

ANTIMICROBIAL MASTERBATCH

SPL provides an extra layer of protection, a permanent barrier against transmission of harmful fungi, bacteria and algae through contact with everyday items through the specially designed Antimicrobial masterbatch.

The active ingredient in SPL Antimicrobial Masterbatch is ionic silver, a multi-site naturally occurring element, known to have broad spectrum antimicrobial activity. It is effective against harmful microorganisms present in everyday life such as bacteria (*Escherichia Coli*, *Staphylococcus Aureus*, *Salmonella*), fungi (*Aspergillus Niger*), mildew, mold & algae.

Because silver is not considered harmful to humans, animals or plants this masterbatch can be used in a wide range of applications where hygiene, odor control & stain resistance are main objectives.

The micronized silver is loaded onto a surface modified carrier which ensures that the silver is uniformly dispersed in the polymer matrix and is released at a controlled rate, ensuring homogenous protection of the material with minimum amount of silver. Hence, it is suitable for applications wherein the antimicrobial activity is expected to endure for several years preserving the aesthetic and functional properties of plastic products.

The mechanism by which the masterbatch functions involves –

- ❖ Silver ions in the masterbatch enter the microorganism's membrane by damaging & penetrating the cell wall
- ❖ Silver ions deactivates its functionality by disrupting folic acid & protein synthesis and interferes with cell wall synthesis
- ❖ Silver ions inhibits DNS synthesis and prevent it from replication

The antimicrobial activity is tested using the following standard –

JIS Z 2801 : 2000 for Bacteria

ASTM G21 for Fungi



Untreated Polymer shows growth of bacteria on polymer surface



Treated polymer which prevents bacterial growth on surface

Benefits of the Antimicrobial Masterbatch

- ❖ Tried & tested silver based technology
- ❖ Tested against potentially harmful bacteria & fungi
- ❖ Helps prevent staining, discolouration & odor development
- ❖ Broad spectrum antimicrobial activity at low dosages
- ❖ Compatible with various polymers like PS, PE, PP
- ❖ Preserves aesthetic & functional properties of plastic products
- ❖ Enhances your marketing appeal & reach.

Applications of the Antimicrobial Masterbatch

- ❖ Food Contact Application : Cutting boards, Bottles, Food containers, Food packaging & Processing equipment, Overhead Water storage tanks, Water purifiers, Refrigerator interiors (food trays, vegetable / fruit box, water reservoir)
- ❖ Non Food Contact Application : Air Conditioning / ventilation systems, Drainage pipes, Swimming pool covers, Toiler seat cover & bath accessories, Office stationary, Car interiors, Textiles, PP non woven fabric, Mats, Carpets, Rugs, Clothing, Shoe sole, Tooth Brush body & bristles, Medical devices, Crates, Pallets, Gaskets, Garbage cans / bags, Mobile covers, Laptops
- ❖ Agriculture : Irrigation pipes, Greenhouse films

Available Grades

SPL Grades	Dosage (%)	Compatible Polymers	Remarks
SP7336 0001	1 to 2	GPPS, HIPS, ABS, SAN	Recommended for transparent applications also
SP7136 0001	1 to 2	LLDPE, LDPE, HDPE, PPHP, PCPC	-

Regulatory Compliance

At recommended levels, SPL Antimicrobial Masterbatch are suitable for food contact applications.

All grades are Heavy Metal free and are compliant with RoHS regulation.

Packaging & Storage

Material is supplied in pellet form, packed in 25 Kg laminated bags. SPL recommends storage of material in a ventilated & covered facility, protected from Moisture, Sunlight and Heat. The packing material used is not UV stabilized and hence should not be exposed to sunlight.



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