

## ROTATIONAL 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.

### Roto Molding

Rotational Molding is mainly used for large tanks (up to 85 m3 reported), toys, containers, fuel tanks and hollow parts that require frequent design modifications.

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 at pre measured quantity is then loaded in the cavity. The mold is closed and indexed into an oven where it and its contents are brought up to the molding temperature. While the wax carrier



LOADING RESIN INTO THE MOLD

HEATING AND FUSION OF RESIN

COOLING FOLLOWED BY UNLOADING/DEMOLDING

has a melting point of 70C to 80C, the active has a melting point of around 1400 C, hence it remains in a solid phase at polymer processing temperatures. As the mold is heated and rotated continuously about its vertical and horizontal axes the carrier gets amalgamated in the polymer and the active Repela particles become captured in 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 rotated by the normal method with no change in the process parameters.

As the mold rotates within the oven, the plastic material gets picked up by the hot inside surfaces of the cavity and densifies into a uniform layer. Then the machine moves the mold out of the oven into the cooling chamber where air or mixture of air and water, cools the mold and the layers of molten plastic material. The cooling process continues until the part has cooled sufficiently to retain its shape. The machine then indexes the mold to the loading-unloading station. The mold is opened and the part is removed. 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.