

ANTI-MICROBIAL/ ANTI-FUNGAL (O) ADDITIVE

Q.1) What is the base of Anti-Microbial/ Anti-Fungal (O) Additive?

- Anti-Microbial, Anti-Fungal-(O) Additive is organic micro particles and other additives in polyethylene wax

Q.2) What is the Mechanism of Action?

- Organically active (OA) additives in Anti-Microbial/Anti-Fungal-(O) Additive act as a biocide, targeting multiple cytoplasmic membranes of micro-organisms. At lower concentrations, it is bacterio-static and is seen to target bacteria mainly by inhibiting fatty acid synthesis needed for reproducing and building cell membranes.
- Organic Actives (OA) binds to bacterial enoyl-acyl carrier protein reductase enzyme (ENR), which is encoded by the gene *FabI*. This binding increases the enzyme's affinity for nicotinamide adenine dinucleotide (NAD^+). This results in the formation of a stable ternary complex of ENR- NAD^+ -OA, which is unable to participate in fatty acid synthesis, thus inhibiting formation of new bacterial cells.
- Organic Actives in Anti-Microbial/Anti-Fungal-(O) Additive exerts an antimicrobial effect on Bacteria (*Escherichia coli*, *Salmonella Typhimurium*, *Staphylococcus Aureus*, *Klebsiella Pnuemoniae* etc.) and Fungi (*Aspergillus Niger*, *Penicillium Globosum*, *Gliocladium Virens*, *Aureobasidium Pullulans* etc.)

Q.3) Method of Use

- The recommended addition of **Anti-Microbial/ Anti-Fungal (O) Additive** is **10 %** for master batch in LLDPE, PS, PBT or other polymers.
- The recommended addition of this master batch is **1%**.

Q.4) Can additive addition in the product change its basic properties?

- It will not change the basic properties of the product.

Q.5) What is the shelf life of Anti-Microbial/Anti-Fungal (O) Additive?

- Anti-Microbial/Anti-Fungal Additive (O) has two years of shelf life from the date of manufacture under dry condition of storage at R.T.