remains on the surface, it can cause big accident such as burning, bombing or electrical shock. When customer lets this static phenomenon between plastic film, it causes 'blocking', sticking to each other, and it involves dust on the surface, which causes defect to be used as industrial products.

These products are internal antistatic additives that offer a solution to problems related to the accumulation of electric charges on plastic materials, e.g. spark formulation during processing and dust attraction during storage. Once incorporated into the polymer, they migrate to the surface of the finished article, giving the required antistatic effect through interaction with environmental humidity.

| ITEM | Applicable Resin | Property&Usage                  |
|------|------------------|---------------------------------|
| 302  | LDPE             | For NONSLIP                     |
| 305  | LDPE             | For NONSLIP                     |
| 310  | LDPE             | For LDPE Film                   |
| 311  | HDPE             | For HDPE Film, High Anti-static |
| 290  | PS,ABS           | For PS,ABS                      |

# 5. ANTI-OXIDANT

## 1. Description :

PE is the thermoplastic resin and when extruder is halted after extruding, synthetic resin inside it is easily carbonized(O<sub>2</sub>) and makes black bump hole on the surface in case of severe gell appears. It leads product failure.

To improve this, normally costly resin is used to cleanse the surface, but it cost a lot as well as cost rises up and job efficiency goes down. To solve this problem, H-Tech developed anti-carbonization agent. It prevents from causing black pot and especially is very efficient for multilayer films or sheet.

| Item  | Applicable Resin | Dosage(%) |
|-------|------------------|-----------|
| AO420 | LD,LLDPE         | 100       |
| AO430 | HDPE             | 100       |
| AO440 | PP               | 100       |

# 6. ANTI-UV STABILIZER/ABSORBER

## 1. Description :

Ultra Violet radiation is destructive to polymeric material so the choice of an appropriate and efficient UV package is critical to ensure good performance and longevity of the polymer. We have long experience in this complex area, producing highly concentrated and end application specific formulations. All polymer types are considered from olefins through styrenics to ETPs. Careful selection of hindered amines and conjugated ring systems ensures the best possible performance and co-inclusions of anti-Carbonizations further enhance the stabilization package.

Application examples : Tapes, Fiber, Geo-textiles, Films, Extrusions and Injection moldings

| Item   | Applicable Resin | Usage               |
|--------|------------------|---------------------|
| U.V503 | PE,PP            | High density        |
| U.V504 | PE,PP            | For UV protector    |
| U.V506 | PE,PP            | For UV absorber     |
| U.V507 | PE,PP            | For Longevity(Blue) |

# 7. FLAME RETARDANT

## 1. Description :

Flame retardant agent is used to retard of flaming by eliminating the cause of flaming. There are several cautions to use flame retardant agent. This has various ranges of types, Ci Br P F such as Ci, Br, P, F, AloH, Mgoh, etc. and the percentage or application of flame Retardant

A non-aromatic flame retardant that can be used in polyolefin as well as polystyrene.

The Product show good retention of flame retardancy upon aging and has minimal effects on the processing properties of the polymer, when incorporated in and adequately stabilized formulation. Specially, our consultation would be required when designing film with flame retardant property.

| Item  | Applicable resin | Dosage(%) | Remarks            |
|-------|------------------|-----------|--------------------|
| FR610 | LD,LLDPE         | 10~20%    | Normal usage       |
| FR620 | LD,LLDPE         | 15~20%    | High Density       |
| FR630 | LD,LLDPE         | 15~20%    | For PE foaming     |
| FR640 | LD,LLDPE         | 10~20%    | For Special usage  |
| FR650 | HDPE             | 10~20%    | For CD pipe&line   |
| FR660 | PP               | 10~20%    |                    |
| FR670 |                  | 10~20%    | For Compound sheet |

# 8. MATTING AGENT(color quencher)

## 1. Description :

Some plastic has its own glass property according to used resin type, normal plastic doesn't have glass, though.

Quencher of glass is required to improve product's image or application range. And we developed many kinds of quencher agent to let your products have this property.

