

## BLOW MOLDING

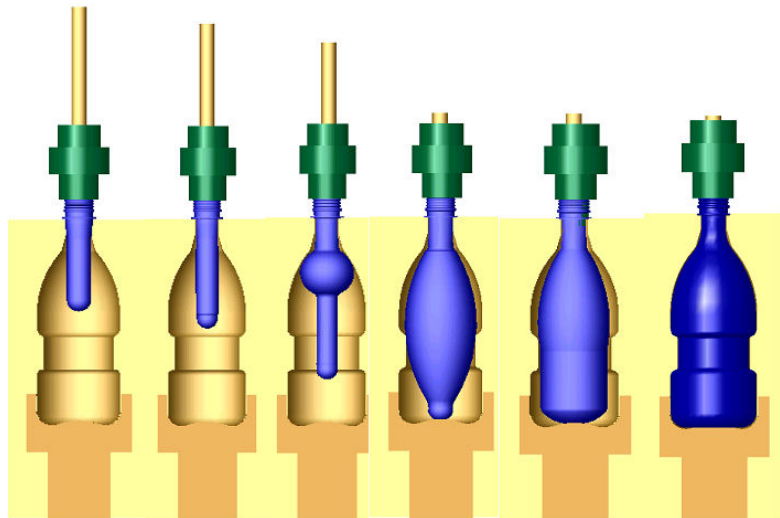
REPELA™ is a non-toxic aversive meant to deter rodents and other animals from chewing. It is available with concentrations of up to 50% active ingredients, in micro-crystalline wax or PVC as a carrier. Repela to be used with any polymer, and is compatible with most thermoplastic and thermo-setting polymers. Repela's granular form in wax provides enhanced dispersion and uniform distribution. A dosage of 0.2-0.3% of Repela in the polymer is usually sufficient to display its highest efficiency and performance. Depending on specific requirements, the dosage may be reduced or may need to be increased.

### Blow Molding

Blow molding is a method of forming hollow articles out of thermoplastic materials. Bottles for soft drinks and other liquids are blow molded.

Begin by mixing Repela wax dispersion at a loading of 0.2-0.3% with the dry plastic material. The materials should be mixed together for approximately 15 minutes. The mix is then loaded into the hopper and fed into a heated extruder/injection unit. A reciprocating screw pushes the plastic through this long heating chamber, where the material is softened to a fluid state. While the wax carrier has a melting point of 70°C to 80C, the actives have a peak melting point of around 325°F, hence it remains in a solid phase at polymer

processing temperatures. It gets uniformly dispersed in the resin due to the Repela form and the action of heat and shear of the screw. The carrier gets amalgamated in the polymer and the active content of Repela is distributed throughout the resin.



Addition of Repela

does not require any modification in the process. It can be simply added in the required quantity to the resin and extruded/injected by the normal method with no change in the process parameters.

As the fluid plastic comes from the heating chamber, it is forced through the annular die forming a molten tube with well-defined and controlled dimensions. It is then inflated by internal air pressure to take the shape of the mold cavity, which is usually cooled. Finally, the formed article solidifies as a result of cooling and the mold is opened to eject the article without damage. As the melt takes a solid shape on cooling, the active gets equally distributed along the structure.

The active ingredient of Repela is both stable and inert. It does not react with any of the additives and being used at such low concentrations it does not affect the polymer properties in any way. It does not leach out to pollute the environment nor is effectiveness reduced over time because it is trapped in the polymer matrix. It has a long active life and will continue to perform as long as the product remains intact.