



Additive Masterbatches

Delivering Functional Solutions
Using Thermoplastic Technologies

Your Global Compounder of Custom Engineered Additive Masterbatches

RTP Company is your global compounder of custom engineered thermoplastic compounds, including color and additive masterbatches. We are experts at solving design challenges, providing custom material solutions ideally matched to end-use requirements.

Private ownership enables us to be independent and is the foundation of our unbiased approach to material specification. Our engineers select from over 60 engineering resins and hundreds of additives and modifiers to create a plastic formulation specifically to solve your application problem.

RTP Company at a Glance

- Privately-owned custom compounder
- Independent, unbiased product development
- Worldwide sales representation and distribution
- Global manufacturing sites
- ISO 9001 registered facilities

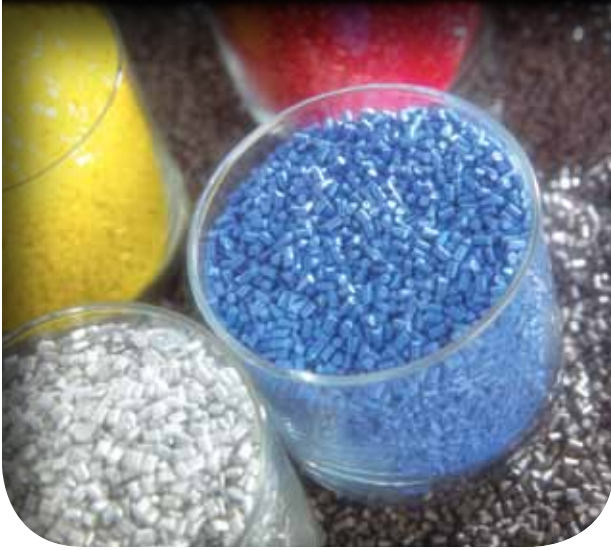


Advantages of Working with RTP Company

We are dedicated to providing *your solution – your way*, whether it is a compound, cube blend, or masterbatch.

You can select a standard product for quick start-up or have our engineers evaluate your needs and custom-formulate a solution that meets your specific application and processing requirements.

Every RTP Company compound contains our 30+ years of expertise in combining additives with resins to achieve the best performance possible.



Functional Performance with Additive Masterbatches

Anti-static

Control static build-up on plastic surfaces

Foaming Agent

Reduce material density or improve cosmetic appearance

Laser Marking

Simplify branding and labeling with permanence and flexibility

Antimicrobial

Protect goods against degradation, staining, and odors due to microbes

Flame Retardant

Increase product safety by lowering fire threat

Stabilizers

Minimize damaging effects of UV exposure and extend product life

Additive Solutions

RTP Company offers concentrated and efficient functional additive masterbatches that complement our broad range of color products and custom compounds. All of our solutions are available globally and are fully supported from design through production.

In addition to these featured additive masterbatch product lines, RTP Company has the ability to create custom materials incorporating other additive technologies:

- Wear reducing lubricants
- Nucleating and clarifying agents
- Surface gloss reducers
- LED light diffusers
- Mold releases
- Authentication technologies
- Fillers

RTP Company also provides processors with a complete portfolio of standard and custom color masterbatches for the entire gamut of resins from Polypropylene to PEEK. Products include ISO 10993 biocompatible color masterbatches for healthcare devices and UniColor® universal masterbatches which are compatible with multiple resins.



Anti-static Masterbatches

- Control static build-up on article surfaces
- Replace fragile, often short-lived surfactant coatings
- Enhance resin flow and mold release characteristics
- Fully colorable

Additive Solutions

Anti-static masterbatches minimize the build-up of static charges on the surface of plastic articles that can attract dust or be a hazard in environments containing flammable materials.

