

The background of the page is a vibrant blue gradient, overlaid with numerous translucent, spherical bubbles of varying sizes. Some bubbles are in sharp focus, showing highlights and reflections, while others are blurred in the foreground and background, creating a sense of depth and movement.

Masterbatch & Compound for Plastics
SAM-A C&I
CORPORATION LIMITED



WE HAVE A VISION, DREAMING WONDERFUL WORLD

SAM-A C&I CORPORATION LIMITED have been researching the world-class technologies to produce high quality products so far and also contributing to better environment of human society.

We are a leading manufacturer and supplier of 21st century in the global plastic industry continually making our best efforts to create the customer's value and meet our customers' requirements.

Our research and development center is entirely focusing on expanding high return business area and acquiring cutting-edge technology strategically for human's plenty chances of getting fairly creative compensation on effort and contribution.

To enhance customer satisfaction, we will never stop making our efforts on such activities to reinforce product analysis, improve formulations and perform the development of functional additives and quality control project.

At this moment, we are exporting our products to more than 30 countries in the world with our competitive price and high quality.

SAM-A C&I contributes to society with an impressive range of compound, color and additive masterbatches for the plastics in domestic and world-wide market.

Our products are used in a wide range of polymers application suitable for a number of technologies.

Our strategy combines the intensive R&D oriented application and open joint venture approaches.

In response to changing social environment, SAM-A C&I encourages a flexible approach that enables every individual to take the initiative against complex challenges.

Our production facilities are diversified and flexible, allowing SAM-A C&I to provide tailor-made products for our customers.



Masterbatches

- White / Black Masterbatches
- Color Masterbatches
 - General Effects
 - Special Effects
- Functional Additive Masterbatches

Mineral Filler Concentrates

- Calcium Carbonate (CaCO_3) : SATEK
- Talc
- Barium Sulfate (BaSO_4)

Compounds

- Semi-Conductive Compound
- Inherent Dissipative Compound
- Bio-Degradable (PLA - Poly Lactic Acid) Compound
- Color Compound
 - Engineering Plastics
 - Thermoplastic Elastomers (TPO / TPS / TPU / TPEE)

MASTERBATCHES

SAM-A C&I operate highly effective dispersing machines, such as a powerful internal kneaders and feeders, continuously operating twin-screwed extruders with special screws.

Wetting is often facilitated by using low molecular weight polymers, stearates and other dispersing aids.

Conventional color, also known generally as masterbatches, contain as principal carrier resin a polymer similar in nature and type to the material to be colored. On the other hand, single pigment concentrates are based on resins of broader compatibility and thus, are suitable for formulating concentrates for a wide range of polymers for a wide range of polymers.

Such concentrates are generally offered as "Universal Masterbatches" although their applications may be restricted and caused the specific colorants or carrier resins they contain.

For the processor, we promise that we will provide special benefits to our customers continuously.



White Masterbatch

We select fine titanium dioxide pigments both to meet customers' coloring demand and to maximize the value-added of plastics. We provide different contents of white masterbatches for our customers to make diverse selections according to their requirements.

White masterbatch containing titanium dioxide offers high coloring value with excellent quality and performance.

It provides excellent whiteness, brightness and high opacity when incorporated into a plastic formulation. Additionally, to absorb UV light energy can provide significant improvement in the weatherability and durability of polymer products.

Product Benefits

- Excellent dispersion in films and molded articles
- High tinting effects
- Acceptable to food contact
- Excellent dispersion during processing
- Suitable for high temperature processing
- Suitable for outdoor applications

Product Range and Applications

Carrier Resin	Type of Pigment	Contents of Pigments (wt%)						Remarks
		20	40	50	60	70	80	
LDPE LLDPE	Rutile		○	○	○	○		Outdoor, Excellent light and Heat stability
	Anatase		○	○	○	○		Indoor, High quality and economical grade
	Filler filled	○	○	○	○	○	○	Economical grade for general purpose
EVA	Rutile		○	○	○			Outdoor, Excellent light and Heat stability
	Anatase		○	○	○			Indoor, High quality and economical grade
PS/HIPS ABS	Rutile		○	○	○	○		Parts for electronics and electric appliances
	Anatase		○	○	○	○		Economical grade
PP	Rutile		○	○	○			OPP / CPP Film
PA	Rutile	○	○					Injection / Film
PC	Rutile	○	○					Sheet / Injection

Black Masterbatch

We make careful selection of carbon black, additives, resins, and processing aids from formulation stage and also have the appropriate mixing facility for particular goods.

