

DISCOVER HENKEL'S

BATTERY ENGINEERING CENTERS

eMOBILITY
ENABLED BY HENKEL



DISCOVER HENKEL'S

BATTERY ENGINEERING CENTERS

Madison Heights, Michigan, US

Battery Application Center

Functional Coatings Center
of Excellence

Düsseldorf, Germany

Battery Application Center

Battery Test Center

Shanghai, China

Battery Application Center

(under development)

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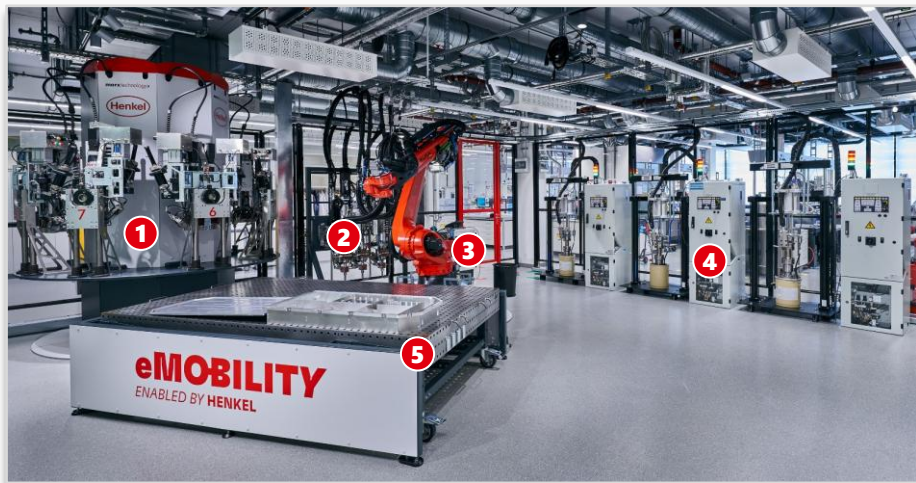
Battery Application Center

(under development)

BATTERY APPLICATION CENTER

 Düsseldorf, Germany

AUTOMATED PRODUCTION-SCALE MATERIAL DISPENSING ON FULL-SCALE BATTERY SYSTEMS



MATERIAL SOLUTIONS

- Thermal Gap Fillers
- Thermally Conductive Adhesives
- Battery Safety Coatings
- Structural Adhesives
- Gasketing Materials
- Potting Materials



CHEMISTRIES

- PU
- Epoxy
- Silicone
- SMP / MS
- Acrylics
- Cold Butyls



APPLICATIONS

Enabled by Atlas Copco technology

- 1-component
- 2-component
- Flat stream



CERTIFICATIONS

- Trusted Information Security Assessment Exchange (TISAX)

1
8 dispensers
in turret
magazine

2
2 larger
application
units for flat
streaming

3
Six-axis
Kuka
robot

4
Atlas Copco
pumping
station

5
Worktable
of
2.4 x 1.6 m

HENKEL'S BATTERY TEST CENTER

 Düsseldorf, Germany

STATE-OF-THE-ART SIMULATION SOLUTIONS AND FULL-SCALE BATTERY SYSTEM TESTING



Enabling OEMs and battery manufacturers to implement reliable, competitive and sustainable solutions in battery development.



MODELING & SIMULATION

- Digital twin of batteries
- Material cards
- Structural & thermal performance simulation



CERTIFICATIONS

- Trusted Information Security Assessment Exchange (TISAX)



TESTING CAPABILITIES

- Test rig with full end-of-line test capability
- Fast charging up to 330 kW and discharging back into the grid
- Test rig combined with a climate chamber (*temperature range -40 to +90 °C, with 10 to 95 % relative humidity*)
- Active operation of battery liquid cooling during tests
- Storage and emergency containers for HV batteries
- Assembly and workshop area with electrical experts
- Leakage detection tests for sealing applications

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BATTERY APPLICATION CENTER

 *Madison Heights, Michigan*

AUTOMATED PRODUCTION-SCALE MATERIAL DISPENSING ON FULL-SCALE BATTERY SYSTEMS



MATERIAL SOLUTIONS

- Thermal Gap Fillers
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CHEMISTRIES

- PU
- Epoxy
- Silicone
- SMP / MS
- Acrylics
- Cold Butyls



APPLICATIONS

- 1-component
- 2-component



CERTIFICATIONS

- ISO 9001

1

8 dispensers
4 1k
4 2k

2

Six-axis, high-
capacity ABB
robot

3

Bulk
Dispensers
1k
2k

4

System HMI
Control
panel

5

Worktable
of
8' x 5' x 2.92'

CENTER OF EXCELLENCE, FUNCTIONAL COATINGS

 *Madison Heights, Michigan*

ADVANCED FORMULATION, TESTING AND PROTOTYPING FOR CONDUCTIVE COATINGS AND DIELECTRIC COATINGS



CONDUCTIVE COATINGS - ADVANCED PILOT AND LAB-SCALE DEVELOPMENT FACILITIES



1

Milling, Mixing &
Testing

2

Automated coil
coater

3

Coin Cell Assembly
- Full Electrode
Stack Assemblies

4

Coil Cell Testing
(cycling, humidity,
temperature)

IN-HOUSING ASSEMBLY AND TESTING FOR
RAPID ITERATION, PERFORMANCE, VALIDATION
AND DESIGN OPTIMIZATION OF CONDUCTIVE
COATINGS.

 Henkel

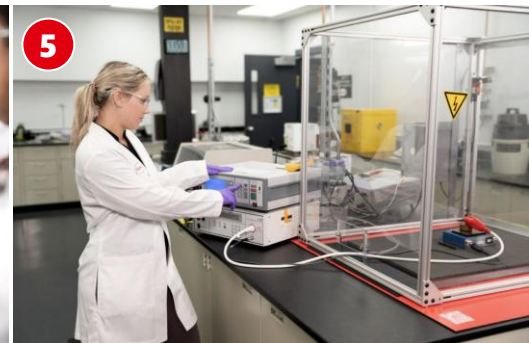
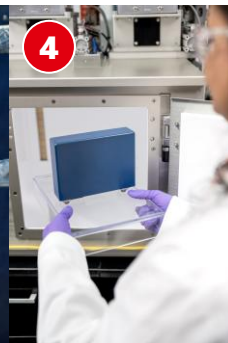
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ADVANCED FORMULATION, TESTING AND PROTOTYPING FOR CONDUCTIVE COATINGS AND DIELECTRIC COATINGS



DIELECTRIC COATINGS - ADVANCED FORMULATION, APPLICATION AND TESTING



1

Milling, Mixing and
Testing

2

Plasma Surface
Treater for
Cleaning and
Substrate
Preparation

3

Spray Application

4

2D and 3D UV-
Cure Ovens

5

Insulation
Resistance Testing

DEVELOPMENT, TESTING AND
VALIDATION OF DIELECTRIC
COATINGS UNDER REAL-WORLD
OPERATING CONDITIONS

 **Henkel**

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THANK YOU