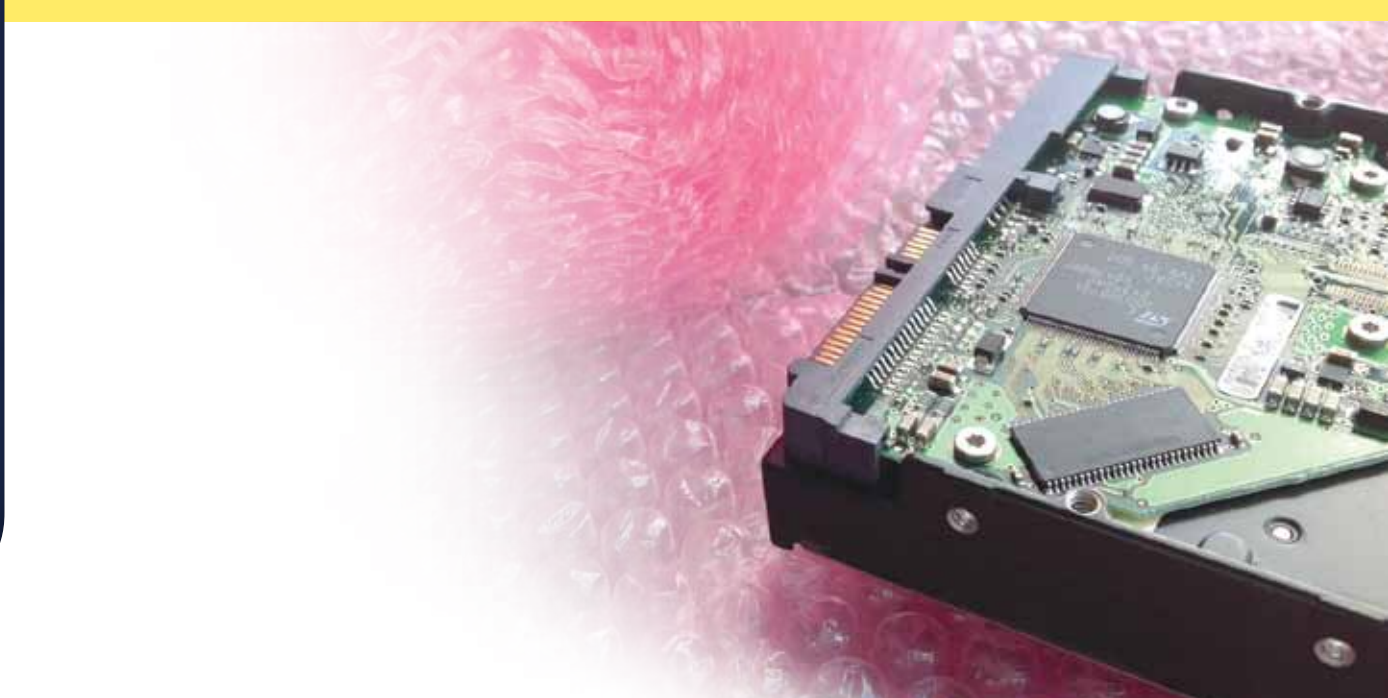
Anti-static masterbatches are often used to simplify manufacturing processes by replacing more expensive and messy secondary coating operations.

Depending on application performance requirements, anti-static masterbatches can be a viable option. They can incorporate a variety of migratory additives depending on polymer selection; blends are commonly used to improve fast acting, short-term capabilities and long-term performance.

Typical Applications

- Packaging
- Containers
- Bottles
- Films
- Fibers





Select Anti-static Masterbatches

GRADE	DESCRIPTION	CARRIER RESIN	COMPATIBLE RESIN(S)
ACX 127073	50% Active	SAN	ABS, ASA, SAN
ACX 111257	20% GMS	PP	PP

As a custom compounder, RTP Company can formulate a masterbatch or ready-to-use compound solution to meet the requirements of your application. Please contact us to discuss your needs.



Important Considerations

- Formulations are available for a wide variety of thermoplastic resins and can be optimized for either injection molding or extrusion processing. Food contact compliant products are also available.
- Typical loadings range from 1% to 4% depending on part wall thickness and desired anti-static performance. Material processing conditions and application end-use environment will also influence the optimum loading.
- Anti-static masterbatches can be combined with black or colored neat resins and compounds.
- In addition to migratory anti-static masterbatches, RTP Company offers a complete line of robust conductive compounds that utilizes an inherently dissipative polymer, carbon powder, carbon fiber, and a variety of metallic fibers and fillers.

Foaming Agent Masterbatches

- Reduce part weight
- Eliminate sink marks
- Improve part aesthetics
- Endothermic or exothermic reaction types
- Excellent activation and compatibility with polymer

Foaming agent masterbatches, also known as chemical foaming agents (*CFA*) or chemical blowing agents (*CBA*), are used to foam thermoplastic resins to create a cellular structure within the material.