Black masterbatches containing high purity carbon black offer a variety of desirable characteristics including color, protection from UV radiation and conductivity.

Carbon black is the most widely used black pigment for thermoplastic applications. Its small particle size and high oil absorption bring excellent color strength, cost-effectiveness, and ultraviolet stability.

Product Benefits

- Excellent dispersion in films and molded articles
- High tinting effects
- Increase the mechanical properties
- Excellent UV stability
- Excellent chemical & heat stability
- Enhance conductivity
- Suitable for outdoor applications

Product Range and Applications

Carrier Resin	Type of Carbon Black	Contents of Pigments (wt%)					Remarks
		20	30	40	45	50	
LDPE LLDPE	Standard			○	○	○	Universal applications of polyolefin resins (LDPE/LLDPE/HDPE/PP/EVA etc.)
	Standard		○	○		○	Economical & universal applications of polyolefin resins
	High Jetness		○	○		○	Premium jetness with high glossy and bluish-colored
HDPE	High Jetness		○				HDPE pressure pipes (PE-80/100)
EVA	Standard			○	○	○	Universal applications of polyolefin resins (LDPE/LLDPE/HDPE/PP/EVA etc.)
	High Jetness			○	○	○	Premium jetness with high glossy and bluish-colored
PS/HIPS ABS	Standard		○	○		○	Universal applications of Polystyrenic resins (GPPS/HIPS/ABS)
	High Jetness		○	○		○	Premium jetness with high glossy and bluish-colored
PP	High Jetness		○	○			PP Filaments
PA	High Jetness	○					Injection for PA resin (Glass, FR grade)
ABS	High Jetness			○			Sheet and Injection for ABS & PC
Universal Grade				○	○		Applicable for engineering plastics (ABS, PA, PC, PBT etc.)

Color Masterbatch

We produce various color masterbatches focusing on maximizing the value added of plastics. We are proud that our products meet any demands of several sensitive colors and that they are subdivided with wide range of choice.

Polyolefin Applications

Carrier Resin		Application	Processing Method	Usage (%)
PE	LDPE	- Packaging film - Communication cable - Pipe, Container cap - Sundry goods	Film Extrusion Laminating Injection	2 ~ 5 2 ~ 5 2 ~ 5 0.5 ~ 3
	HDPE	- Packaging film / Flat yarn - Sundry Goods - Shopping Bags	Film Injection Blowing	2 ~ 5 0.5 ~ 3 0.5 ~ 3
	EVA	- Sundry goods - Electrical / Electronics	Extrusion Injection	0.5 ~ 3 0.5 ~ 3
PP		- Electrical / Electronics - Toy, Sheet - Household / Pipe	Extrusion Injection	2 ~ 5 2 ~ 5 0.5 ~ 3

Polystyrene and ABS Applications

Carrier Resin	Application	Processing Method	Usage (%)
Polystyrene	- Electric Parts, Sundry goods	Extrusion / Injection	0.5 ~ 3
ABS	- Automotive / Electric parts	Extrusion	0.5 ~ 3

Engineering Plastics Applications

Carrier Resin	Application	Processing Method	Usage (%)
PET/PBT	- Blow molded Bottle - Electrical / Electronics	Injection Blowing	0.5 ~ 3 2 ~ 5
Polyamide	- Automotive - Precision industries parts	Injection	0.5 ~ 3 2 ~ 5
PMMA	- Industrial sheet - Artificial stone	Extrusion	0.5 ~ 3 2 ~ 5
Polyester	- Filament	Extrusion	0.5 ~ 3
Elastomer (TPO/TPU etc.)	- Sporting goods - Industrial goods	Injection Extrusion	2 ~ 5

Black / Color Masterbatches for HDPE and PP-R Pipe

Black and color masterbatches for HDPE and PP Pipes are pelletized form containing various colorants in HDPE and PP resins.

