Automotive Headlamp Lens Technology from Covestro

Static Control for Automotive Lighting

The first step in the coating process of automotive headlamp lens covers is one of the most important. Controlling the static charge of the molded part to keep it clean and free of dust and particles, which can get trapped in the coating, is critical.

When a molded plastic part is ejected from the tool after the molding process, it may carry a static charge. This static charge can be the result of friction during processing and/or an inherent quality of the plastic itself. The static charge can be eliminated with static control systems. This process may take several steps to complete. As the molded part continues to cool, the static charge will naturally dissipate. However, during the process of cooling, a molded part that has been through a static elimination system can have its static charge rebound. For this reason, static elimination is a multi-step procedure that continues throughout the entire coating process.

First, the molded part is removed from the tool by robot. Next, the sprue and runner system are removed by robot if the parts are not direct gated. The robot then takes the part to the start of the conveying system where static elimination blowers are used on both sides of the part. The airflow from these blowers also helps to further cool the part once it is removed from the tool.

Cooling Blower

The part is placed on the conveying system for the next step of the process, cooling as it travels. While in transit, the part will pass under static neutralizing bars placed above the conveying system at varying intervals.

Static Neutralizing Bar

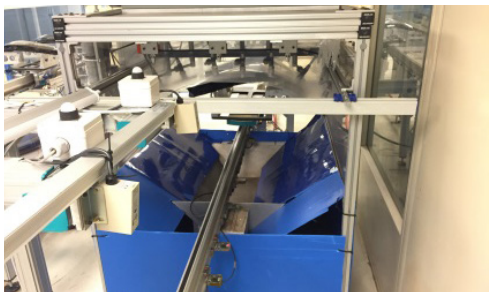
There will also be ionized air multi-nozzle systems used from the bottom.

The number of and distance between neutralizing bars depends on the desired level of static charge prior to the start of the coating process. The static charge needs to be checked throughout the initial testing stages prior to production to ensure the proper level is achieved. The positioning of the equipment may need to be altered numerous times to achieve the desired results.

Ionizing Air Gun

In some instances, the part may be visually inspected by an operator prior to entering the coating process. In this case, an ionized air gun will be used by the operator after inspection.

In an unmanned operation, the part will go through one final ionized air blow-off station. Ionized air is blown down from above and debris goes into a catch pan below the part with a vacuum to pull contaminants away.



Blow Off / Catch Pan Station

Covestro LLC
1 Covestro Circle
Pittsburgh, PA 15205 USA
412-413-2000

www.plastics.covestro.com
plastics@covestro.com