## Paint Baking

Paint baking is a process in which an aluminum product is coated with any number of layers of paint, primer, and clear coat at elevated temperatures. Generally, the paint bake cycle in the automobile manufacturing involves three stages:

* Electro-deposition coating / powder coating
* Electro-coat curing resembles the process of electrowinning. The metallic parts to be coated are electrically charged, then immersed in a bath containing oppositely charged pigment particles. In this case, the vehicle body parts are the cathode. Therefore, the particles are deposited onto the metal surface, forming a film. After coating, the body parts are then cured at 165-180°C
* Powder coating is a coating process that uses a powder composed of fine particles of pigment and resin that is sprayed onto a surface with a powder coating gun. The electrically charged powder particles cling onto the metal parts which are electrically grounded. These parts are then cured at elevated temperature. As a result, the dry particles melt, forming a uniform and durable coat.
* Primer coating
* The primer layer is the coating layer that joins the electro/powder coat to the top/clear coat. Its purpose is to smooth out surface irregularities in order for the top/clear coat to be applied properly. Also, the primer layer helps to protect the substrate from UV light. The primer layer is applied after the electro/powder coat. After the primer coat is applied, it is sent to the oven for 30 min at 170°C. Before moving to the clear coat process, the parts are wet sanded, rinsed, and dried off. A preparation area is used for manual wipe down, compressed air blow-off and deionised air application.
* Top/clear coat process
* The body parts move through a clear coat application booth. Then, it is baked in an oven for 30 min at 160°C. The purpose of the clear coat is to protect the vehicle from any environmental degradation. It must be etch ad scratch resistance, as well as providing an appealing glossy finish.