They are specially designed to be used as masterbatches only for polyethylene and polypropylene compatible system to impart benefits such as effective dispersions of colorants and preservation of base polymers (HDPE, PP-R) properties as HDPE pressure and PP-R heating pipes.

Product Benefits

- Effective dispersion of colorants in pipes (HDPE and PP-R pipes)
- No bleeding out of colorants under any severe conditions such as high pressure and high temperature.
- No problem for food contact.
- No effect in internal creep rupture strength and heat stability of base polymers (HDPE, PP)



Product Range and Applications

Item	Color	Dosage (phr)	Application
HDPE	Black 80, 100	6 ~ 7	PE80, PE100 Pipe
	Black	3 ~ 4	General Purpose
	Yellow	2 ~ 4	PE80, PE100 Pipe
	Blue	2 ~ 4	
PP-R	Green	2 ~ 4	PP-R Heating Pipe
	Grey	2 ~ 4	
	White	2 ~ 4	
	Blue	2 ~ 4	

Functional Additive Masterbatches

Value added plastics might be maximized by adding various highly functional additives. Our functional additive masterbatches have been manufactured according to improving technologies of coloring and compounding controlled by virtue of recently developing technologies and equipments.

Product Range

Anti-Blocking, Antifogging Masterbatches

Antistatic, Antioxidant Masterbatches

Clarifying/Nucleation (NU-510) Masterbatch

Dehydration (Desiccant), Hydrocarbon resin Masterbatches

Flame Retardant, Foaming Masterbatches

Antibiotic (Nano-Silver), Optical Brightener (Fluorescent Whitening) Masterbatches

Polymer Processing Aid (Fluoropolymer type, Metallic Salt type) Masterbatches

Slip Agent, UV stabilizer Masterbatches



For Polyethylene / EVA

Applicable Resin	Application	Function	Remarks
PE / EVA	Agricultural Film	UV-Stabilizers	HALS, Benzophenons
		Anti-Static	
		Slip	Oleamide, Erucamide, Stearamide
		Anti-Block	Synthetic Silica
		Anti-Fogging	Non-ionic Surfactant
		Process-Aid	Fluoropolymer, Metallic Salt
		Cling	Polybutene-1
		Anti-Biotic	Nano-Silver
	Coating / Foam / Injection	Flame Retardant	Non-Blooming
		Foaming Agents	ADCA, NaHCO ₃
		Nucleating	Fine Talc
	Yarn / Filament	Flame-Retardant	Brominated, Low Blooming

Functional Additive Masterbatches

For Polypropylene

Applicable Resin	Application	Function	Remarks
PP	OPP / CPP	UV-Stabilizer	Benzotriazoles, HALS
		Anti-Static	
		Slip	Erucamide, Oleamide
		Anti-Blocking	Synthetic Silica
		Anti-Oxidant	
		Processing Aid	Fluoropolymer
		Modification	Petroleum resin / Twist Film
		Opaque	Fine Calcium Carbonate
		Combination Batch	Slip and Anti-Blocking
	Yarn / Filament	UV Stabilizer	Low water carry-over
		Flame Retardant	Brominated / Non-Halogen
	Injection / Compounding	Clarifying Agent	SORBITOL based clarifier
		Melt Flow Modifier	Peroxide (DHBP)
		High Glossy	Fine BaSO ₄ , Nucleating effect
		Anti-Biotic	Nano-Silver