It comes first to figure out finished product type and therefore, we recommend you to proceed production job after discussing with us.

| Item | Applicable resin | Property&Usage |
|------|------------------|----------------|
| 710  | LDPE             | For Film       |
| 720  | PP               | For Sheet      |
| 730  | PS,ABS           |                |
| 740  | PET              | For PET bottle |

# 9. GLASSING AGENT

## 1. Description :

Polymer resin has its own glass traits, according to several standards, such as Resin type  
Density Additives type and percentage, which is used Generated heat during processing  
Cooling speed after heating  
To increase glassing property, we are developing various types of Glassing Agent.  
Resin, such as HDPE, which has high density, is likely to fail to have glassiness.  
Our agent increases this failure by using our own technology.

| Item | Applicable Resin | Property&Usage        |
|------|------------------|-----------------------|
| 810  | LD,LLDPE         | For blow molding Film |
| 820  | HDPE             |                       |
| 830  | PP               |                       |
| 840  | PS               |                       |

# 10. ANTI-MICROBIALS

## 1. Description :

Bacteria, fungi, moulds and mildews are all present in our every day environment. These microscopic organisms have adapted to colonies and thrive in almost all places on earth. Residual levels of many bacterial strains are of no consequence to human health, in fact they can help build a general level of resistance in our immune system to infection and disease.

So why use antibacterial additives? Certain microbes are harmful to humans and if left unchecked will proliferate to cause infections and diseases. There is a particular need to control these in sensitive environments such as hospitals where acquired infections including MRSA can prove to be fatal.

Microbes can also be responsible for a wide range of undesirable effects such as product deterioration and discoloration, malodor and food contamination to name but a few.

Antimicrobial additives provide an extra layer of protection when combined with normal cleaning procedures.

## 2. Application

Plastics (Films ,Fibers ,Moldings)

Powder Coatings ,Adhesives ,Paper ,Wet Paint

# 11. BLOWING(FOAMING) AGENT

## 1. Description :

Among resins, this resin is to make firm foaming and it is divided into organic(Resolvability) and Inorganic compound, and gas and volatile liquid.

Ammonium Carbonate which generates ammonia and carbonate gas by dissolvability as an Inorganic foaming agent among dissolvable agents and sodium bicarbonate is the representative example.

As an organic foaming agent, Iso-compound, Nitron-compound, Azid-compound, etc. generates.

Normally, it mixes with resin and foaming plastic is made in the process of dissolving method and this kind of foaming agent is widely used.

| Item | Applicable Resin | Property&Usage                         |
|------|------------------|--|
| 1004 | LDPE,PP          | For Film, Cable PP, forming Micro cell |
| 1005 | LDPE,HDPE        | For LDPE Film                          |
| 1020 | HDPE,PP          | For Sheet                              |
| 1020 | LDPE             | For normal foaming                     |

# 12. DEHUMIDIFYING AGENT

## 1. Description :

A dehumidifying agent of coating film delaminating type, characterized in that it comprises a bag formed by using, at least partly, a sheet having a double layer structure, wherein a film unsusceptible to moisture permeation is arranged on the surface side and a moisture-permeable film is arranged on the inner side, and a deliquescent salt filled in the bag, and it is subjected to use through delaminating the film unsusceptible to moisture permeation. The dehumidifying agent can be packaged with simplicity and ease and can be stored for a long period of time, and as a result, can be provided with improved economy.

| Item | Applicable Resin | Property&Usage                 |
|------|------------------|--------------------------------|
| 7113 | LDPE             | For Recycling Paper            |
| 7115 | LD,HDPE          | For Dehumidifying              |
| 7116 | PP               | For Removing Bubble            |
| 7117 | PS,ABS           | For Removing Silver Phenomenon |

# 13. BIO-CERAMIC AGENT

## 1. Description :

Among the all lights that are radiating from the sun, the Far infrared rays is a mysterious lights to revitalize the bio-energy.

Generally, the lights that have the wavelength of  $3\mu\text{m}$ - $1,000\mu\text{m}$  range is called far infrared rays and it has strong heat action.

The most beneficial wavelength range to human body is  $8\mu\text{m}$ - $14\mu\text{m}$  and it is called as raised far infrared rays band. The far infrared rays generates heat energy in the body, increases the amount of the bloodstream and eliminates waste matter from the system. In addition, it makes the brain waves to Alpha wave- the most comfortable condition.

| Item | Applicable Resin | Property&Usage        |
|------|------------------|-----------------------|
| 710  | PE               | For Synthetic-Ceramic |
| 1120 | PE               | For Natural-Ceramic   |
| 1121 | PE               | For Fruit Wrapping    |
| 1122 | HDPE             | For Flower Wrapping   |

# 14. DEODORANT AGENT(1)

## 1. Description :

Down antibacterial and deodorant finishing agent is inorganic silver antibacterial finishing agent researched by H-Tech. It applies antibacterial finishing specifically to feather, feathers, etc. For all types of hazards to human health bacteria, fungi, it has a strong inhibitory effect. The inhibition rate within 24 hour can be as high as 99%. It is safe to use and will not cause harm to humans and the environment, with the Ministry of Health standards.

