

This is why we only bottle in glass. Manufacturers that bottle colloidal silver products in plastic only do so to reduce cost, shipping weights and eliminate breakages. None of these take into account quality control.

FACTS ABOUT THERMOPLASTIC ELASTOMER DEGRADATION

Oxidation breaks down the ends of Elastomer molecules, almost immediately upon blow molding or extrusion process of any type of plastic container, bottle, or receptacle.

These molecules are long and chain like... The immediate effect of degradation by oxidation alone is seen almost immediately at the ends of these molecule chains. When combined with UV, the environment (ambient temperature) and water based formulary (H₂O) and any liquid metals the degradation process is increased internally and externally.

These oxidized molecules begin reacting and break down into "Hydroperoxides", "Alcohols", "Ketones", "Carboxylic Acids" and "Esters". A chemical degradation process must always be well underway before any bio-degradation can take place. Interior degradation due to chemical interaction (leaching) within a bottle or container (interior) and UV, sunlight and the environment (outside) when mixed with airborne bacteria can and will trigger the oxidation process.

University of Florida
Dept. of Environmental Engineering and
Bio-Chemistry Dept. 1989.
Dr. W.L. Miller and J. Johnson, PhD.

Additional Articles and Information on Plastic Degradation can be found in the following articles at:

Degradation of Cell Morphology of Plastics
G.M. Rizvi, W.S. Lin, G.Guo and C.B. Park - University of Toronto 1998

Phthates as Endocrine Disrupters
Nalgene Technical Support Laboratory, Nalgene International 2001

Liquid Metal Embrittlement
Corrosion Source 2000 (website article)

Hydrogen Embrittlement (Plastics)
Corrosion Source 2000 (website article)

Plastic Failure due to Oxidation Degredation
Myer Ezrin, Amanda Zekke and Mark Dudley - University of Connecticut 1999

Aging and Chemical Resistance (Polymer Degradation)
Christian Bonsten and Robert Berlich 2002

Degradation Thermoplastic Studies
Wayne State University Chemistry Dept. 1987