For Styrenic polymers and Engineering Plastics

Applicable Resin	Application	Function	Remarks
Styrenic Polymer	Injection / Extrusion	Anti-Static	
		Flame Retardant	Low Toxic
	EPS / XPS Foam	Nucleating	Fine Talc
		Flame Retardant	Brominated (HBCD)
		Anti-Biotic	Nano-Silver
PET / PETG	Bottle / Injection	UV-Stabilizer	Benzo-triazole
PA	Injection	Flame-Retardant	Melamine Cyanurate Brominated
		Anti-Static	
PC / PMMA	Injection / Sheet	Light Diffusion	Spherical Silicon, PMMA, BaSO ₄

MINERAL FILLER CONCENTRATES

Our mineral filler concentrates are kinds of masterbatches containing from 70 to 85 wt% of mineral fillers such as calcium carbonate, talc and barium sulfate based on Polyolefin or Styrenic polymers.

These are some additives/fillers for thermoplastics and should be used by mixing with thermoplastics (Polyolefin, Styrenics etc.).

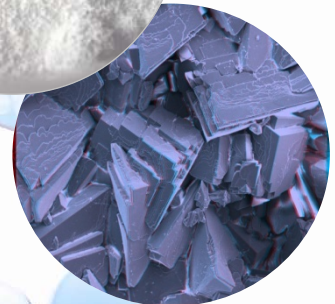
You can have the following benefits by using mineral filler concentrates together with your using resins.

Product Benefits

- Better printability
- Improve dimensional stability
- Improve mechanical and thermal properties
- Cost effective solution
- Anti-block effect for films

Product Range

- Calcium Carbonate (CaCO_3) : SATEK
- Talc
- Barium Sulfate (BaSO_4)



SATEK : Calcium Carbonate Concentrates

SATEK is a mineral filler concentrate which fine calcium carbonate is high loaded into base polymer for improving thermoplastics physical properties and it is particularly developed for product quality and performance by our technique and unique production system.

SATEK provides its good dispersibility in the polymer matrix, excellent machine processability and enhanced mechanical properties of the final products for the applications of extrusion, blown film, injection molding and so on.

Product Benefits

- Improve processability and productivity
- Improve dimension stability and abrasion resistance
- Improve printability and reduce cost of final product
- Partly substitute white pigments to lower cost
- Act as anti-block agent and improve physical properties for films



SATEK Products

Product	SATEK CE	SATEK CP
Carrier Resin	Polyethylene	Polypropylene
Filler Contents (wt%)	70 ~ 85	65 ~ 80

Recommended Dosage Rate

Application	Applied Polymer	Dosage Rate
Film	LDPE, HDPE	10 ~ 30 %
Flat yarn	PE & PP	3 ~ 10 %
Injection Molding	PE & PP	20 ~ 40 %
Twine and string	PE & PP	10 ~ 20 %

Remark : Our optimum dosage rate should be determined by pre-test since quality of final product may differ depending on customers' conditions (machine, tolerance acceptable to final product, processing condition, type and nature of raw material use.)

SATEK : Calcium Carbonate Concentrates**Physical properties for PP injection molding applications**

Property	Test Method	Unit	Loading of CaCO ₃ Concentrates to PP			
			0 %	10 %	20 %	30 %
Mold Shrinkage	SATECH	%	1.5~1.7	1.0~1.2	0.9~1.1	0.8~1.0
Tensile Strength	ASTM D638	kgf/cm ²	350	360	350	340
Flexural Modulus	ASTM D790	kgf/cm ²	16,500	22,000	25,000	27,000
Izod Impact strength	ASTM D256	kgf.cm/cm	4	4.5	5	5
Heat Deflection Temp.	ASTM D648	°C	100	110	125	128
Density	ASTM D1505	g/cm ³	0.90	0.96	1.03	1.09

Main Applications of Calcium Carbonate Concentrates (SATEK)

