

Surface activation control after plasma or laser cleaning in manufacturing processes of electric batteries

Product: SITA SurfaSpector
Industry: Automotive
Measuring principle: Measuring the contact angle

In the production of batteries for electromobility, precise and reliable manufacturing processes are crucial to ensure quality and safety. The battery cases, made of aluminium, are bonded together. As oil circulates inside the casing for cooling, it is essential for the bonding to be completely tight. To guarantee a secure bond, the aluminium parts are specifically activated at the adhesive points through plasma or laser after cleaning.



Figure 1: Aluminium battery housing

In this process, the SITA SurfaSpector is used, which is particularly well-suited for examining sufficient activation. By increasing the surface energy on the aluminum surface, the wettability with water is significantly improved, which is essential for a high-quality bonding.

● SITA SurfaSpector

The SITA SurfaSpector is a handheld measuring device for quick and easy testing of the surface wettability in the manufacturing process, for example, after surface pre-treatment or cleaning by measuring the contact angle. The device is mobile and flexible, and can be used without a PC. It is easily operated via a touchscreen. This allows for a quick evaluation of the surface wettability of parts in the manufacturing process directly at the plant. With the handy sensor head and a small contact area, the mobile device can measure at various parts geometries.

● Efficient device use

The examination using the SITA SurfaSpector can either take place directly after the activation to verify the quality of activation or just before the actual bonding process to ensure that the activation performed earlier is still

sufficient. This careful inspection is essential to ensure that the bonding corresponds to high standards, thus ensuring the tightness of the battery casing.



Figure 2: Mobile measuring device SITA SurfaSpector

The application of the SITA SurfaSpector in manufacturing of batteries for electromobility significantly contributes to improve product quality, safety and reliability in the automotive industry. This is achieved by ensuring an efficient and precise process for bonding aluminium parts.