

NEWS

SPRING/SUMMER 2019

PRODUCT NEWS AND INFORMATION

DEAR CUSTOMER AND INTERESTED PARTIES,

In the meantime a lot has happened!

The End-of-Line Tester EOL has gone into series production and the first systems have been delivered to customers. In this issue we also report on our latest technology from Level Control Unit (LC Unit) which we have equipped for one of our customers both the acid leveling machines as well as the acid initial filler and acid refiller. We will use these technologies in the future for filling into flooded batteries.

Furthermore, you will learn interesting facts about our step into the „**new battery technology**“ which has aroused strong interest through our participation at the Battery Show in Stuttgart. **CMWTEC** has taken a further step into the future by signing a cooperation agreement with PEM/RWTH University (Production Engineering of E Mobility Components) Aachen, where we will jointly develop an electrolyte filling system for pouch cells.

In this spirit – stay interested



Ingrid Wipperfurth
(Managing Director)

+ NEW + HIGH PRECISION ACID FILLING TECHNOLOGY



We are currently presenting our newly developed Level Control Unit for precise measurement of the acid level in Flooded Lead Acid Batteries.

With this unit it is possible to level already filled batteries as well as to carry out a first filling before formation or a refilling after formation with dumped batteries. In addition, the system can be used for level testing as part of quality control as a reliable test. This system, which can be used in a variety of ways, consists of 6 filling heads each equipped with a special electrode and a pole contact and of an evaluation electronics connected to it, with which the acid level in the battery can be measured and evaluated by means of a special conductivity measurement.

The advantages: High precision, wide flexibility in the application, even with different acid densities, very fast measuring cycles and thus high production output, as well as small design of the filling heads (<10 mm) diameter. **CMWTEC** is now embedding this system into the latest generation of acid fillers, characterized by high production capacity, strong sulfuric acid resistance and high level of automation with good operation comfort.



SUCCESSFUL GRADUATION OF THE CMWTEC FOUNDER



Walter Wipperfürth, who founded today's CMWTEC technologie GmbH 43 years ago, was managing director of the company until 2009 and still serves the company today as a consultant. In June of this year, at the age of 79, he successfully defended his doctoral theses at the Technical University of Berlin as Dr. Ing. His dissertation with the topic

„Significance of electrolyte distribution in lead acid battery cells.“

is strongly influenced by his many years of research and development activities in the company, which led to its outstanding importance in the field of electrolyte filling machines for lead acid batteries.

As the following brief description shows, this is the scientific basis on which the further development of the company's electrolyte filling technology can take place.

The dissertation presents the effect of the electrolyte distribution in relation to the active material in lead acid battery cells. The disadvantages of an insufficiently even and sufficient distribution of



the electrolyte are presented in order to show proposals for the optimization of battery capacity and energy density. Instructions for the improvement of the

distribution for the production process by optimized infiltration procedures are described in detail. In addition, the methods of measuring the electrolyte distribution are described. The application of electrochemical impedance spectroscopy for testing unopened batteries is of particular interest in order to derive the use of batteries in the production process.

Dr. Walter Wipperfürth will continue to work as a consultant in this sector of the company and will accompany the technology step to fill lithium ion batteries.

The management and the CMWTEC team congratulate him.



WE WILL ATTENDING THE 18TH ABC ASIAN BATTERY CONFERENCE IN BALI, INDONESIA 2019

A presentation will be held during the conference to introduce our new Technology Development

New End-Of-Line Test Process and Machine Design for Automotive Lead-Acid Batteries

Michael Wipperfürth, Sales Manager CMWTEC | Tony Schröer, Business Development | Walter Wipperfürth, Senior Consultant CMWTEC

CMWTEC SUPPORTS THE PEM

PROGRESS IN THE ELECTROLYTE FILLING OF LI-ION BATTERY CELLS

The PEM focuses on the research of novel processes in battery cell production. The aim is to transfer promising discoveries from the development of battery cell research into industrial feasibility as quickly as possible. The focus is on technological feasibility, environmental aspects and economic performance.

Due to the high flexibility, as well as low investment and operating costs, the Mini Environments (MEs) concept developed at PEM promises to form a decisive technological bridge between research and industry for battery cell production. A major obstacle is the



The team from PEM and CMWTEC when signing the contract



CEO Dr. Ing. Dipl. Wirt.-Ing. Heiner Hans Heimes (PEM), Managing Director Ingrid Wipperfurth (CMWTEC)

cost of the drying room required for battery cell production. The high investment and operating costs of dry cells are reflected in the price of the battery cell. Due to the considerably smaller dry room volume, the elimination of personnel airlocks and the direct integration of the MEs into the system, the MEs concept offers better economic performance.

In addition, MEs can be operated in a protective gas atmosphere at no extra cost, as is required, for example, in the production of new types of battery cells. In addition, the MEs of the current generation still have expansion potential.



At the PEM, the battery cell manufacturing processes are currently carried out largely manually. Constantly falling prices make an application of robot and automation technology for industrial use in battery cell production conceivable. In addition to higher throughput, this offers an increase in reproducibility, which is essential for research.

In addition, the filling technology of battery cells has developed further. This enables complete wetting of the electrodes within a very short time. In addition, inline tests, such as impedance spectroscopy, of the function and quality of battery cells can now be seamlessly integrated into the process. It is therefore time to combine the promising potentials of the various areas, MEs, automation, electrolyte filling and measurement technology in a single system. With such a solution, the PEM could come one step closer to the goal of developing rapid ramp up processes for the production of novel battery cells.

As a competent partner of process automation for filling plants, **CMWTEC** technologie GmbH has agreed to support the PEM in this research project.

In just a few months, the electrolyte filling of the PEM cells will be researched on **CMWTEC** systems. We are very excited about the cooperation and look forward to the resulting research results.



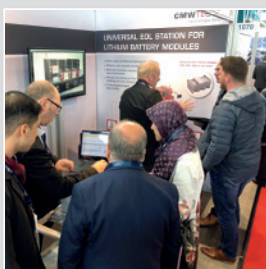
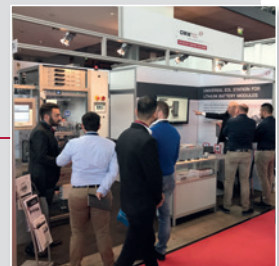
Mini Environments (MEs)

NEW PRODUCT LAUNCH AT BATTERY SHOW EUROPE

THE **BATTERY** SHOW
EUROPE 2019

CMWTEC participated with great success at this year's Battery Show Europe in Stuttgart. A trade fair for Europe's largest showcase of advanced battery and H/EV technology. Our booth was very well attended and customers as well as interested parties could inform themselves personally about our newly developed End-Of-Line test machines during a live demonstration.

HERE ARE SOME IMPRESSIONS FROM OUR BOOTH



CMWTEC technologie GmbH

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