



PE Coatings on aluminium foil

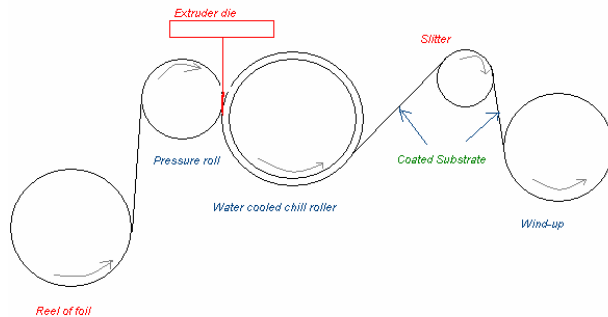
Aluminium foil is an excellent barrier material in flexible packaging materials used for food, drinks and pharmaceuticals on account of its low mass (low transportation costs), resistance to light, gases, liquids and micro-organisms. The aluminium is oxidised in the outer-most layer, this affords stability in air in the range PH 4.5 - 8.5 but polyethylene or a similar thermoplastic material is required to afford full protection of the contents when acidic or alkali ingredients are to be packaged. Polyethylene not only protects the contents, but also reduces the amount of foil required to provide the required barrier properties.

Whilst polyethylene is cheaper than Aluminium foil, it is derived from petroleum, the cost of which is rising steadily. Application of the minimum coat weight required to confer the necessary barrier properties is desirable, not only from the point of savings in raw materials and energy, but also from the environmental view point as polyethylene isn't biodegradable.

The optimum barrier performance is achieved when the barrier layer is of uniform thickness. An on-line scanning measurement device measuring the coat weight will enable tight control of both the thickness and uniformity of the coating material.

Summary of Process

PE is applied as an extrusion coating to the foil substrate. PE pellets are heated to temperatures exceeding 300 deg C, the melt is extruded through a die and pulled down onto the foil and into the nip between the chill Roll and pressure roll below the die. The pressure between the 2 rolls forces the plastic onto the surface moving at a faster speed than the extruded film and draws the film to the required thickness.



Measurement location and performance

Measurements are typically made after the chill roller and before the slitter

Product	Thickness range	Typical accuracy
PE on aluminium foil	10-200gsm	+/- 0.3 gsm