Chemical foaming agents generate gas by either endothermic or exothermic chemical reactions depending on the specific additive compositions.

- Exothermic agents release heat energy and nitrogen during decomposition; they typically activate at higher temperatures and can add some yellow color to the material.
- Endothermic agents remove heat energy and release carbon dioxide during decomposition; they typically activate at lower temperatures and are largely colorless.



Typical Applications

- Housings
- Furniture
- Automotive
- Lawn and garden
- Hand tools
- Kitchen accessories

The most common use of foaming agents is to increase the volume of the polymer, allowing the use of less material to lower costs or to reduce density for weight-critical applications.

Foaming agents can also be used to eliminate sink marks, which are shallow depressions on a part surface created by excessive shrinkage in thick areas during cooling. A small amount of foaming agent creates enough internal pressure to offset the forces of shrinkage.



Select Foaming Agent Masterbatches

GRADE	DESCRIPTION	CARRIER RESIN	COMPATIBLE RESIN(S)
FCX 27301	Exothermic (300-350 °F/150-175 °C)	---	PP, PE, POM, PA 11 & 12
FCX 27314	Exothermic (300-350 °F/150-175 °C)	---	ABS, PS, HIPS, SAN
FCX 111263	Endothermic	LLDPE	PE, PP, TPE
FCX 132639	Exothermic (500-540 °F/260-282 °C)	EMAC	PA, PET, PBT, PC, PC/ABS
FCX 141458	Endothermic (400-475 °F/204-246 °C)	EVA	PE, PP, TPO, TPU, TPE, ABS, PS, POM
FCX 141459	Exothermic (350-420 °F/177-216 °C)	EVA	PE, PP, TPO, TPU, TPE, ABS, PS, POM
FCX 141460	Endothermic (400-475 °F/204-246 °C)	EVA	PE, PP, TPO, TPU, TPE, ABS, PS, POM
FCX 127078	Exothermic (400-510 °F/204-266 °C)	EVA	PE, PP, TPO, TPU, TPE, ABS, PS, POM, PA, PET, PBT

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Foaming agents can resolve surface deforming sink marks, such as those caused by ribs on the underside of a molded part.

USAGE RECOMMENDATIONS	LET DOWN RATIO	
For sink control	200:1	0.50%
Foaming starting point	50:1	2.0%
Foaming maximum	20:1	5.0%

Important Considerations

- Synergists can be used to improve characteristics like cell structure and size, surface finish, and dispersion. Blends are also common to meet the demands of specific applications.
- Foaming agent masterbatches can reduce the weight of a molded part by up to 20%. Uses include density-critical transportation industry applications where energy savings from weight reduction can be achieved.

Laser Marking Masterbatches

- Compatible with the latest laser technologies
- Permanent imprint, resistant to wear and abrasion
- Hold intricate details and produce high contrast marks
- Mark a variety of surfaces
- Colored marks on dark surfaces

Laser marking masterbatches work with state-of-the-art laser technologies to produce permanent, high clarity imprints that are resistant to wear and abrasion.

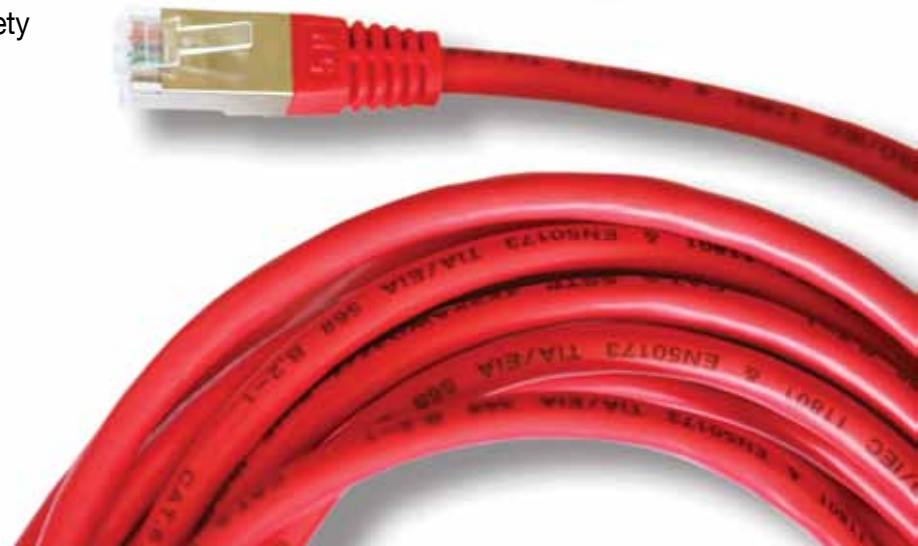
Laser marking is a clean, fast, and flexible method to imprint patterns on production runs of any size with minimal set-up. Since lasers don't need surface contact, parts with uneven shapes and surfaces can be marked with labels, barcodes, serial numbers, or other identification information.