Application	Applied Polymer	Main Effects
Film / Sheet	Polyolefin resin (PE, PP)	Improve matt surface effect Save white pigment cost Improve stiffness Improve folding and creasing properties Improve anti-block effect
Weaving Tapes Twine	Polyolefin resin (PE, PP)	Increase output Self cleaning of the extruder and dies Improve lifetime of curving knives Improve slip resistance
Pipe, Profile and Panels	Polyolefin resin (PE, PP)	Reduce wall thickness of product Increase productivity due to faster cooling time
Flat yarn	Polyolefin resin (PE, PP)	Anti-vertical tearing strength Anti-slip effect Better printability on the surface of woven cloth Greater tensile strength of yarn after stretch
Injection Molding	Polyolefin resin (PE, PP)	Greater stiffness Dimensional stability due to lower shrinkage Higher heat deflection temperature Increase productivity due to faster cooling time
Sheets / Injection Molding	Polystyrene and ABS (HIPS and GPPS)	Minimize change in physical properties Anti-slip effect Improve surface quality of finished articles Improve surface printability

TALC Concentrates

Talc concentrates are high concentrated products which up to 75 wt% of Talc is loaded into polyolefin or Styrenic polymer base.

These products are widely used in plastic industry to improve physical properties of end product. Consequently when our masterbatches are applied to your product, you can have following benefits.

Product Benefits

- Improve machine life
- Improve dimensional stability
- Improve physical properties (stiffness, heat and creep resistance, impact strength etc.)
- Improve productivity
- Reduce formulation cost
- Act as a nucleating agent

TALC Concentrate Products

Carrier resin	Polyethylene	Polypropylene	Polystyrene
Filler contents (wt%)	60 ~ 75	60 ~ 75	60 ~75
Application	Injection / Sheet	Injection Pipe / Sheet	Sheet
Properties	Heat stability Stiffness Dimensional stability	Heat stability Stiffness Dimensional stability	Heat stability Stiffness Dimensional stability

Barium Sulfate (BaSO₄) Concentrates

When polypropylene is molded as housing of electronic appliances (Electric jar, Coffee maker, Flyer..) which generate electric heat, there are applied mineral filled polypropylene (PP compound) which was improved heat stability but decreased surface appearance because of that filler chemical ingredients and structural properties. If you use our high glossy masterbatch, you can solve these problems, so you can acquire the molded articles which have high heat stability and high glossy surface.

- Filler Content : 60 ~ 80 wt%
- Carrier resins : Polypropylene, Polyamide

Product Benefits

- Improve surface gloss
- Improve dimensional stability
- Improve heat stability
- Improve mechanical properties (stiffness, etc.)
- Increase density (for Ultra high density application)

Applications

- Electric appliances (electric jar, electric iron, refrigerator, coffee maker etc.)
- Case or Cover of Cosmetics
- Toys and Stationary articles
- Exterior or interior part which demand good appearance and heat stability

Physical properties for PP injection molding applications

Properties	Test Method (ASTM)	Unit	General PP	Mixing Ratio		
				15 wt%	30 wt%	45 wt%
Density	D 1525	g/cm ³	0.90	1.28	1.64	2.10
Tensile Strength	D 638	kgf/cm ²	350	370	350	340
Elongation at break	D 638	%	500	200	100	80
Flexural Modulus	D 790	kgf/cm ²	16,000	20,000	22,000	26,000
Izod Impact	D 256	kgf.cm/cm	4.0	5.5	6.0	6.5
Rockwell Hardness	D785	R-scale	100	98	97	97
Heat Deflection Temp.	D 648	°C	110	125	132	135

COMPOUNDS

In general, the addition of fillers such as glass fiber, carbon fillers, functional additives and mineral fillers on thermoplastic polymers improves physical, thermal, mechanical and functional properties of base polymer.

Our compound which the glass fiber or special filler is added improve isotropy, thermal resistance and mechanical properties. So it can appear functional activity and be used as a metal substitute in home appliances and OA machines.

It can be applied to the various ranges of markets including electrical, electronic, OA parts, home appliances and medical equipments.