This agent requires technical advice by us before applying deodorant agent for your products.

| Item  | Applicable Resin | Property&Usage              |
|-------|------------------|-----------------------------|
| F1401 | LD,LLDPE         | Deodorant efficiency : High |
| F1402 | PP               | Deodorant efficiency : High |
| F1403 | RUBBER           | Deodorant efficiency : High |

# 14. DEODORANT AGENT(2)

## 2. Product Performance :

(1)The products can react with feather protein fiber, durable resistance can be down after the stunning variety of microorganisms, washed 20 times, extremely effective antibacterial, antimicrobial, antibacterial, antimicrobial rate of more than 99.9%.

(2) It not only can get rid of the original totaled stink, but also to prevent the storage, transportation, processing and re-use again microorganisms erosion and the smell caused by bacteria and mildew.

(3) The products containing surfactants can rapidly down into internal and achieving tough rounds, silky, fluffy, feather fluffiness can increase more than 10%.

(4) Antistatic, by measuring relevant quota of anionic and feather fibers, and lower down the static.

(5) Free safety of the environment pollution-free, with the Ministry of Health standards.

3. Major Usage : It used to feather, cashmere, camel hair and other protein fiber finishing, it was achieved, antibacterial, deodorant, fluffy, antistatic role

4. Note: The active ingredient in the goods will not be as volatile as a result of high temperature or precipitation phenomena such as rennet not affect the results, and may continue to be used after stirring well.

The product is not flammable, explosive. Sealed storage in a cool. The valid times is 2 years.

# 15. NON-SHRINK AGENT

## 1. Description :

Non-Shrink is the additive which prevents from deforming or destruction after long time elapse or cooling when extruding.

Thermoplastic resin contracts, while cooling after expansion by heat. This depends on cooling speed or cohesive power or surface height of melted resin when form products. It is naturally happens severely for the product which has unequally uniformed thickness.

H-Tech developed anti contraction in various ranges and have made success with customer. This additive requires highly technical advice and therefore, it should be processed after deep consultation with H-Tech.

| Item  | Applicable Resin | Dosage(%)           | Property&Usage      |
|-------|------------------|---------------------|---------------------|
| F1600 | LD,LLDPE         | Required our advice | High Stability      |
| F1601 | PP               | Required our advice | For Removing bunker |
| F1602 | PS               | Required our advice | High Stability      |
| F1603 | ABS              | Required our advice | For thick product   |

# 16. SURFACE IMPROVING AGENT

## 1. Description :

Improving the contraction problems in PP.HDPE products.

The instability in dimension due to the contraction & transformation of plastic products is occurred mainly to the several conditions - pigment, resin properties, injection condition and etc.

Synthetic resin is carbonized and becomes to get high density, generating Gell or Fisheye while it goes through extruder when extruding. This phenomenon happens by that extruder bothers resin's flow when extruder heats metal and metal is activated fluently.

When this carbonized Resin by heat sticks on the inside of extruder, dissolved resin's flow is retarding and generating scratched stripe pattern on the product to make product failure.

H-Tech develops high graded surface improvement agent. When mixing this agent with resin and then do extruding, it results high glass as well as prevention from gell or stripe happening. It upgrades your products quality high.

| Item  | Applicable Resin | Dosage(%) |
|-------|------------------|-----------|
| GA800 | LD,LLDPE         | 1~3%      |
| GA810 | PP               | 1~3%      |
| GA820 | PS               | 1~3%      |

# 17. TALC AGENT(NUCLEAR AGENT FOR PSP)

## 1. Description :

Talc masterbatch has a role to make smaller cell on PS Form sheet by absorption of gas which requires during manufacture of PS sheet. Talc makes cell on PS sheet equally uniformed and gives efficiency manufacturing process. H-Tech has three kinds of talc according to foaming rate, thickness of sheet and foaming property, etc.