During laser marking, a thermochemical or photochemical reaction occurs within the polymer. Marks can vary with the type of laser, polymer matrix, and marking parameters. Mark types range from surface etching with minimal contrast to high contrast marks at the surface or even suspended within a clear polymer.

RTP Company's laser marking masterbatches can be optimized for specific laser technologies to create a wide range of marking characteristics on a variety of thermoplastic materials.

Typical Applications

- Keyboard and button labels
- Wire and cable identification
- Packaging lot numbers and barcodes
- Product branding





Select Laser Marking Masterbatches

GRADE	DESCRIPTION	CARRIER RESIN	COMPATIBLE RESIN(S)
LCX 111275	Dark laser mark	LLDPE	PE, PP, TPE
LCX 111284	Dark laser mark on light substrate	---	PBT, PE, POM, PP, TPE, TPU
LCX 117651	Dark laser mark on clear or light substrates	LLDPE	PE, PP, TPE

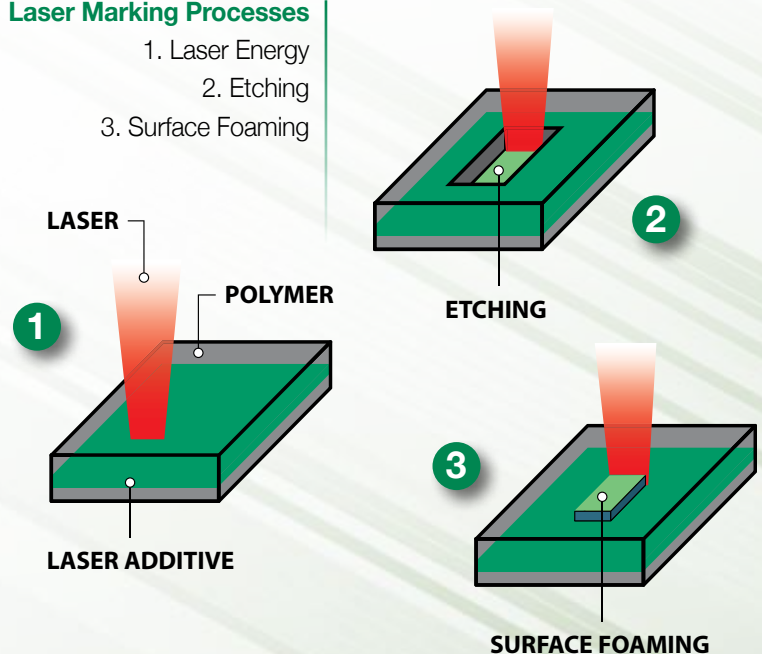
As a custom compounder, RTP Company can formulate a masterbatch or ready-to-use compound solution to meet the requirements of your application. Please contact us to discuss your needs.

Important Considerations

- Laser marking easily produces dark marks on light substrates and light marks on dark substrates. In some resins colored marks can also be produced on dark substrates.
- Laser marking often requires fewer secondary operations and can be completed at lower cost than other printing methods. VOCs associated with inks and paints are also eliminated.
- Composition of the substrate being marked can critically affect the quality of the mark that can be achieved. When laser marking a plastic substrate that contains other additives, RTP Company can help you obtain the best mark by providing a custom compound.
- Typical laser marking masterbatch loading levels range from 2% to 4%.

