

Acid Scavenger

Acid scavengers play a fundamental role in the polymer industry. They are used to deactivate catalyst residues, primarily chlorides, and thus protect the polymer from unwanted reactions.

When a polyolefin is processed to its semi or final finished form, shear, heat, and oxygen work to degrade the polymer chain. This process is catalyzed by the presence of acidic species. While typical oxidation can be handled by antioxidants, dedicated acid scavengers need to be present in parallel. Without the acid scavenger, the antioxidants would not be able to ensure the long term and processing stability which they would otherwise provide.

Acids are formed not only by catalyst residues – for example, flame retardants, fillers, and pigments can also contribute. Acid scavengers also help protect processing equipment from corrosion induced by such raw materials.

Zinc and calcium stearate act as acid scavengers according to a very simple mechanism. The two soaps can also act in synergy, as calcium stearate may react with the zinc chloride to regenerate zinc stearate.

The acid scavenging activity of an additive can be evaluated by very simple means, for example, by subjecting a steel plate to molten polymer and then keeping it in a humid environment for 24 hours.

Left: Polymer granules made from well-stabilized reactor powder
Right: The same reactor powder granulated without acid scavenger



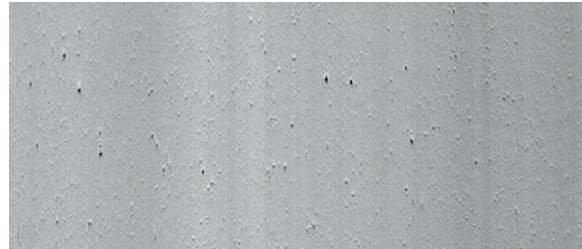
The visual performance of PP & PE-films, as well as clarified PP grades, relies on a minimum of particulate metal oxide remaining from the saponification process, which is used to synthesize calcium and zinc stearates. The presence of such solids is identified by melt filtration and the amount identified is quantified by the Filtration Index (FI). Baerlocher offers high purity acid scavengers with extremely low Filtration Index.



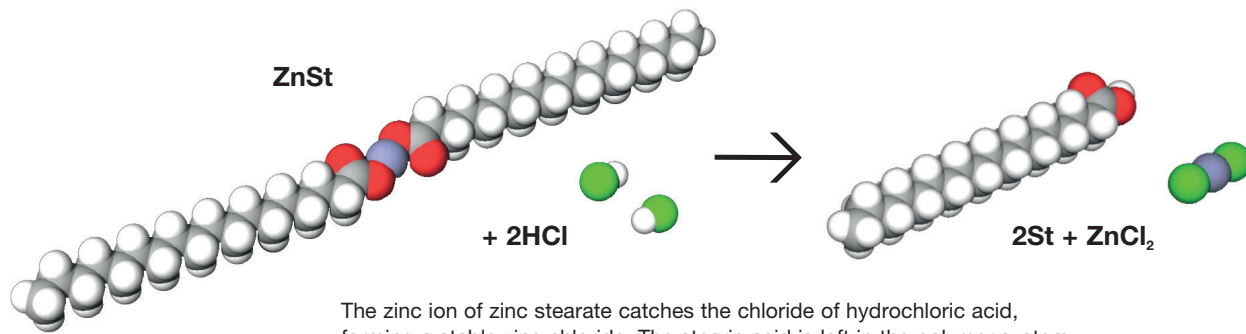
Magnification of PE film surface showing the effect of 1000 ppm of a low FI Calcium stearate from Baerlocher.

Advantages

- Low dusting forms
- Vegetable and RSPO grades
- One product – one specification worldwide
- Wide polymer license recognition
- High-end film and fiber grades
- Global regulatory compliance



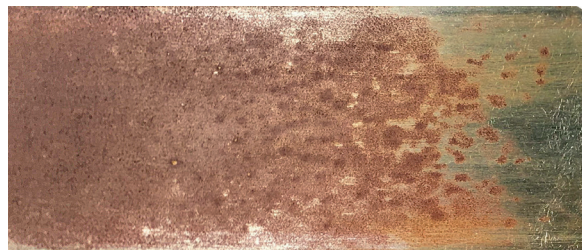
Magnification PE film surface showing the effect of 1000 ppm of a standard calcium stearate.



The zinc ion of zinc stearate catches the chloride of hydrochloric acid, forming a stable zinc chloride. The stearic acid is left in the polymer system.



No corrosion as protected by acid scavenger



Corrosion by acids due to insufficient or missing acid scavenger

Baerlocher Products

Product	Description	Special Feature	Typical Applications	Product Forms
CEASIT	Calcium Stearate	Low filtration index	PP, PE, POM, PA	Powder, low dust granules
ZINCUM	Zinc Stearate	Minimized discoloration	PE, ABS, PS	Powder, low dust prills
BAEROPOL RST 92D	Proprietary Blend	Stabilizer synergist	PP, PE	Low dust prills RST 92D

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