H-Tech consultants with customer to figure out customer's product and provides appropriate and exact grades.

| Item | Applicable Resin | Foaming rate |
|------|------------------|--------------|
| 1145 |                  | 5~10 times   |
| 751  | PS sheet         | 9~15 times   |
| 455  | PS sheet         | 13~21 times  |

# 18. Absorbent Masterbatch(1)

1. Description : Absorbent masterbatch for PS foam tray ( APS #347 )

Function : To absorb **bleed water** (fish or meat)

To absorb **food water**

Usage : When making PS foam tray, mix our APS#347.

Then this PS foam tray has function of absorb bleed water from fish or meat.

Application : Tray for the Meat, the Aquatic products, the Frozen food, etc.

Description : It is good for fine view and the freshness will be kept.

Tray doesn't corrupt easily because dirty cause is disappeared from surface.

If you add our #347 when produce #PSP sheet, you can get

the functional characteristic food stuffs which oneself absorbs

the bouillon(bleed water) that comes out flowing from the food materials.

Absorption : 400~600% per tray weight

MB amount for using : 4~6% against Base resin

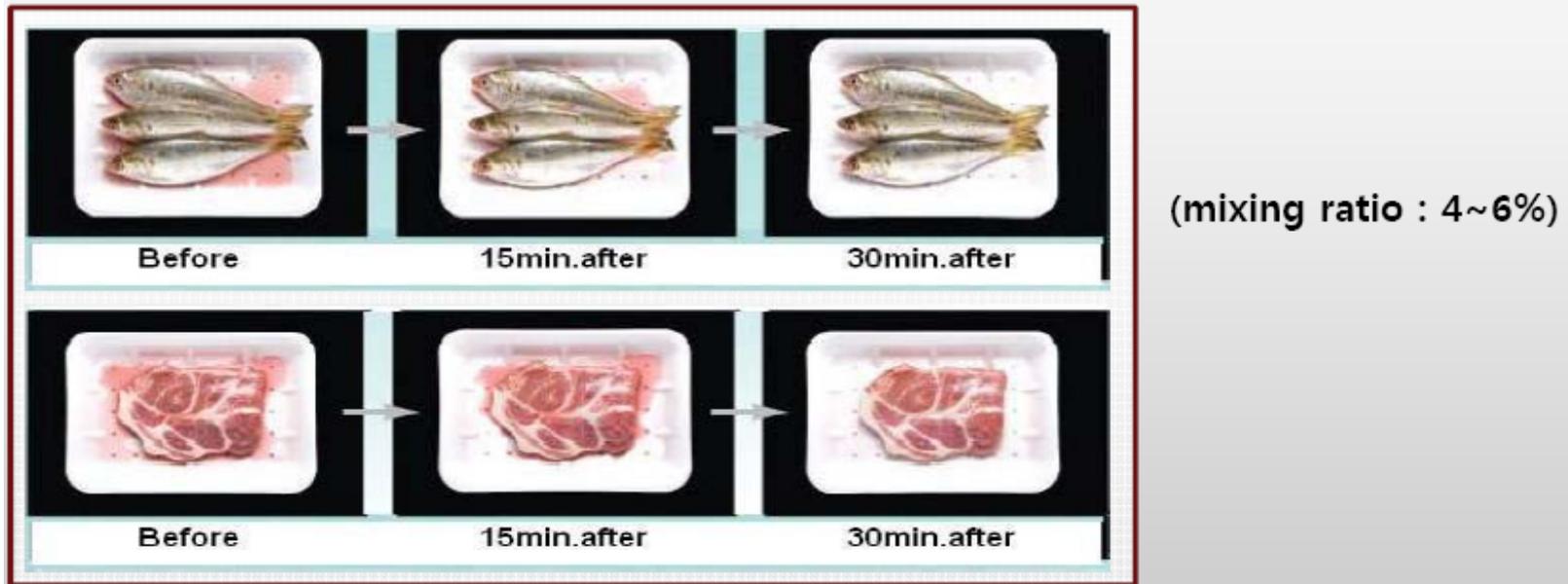
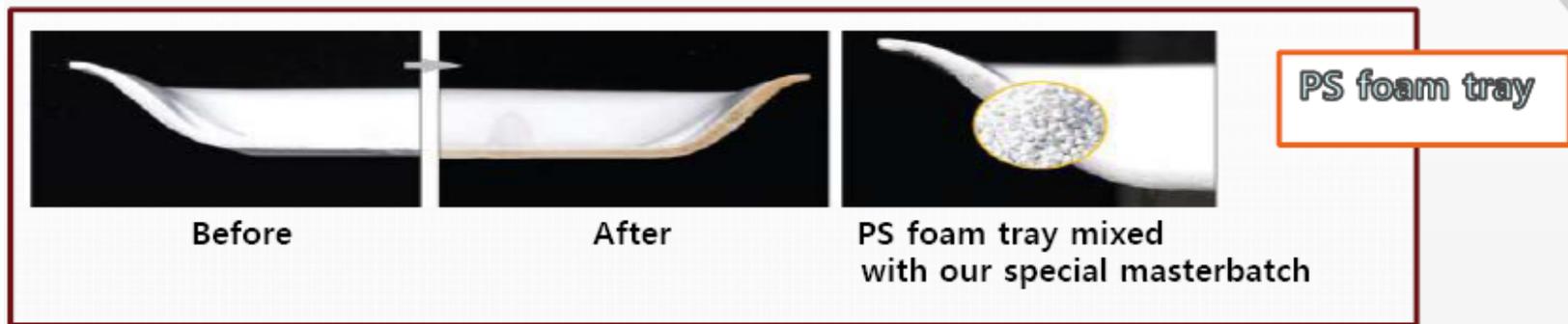
Method : PS resin + APS #347 mixing

