

LOCTITE AA 3963

Fast and Flexible Cylindrical Li-Ion Battery Cell Assembly

1 CUSTOMER CHALLENGES

- » Major automotive OEM designed a new EV with cylindrical Li-ion battery cells; the material used to assemble these cells had to fit with the customer's new assembly process concept.
- » With an assembly quantity of > 5,000 cells per BEV and > 2,000 per PHEV, an automated, high-speed solution with good adhesion and high bonding strength was essential.
- » Process flexibility was a central requirement, necessitating an on-demand curing adhesive solution to accommodate short production cycle times.

2 RECOMMENDED TECHNOLOGY

- » Henkel developed LOCTITE AA 3963: a one-part acrylic adhesive at medium viscosity that cures on demand with UV in 5 seconds.
- » Material has a long open time of over 4 hours under industrial light, offering process flexibility.
- » Strong adhesion to multiple materials including plastic and metal makes the material ideal for this application.



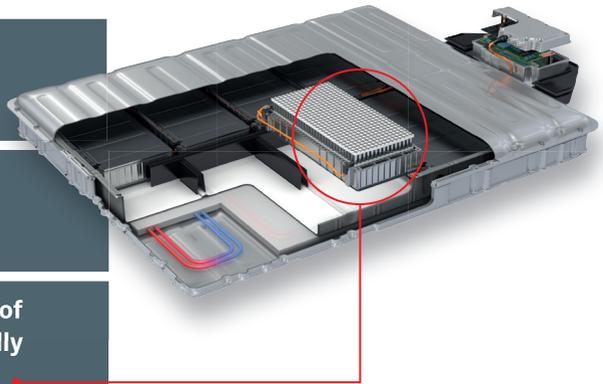
Cure-on-demand
in 5 seconds



Long open time of
> 4 hours under
industrial light



Supports production of
> 100,000 EVs annually
per production line



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- » Henkel team collaborated closely with the cell carrier materials supplier to ensure the plastic holder is translucent, thereby delivering a total system solution.
- » Material is used in a large-scale set-up to meet production needs of > 100,000 EVs annually per production line.
- » The team set up an automated in-line assembly process: the adhesive is dispensed by robot into the carrier, cylindrical cells are placed and staged in the adhesive, after which the assembled modules move through a UV tunnel and cure-in-place in 5 seconds to handling strength

CUSTOMER BENEFITS

High-speed,
on-demand UV curing
in 5 seconds

Automated in-line
assembly process set-up
also suitable for prototyping
and pilot processes

Long open time
and process flexibility



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