

EXTRUDED WIRE AND CABLE

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 wire and cable coating

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 a long heating chamber through which it is moved by the action of a continuously revolving 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 (LDPE or EVA) 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 1400C, 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.

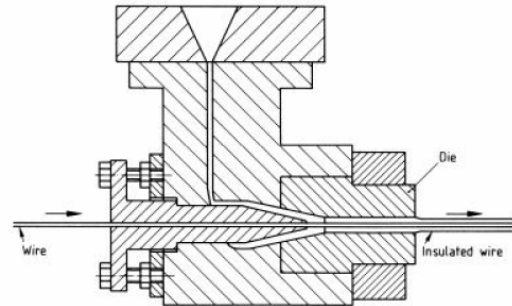


Fig. 7: Wire Coating Die

In wire and cable coating processes, individual wires or wire assemblies are generally pulled at very high speed through a crosshead die, at right angles to the extruder axis. In high pressure extrusion, the polymer melt meets the wire or cable before the die exit, e.g. for insulating of individual wires. In low pressure extrusion, the melt meets the cable after the die exit, e.g. for jacketing of assemblies of insulated cables. To incorporate Repela in wire or cable sheathing, the

masterbatch should be added at the polymer feeding point, after which it would be passed as a composite through the extruder and the die, covering the conductor as an insulating layer containing the anti-rodent active well dispersed in the polymer sheath/coating.

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.