Laser Marking Processes

1. Laser Energy
2. Etching
3. Surface Foaming



Antimicrobial Masterbatches

- Prevent the growth of mold, mildew and algae
- Protect against degradation, staining and odors
- Fully colorable
- Medical devices including 510(k)
- Food contact compliance

Antimicrobial masterbatches protect plastic goods from microbic growth such as fungi (*mold and mildew*), algae, and other microbes that cause fouling, which can lead to polymer degradation, staining, and odors in untreated articles.

RTP Company's material experts use our independent and unbiased position to select the right antimicrobial solution from the broad array available to ensure your application's requirements are met.

RTP Company supplies antimicrobial solutions as either additive masterbatches or compounds to meet your mode preference.

Our recommendation will be based on a thorough examination of your application:

- Efficacy goals
- Regulatory requirements
- Polymer selection
- End-use environment
- Color requirements
- Filler and other additives



Typical Applications

- Processing equipment in wet environments
- Outdoor and underground applications
- Plumbing fixtures and supplies
- Consumer goods
- FDA-compliant packaging
- Medical devices including 510(k)
- Sports and recreation equipment



Select Antimicrobial Masterbatches

GRADE	DESCRIPTION	CARRIER RESIN	COMPATIBLE RESIN(S)
MCX 120680	25% Silver-based	PS	PS
MCX 122009	25% Silver-based	LLDPE	PE, PP, TPE
MCX 122016	25% Silver-based	PC	PC
MCX 122656	25% Silver-based	SAN	ABS, SAN, ASA
MCX 122670	25% Silver-based	PA	PA
MCX 122677	25% Silver-based	TPU	TPU
MCX 125250	25% Silver-based	PMMA	PMMA
MCX 128104	Zinc-based	LLDPE	PE, PP, TPE

As a custom compounder, RTP Company can formulate a masterbatch or ready-to-use compound solution to meet the requirements of your application. Please contact us to discuss your needs.

Important Considerations

Antimicrobial masterbatches or compounds are not intended to protect individual users of plastic articles against food-borne or disease-causing bacteria.

- RTP Company can work with you to help determine which antimicrobial solution is best suited for your applications based on its requirements.
- To ensure that EPA regulations are met, please review EPA Pesticide Registration Notice 2000-1 available from www.epa.gov.
- RTP Company has antimicrobial masterbatches and compounds for medical devices that require FDA 510(k) submissions and change management control of formulations.
- Typical antimicrobial masterbatch loading levels range from 1% to 6%. Optimum let down ratio is highly dependent on efficacy requirements.





Flame Retardant Masterbatches

- Provide ignition resistance
- Reduce rate of flame spread
- Reduce heat release rate
- Reduce smoke production and toxic by-products
- Environmental compliance

The use of flame retardant technologies to reduce fire hazards is a basic element of product safety. At RTP Company, our engineers keep abreast of constantly-changing global regulations and have the experience to maintain compliance while providing a flame retardant masterbatch that meets your specifications for safety.

Flame retardant masterbatches can be a desirable solution depending on the resin, processing method, and safety requirements of your application. In addition to masterbatches, RTP Company offers flame retardant compounds and our engineers can help you determine which solution is appropriate for your application.

When you need a flame retardant solution, we can provide guidance on several factors:

- Flammability specifications to be met
- End-use environment application
- Resin processing method and conditions

Typical Applications

- Material Handling
- Construction
- Sheet or film products
- Fiber or filaments
- Extruded profiles



Select Flame Retardant Masterbatches

GRADE	DESCRIPTION	CARRIER RESIN	COMPATIBLE RESIN(S)
RCX 111271	Halogenated FR, High Efficiency	PP	PP
RCX 127085	Halogenated FR	LLDPE	PE, PP, TPE
RCX 128106	Halogenated FR	PC	PC
RCX 128107	Halogenated FR	PBT	PBT, PET
RCX 132603	Halogenated FR, Outdoor UV	PP	PP
RCX 125232	Halogenated FR, High Efficiency	LLDPE	PE, PP, TPE
RCX 128113	Halogen-Free FR, Low Smoke & Heat Release	LLDPE	PE, PP, TPE

As a custom compounder, RTP Company can formulate a masterbatch or ready-to-use compound solution to meet the requirements of your application. Please contact us to discuss your needs.