Virulence : Safety case food stuffs vessel

Storage : At cool and dry place ( Warranty : 1 year )

# 18. Absorbent Masterbatch(2)

Process of Absorption : PS foam tray absorbs blood water

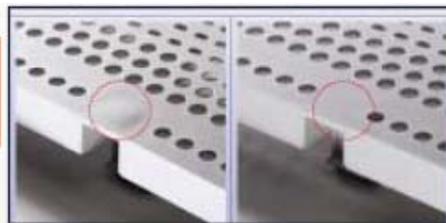


# Masterbatch for special application

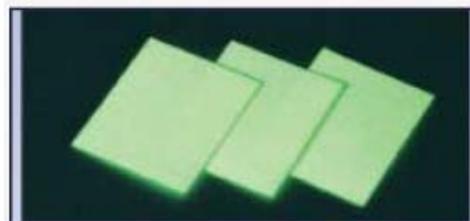
Products (Masterbatch for special application purpose)



Color Masterbatch



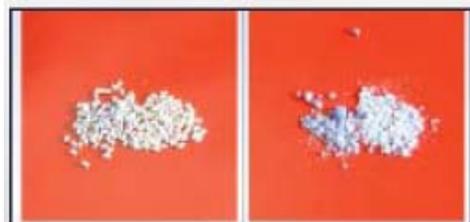
Non-Shrink Masterbatch



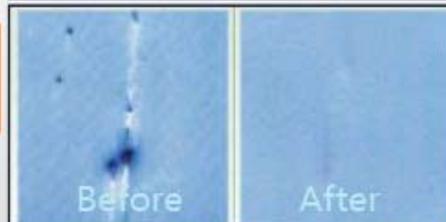
Fluorescent Masterbatch



Noctilucence Masterbatch



Photochromic Masterbatch



Anti-Oxidant



Ultra Violation Masterbatch



U.V Absorber

# Masterbatch for special application

## Products - I

### Film M/B

Dehumidifying  
Foaming  
Deodorant  
Anti-Biotic  
High-Specific Gravity  
Anti-Oxidant  
M/B Clean / Non-messy  
Anti-Fog/Anti-blocking  
**Easy open / Easy cut**  
Matting  
Hot-melt  
Flame retardant  
**Inhibition Root growing**  
Slip / Transparent Nucleating  
Aroma agent

### Sheet, Blow, Pipe M/B

Anti-static  
Slip  
Non-messy  
Anti-microbial  
Smoothing agent  
Easy open  
Brightener  
Flame Retardant  
Clean  
Anti-blocking  
UV Absorber  
Dehumidifying  
Foaming  
Non-slip  
Smooth



# Masterbatch for special application

## Products - II

### Extrude

- Dehumidifying
- Foaming
- Deodorant
- High-Specific Gravity
- Low-Specific Gravity
- Anti-Carbonization
- Deadening
- Brightener
- Antistatic
- UV Absorber
- Aroma agent
- Non Slip
- Flame Retardant

### Foaming

- Moisture absorption
- Talc (M2)
- Non-shrink (M1)
- Fine Cell
- High-Specific Gravity
- Non-messy
- Anti-Carbonization
- Purging
- Open cell
- Flame Retardant
- Antistatic
- Slip
- UV Absorber
- Aroma agent



