AVERSION TECHNOLOGIES, INC.
PROTECTING PEOPLE, PETS AND PLANTS

Repela™ Application Note

EXTRUDED TUBE AND PIPE

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 thermosetting 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.

Extruding Tubes and Pipes

Extrusion molding is the method employed to form thermoplastic materials into continuous sheeting, film, tubes, rods, profile shapes, and to coat wire, cable and cord.

Begin by mixing Repela masterbatch 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 the screw. As the resin melts and plasticizes in the extruder due to the heat, pressure and movement of the screw, the masterbatch granules also melt and the base polymer amalgamates with the resin, capturing the active Repela particles. While the base polymer has a melting point of 120C to 180C, the active has a melting point of around 1400 C, hence it remains in a solid phase at polymer processing temperatures. It gets uniformly dispersed in the resin due to the heat and shear action of the screw.

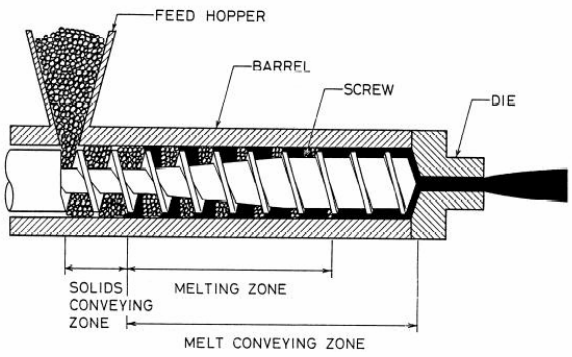

Fig. 1: Single-Screw Plasticating Extruder

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 by the normal method with no change in the process parameters.