- **Semi-Conductive Compound**
- **Bio-Degradable (PLA - Poly Lactic Acid) Compound**
- **Inherently Dissipative Compound**
- **Color Compound**
 - **Engineering Plastics**
 - **Thermoplastic Elastomers (TPO / TPS / TPU / TPEE)**

Semi-Conductive Compound

In general, plastic possesses a high electronic insulating property which is the cause of accumulating static electricity not dissipating it. The main reason of originating static electricity is friction electrification, rubbing, exfoliation, and floating etc.. These the static electricity brings circuit break, malfunctioning and memory breakdown.

Our conductive compounds have been used in various electric/electronic parts and package applications such as IC shopping trays/Wafer carrier/Tote box etc..

We can provide unique dimensional stability over a wide range of temperature, certain conductivity in plastic product and can improve customers' reliability.

Bio-Degradable Compound

We have advanced technologies to improve mechanical physical properties, processability and chemical stability of Bio-Degradable resins, which has fragile properties inherently, through control of compatibility among the bio-degradable resins, proper composition and development of additive with many years of our technical know-how.

Our Bio-Degradable resin is composed of Poly Lactic Acid and Aliphatic Polyester, environmental friendly and bio-degradable plastics and it is new material which can be replaced by general plastics since it has excellent physical properties such as physical strength, heat stability and chemical resistance.

Items	Property	Application
Injection grade (I Series)	Physical Strength Heat Stability Dimensional Stability	Electric/Electronic goods, housing Infant goods Home interior parts
Sheet grade (S Series)	Physical Strength Heat Stability	Thermoforming goods Plastic credit cards
Film grade (F Series)	Heat Stability Processability Transparency	Shopping bags Garbage bags Sanitary bags

Inherently Dissipative Compound

Our recommendable Inherent Dissipative Compound has been sought for the most stringent clean environments, where inevitably requires cleanness solutions against permanent electric shock damage.

It can be used in applications such as electronics (semiconductor and ESD-sensitive components) and industrial packaging, housing and parts of various business and plastic suppliers for use in clean room environment.

Our inherent dissipative technology delivers volume resistivity in the range of $10E8$ to $10E9$ ohms/square.

Applicable Host Polymer

It can be compounded with various carrier resins as polyolefin, ABS, PVC, PC, POM, PET and TPU in the foam of transparent film, fiber or molded applications.

Characteristics

Ordinary shape resin and main benefits are colorless, transparent and humidity independent. No particle contamination and permanent over time.

Color Compound

Our color compound products are generally used in the applications to require consistent and quality color for customer needs and these products are excellent in color matching, color uniformity and easy applications and can be widely applied in various polymer materials and can also allow customer to produce uniform color of the end product.

Product Benefits

- Consistent color in final product
- Less change in physical properties than input of masterbatch

Applications

- Household furniture
- Electric & Electronics products
- Product demanding graceful appearance
- Product demanding various color and high physical properties



RESEARCH & DEVELOPMENT

Our top priority is to provide high quality products and services for customers through a unique SAM-A C&I system related to research projects together with the society and industry of today.

- **Quality Assurance**
 - **Environmental Consideration**
 - **Innovative Idea**
 - **Uniformity and Originality of Products**



Seoul Office (Overseas Sales Team)

1702 Masters Tower, 553 Dohwa-dong, Mapo-gu, Seoul, Korea
Tel) + 82 2 711 7784 Fax) + 82 2 711 7785
E-mail : samacni@samacni.co.kr
Website : www.samacni.co.kr

Head Office and 1st Factory (Domestic Sales Team)

#354-4 Gumeu-ri, Pogok-eup, Cheoin-gu, Yongin-si, Kyunggi-do, Korea
Tel) +82 31 321 7866 Fax) +82 31 321 5897

2nd Factory

767 Chobu-ri, Mohyun-myun, Cheoin-gu, Yongin-si, Kyunggi-do, Korea
Tel) +82 31 321 9384 Fax) +82 31 322 0832

3rd Factory

515-1, Daeyang-ri, Munsu-Myun, Yeongju-si, Kyongsangbuk-do, Korea
Tel) +82 54 634 3761 Fax) +82 54 634 3760