# Masterbatch for special application

## Products - III

### Injection Forming

- Non-Shrink
- Anti-Microbial
- Deodorant
- Foaming
- Dehumidifying
- High-Specific Gravity
- Anti-Fog
- Flame Retardant
- Inhibition Root growing
- UV Absorber
- Elastomer
- Nucleating
- Brightener
- Low-Frictional Force

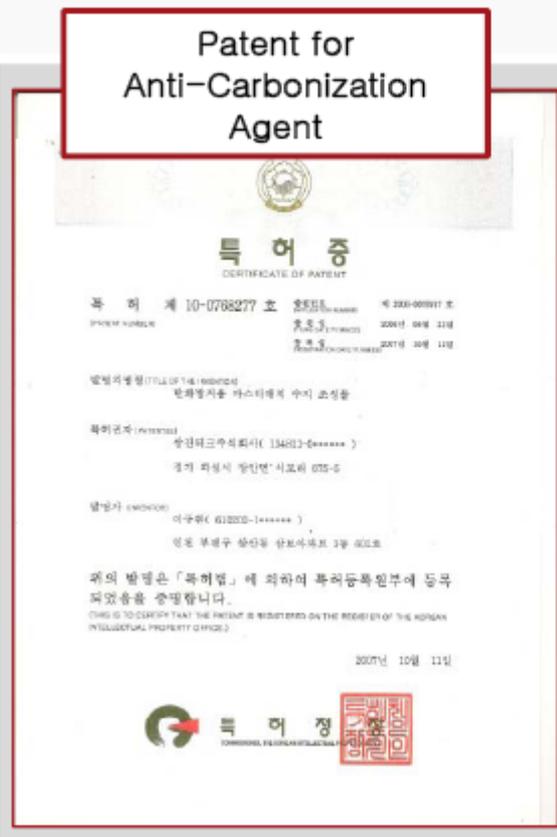
### Color M/B

- Organic Pigment M/B
- Inorganic Pigment M/B
- Mineral Pigment M/B
- Pearl M/B
- Marble M/B
- Fluorescent M/B
- Noctilucence M/B
- Photochromic M/B
- U.V M/B

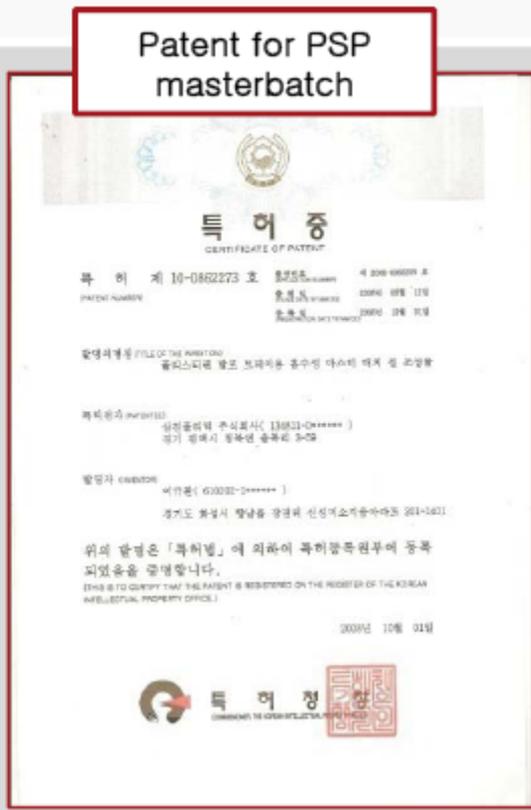


# PATENT FOR MASTERBATCH

## Patent for Anti-Carbonization Agent



## Patent for PSP masterbatch



## ISO 9001



# Masterbatch for special application

Year of Establishment : 2001

Business field : Poly Masterbatch (Color MB/Functional MB/VCI products, etc)

Technical Certification : ISO9001

Patent : Patent in Korea for **Absorbent Masterbatch for PS foam/**  
for Anti-Oxidant Masterbatch

Exporting Country : Europe/Asia/America/Mid Asia, etc.

Factory



Seoul office



**Address : #1506 of Hansol Central Park,  
1048-3, Hogue-Dong, Dongan-Gu,  
Anyang City 431-080, Kyunggi-Do, Korea**

**Tel : 82-31-384-2863/4**

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# Thank You!

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