Important Considerations

- Some polymers are inherently flame retardant. Others, including many useful and cost-effective resins, are not inherently flame retardant and need to be modified to provide fire resistance.
- Flame retardance is achieved through chemical reactions that moderate one or more of the elements (*fuel, heat, or oxygen*) necessary for combustion.
- The burning behavior of plastics is not just a material characteristic. Part design and nominal wall thickness are key factors in flammability certification.
- RTP Company has in-house testing expertise, with the ability to perform UL94 HB, V-0, V-1, V-2, 5-VA and VTM; glow wire ignition; FMVSS302; and FAR 25.853 tests.



Stabilizer Masterbatches

- UV inhibitors reduce effects of ultraviolet radiation
- Antioxidants and co-stabilizers improve polymer thermal performance
- Stabilizers protect and extend polymer and color lifecycle

A wide variety of thermoplastic stabilizers are available to address the processing demands of particular resins or to help meet application performance expectations. Stabilizers include antioxidants, processing aids, co-stabilizers, UV inhibitors, metal deactivators, and synergistic blends.

Mitigating the effects of ultraviolet (UV) exposure is one of the most common uses of stabilizer technologies. They can protect plastic parts from degradation due to exposure to sunlight and weathering that can lead to brittleness, discoloration, chalking, or surface crazing.

For UV protection, two different additive technologies are available: hindered amine light stabilizers (*HALS*) and UV absorbers. HALS function by trapping free radicals formed during the photo-oxidation process, whereas UV absorbers convert UV radiation to thermal energy. Combinations of these can provide overlapping protection.

Typical Applications

- Lawn and garden implements
- Sports and recreation equipment
- Packaging
- Films
- Containers





Select Stabilizer Masterbatches

GRADE	DESCRIPTION	CARRIER RESIN	COMPATIBLE RESIN(S)
SCX 111262	UV Absorber/HALS Blend	SAN	ABS, ASA, SAN
SCX 125220	UV Absorber	PC	PC
SCX 122039	UV Absorber/HALS blend	PA	PA
SCX 117666	HALS Blend	LLDPE	PE, PP, TPE
SCX 122019	UV Absorber/HALS Blend	PS	PS

As a custom compounder, RTP Company can formulate a masterbatch solution to meet the requirements of your application. Please contact us to discuss your needs.



Weatherometer testing shows the deterioration that can occur in polymers without proper usage of stabilization packages.

Important Considerations

- Tailored selection of stabilizers and their loadings is the best method to provide maximum protection based on polymer choice and expected real-world usage conditions to which an application will be exposed.
- Plastic components are exposed to a wide range of outdoor environments and varied application performance demands. As such, lifecycle performance for color or mechanical properties cannot be guaranteed.
- Colorants, fillers, and other additives influence application surface appearance and UV stabilizer masterbatch performance.
- Typical let down ratios range from 2% to 4% depending on usage environment of the application, part wall thickness, and performance expectations.



**STRUCTURAL • ELASTOMERS • WEAR • COLOR
CONDUCTIVE • FLAME RETARDANT • FILM/SHEET**

Your Global Compounder of Custom Engineered Thermoplastics

RTP COMPANY is committed to providing you with solutions, customization, and service for all of your thermoplastic needs. We offer a wide range of technologies available in pellet, sheet, and film that are designed to meet even your most challenging application requirements.

COLOR

Color inspires, energizes, and builds brand recognition, and choosing the right supplier is as important as selecting the right color. We offer color technology options in standard precolored resins or custom compounds, UniColor™ Masterbatches, or cube blends.

CONDUCTIVE

We offer compounds for electrostatic discharge (ESD) protection, EMI shielding, or PermaStat® permanent anti-static protection. Available in particulate and all polymeric-based materials, these compounds can be colored, as well.

FLAME RETARDANT

Whether you are developing a new product or need to reformulate due to ever-changing regulations, we can custom engineer a flame retardant material with the exact properties you require.

STRUCTURAL

Our reinforced structural compounds can increase strength, stiffness, and provide resistance to impact, creep and fatigue. Ideal for metal or other material replacement, our formulas can be customized to meet cost and performance targets.

TPE

Our thermoplastic elastomers provide rubber-like performance with the processing benefits of thermoplastic resin. We offer a wide range of options, from standard, in-stock resins to custom compounds designed to meet your specifications.

WEAR RESISTANT

Our wear resistant thermoplastic compounds can incorporate internal lubricants to reduce wear and friction, thereby lengthening the service life of your application and reducing your processing costs.

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