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Introduction

Ireland became the centre of the lead-acid battery world for 4 days in September 2000 when a record number of 501 delegates and exhibitors from 42 countries came together for the 7th European Lead Battery Conference.

Those attending 7ELBC in Dublin heard many presentations describing new business opportunities and technical developments in lead-acid batteries. Although lead-acid batteries are often seen as being based on stable established technology, most lead-acid battery designs are now based on highly complex chemistry, new lead alloys and other high-tech materials.

These proceedings contain details of the many papers given at the conference on the commercial and technical factors that are fuelling the increasing use of lead-acid batteries. To many, the most familiar use of a lead-acid battery is to start the engine in their car. However, the modern lead-acid battery is also a vital ingredient in providing reliable and smooth electric power for telecom and for a wide range of IT equipment. This is resulting in strong demand for valve regulated lead-acid batteries. In some areas, sales growth is running in excess of 20% per annum. Growth is also occurring in sales of batteries for UPS and motive power, the latter being expected to grow strongly as car companies produce an increasing number of highly fuel efficient, low emission, hybrid-electric cars.

Car starter batteries today operate at 12 V. It is almost certain that vehicle manufacturers will soon introduce 36 V electrics for some new car designs. Higher voltage systems are an economic necessity if the new state-of-the-art cars are to incorporate the many features expected of them, including advanced engine starting techniques, systems to reduce exhaust and noise emissions, solutions to the increased energy demands during idling, and battery recharge efficiency.

Improved manufacturing techniques and better materials are clearly vital to the ongoing success of the industry. Innovation in this area is strong, and 13 companies gave papers on recent developments. Notable amongst these were descriptions of new computer software to speed up battery formation, a new type of ultra-thin polyethylene material for use in VRLA batteries, an exciting new range of modular equipment for building battery cells, and the supply and use of more efficient negative plate expanders. Other new techniques which have an impact on battery performance include the use of novel catalysts to prolong the life of VRLA standby power batteries, the use of thermal management and charge voltage control to achieve the high-rate charging of a VRLA battery, and the many raw material and design variations in polyethylene separators which influence the key factors of oxidation resistance, puncture strength and electrical resistance.

One key paper reminded delegates of the need to build on recent commercial successes through targeted and well-funded investment. Lead-acid batteries need to proclaim their present and future strengths as they are often perceived as being based on dated technology. The challenge from competitive battery systems can only intensify. R&D into the production of ever better lead-acid batteries is, therefore, a vital, ongoing commitment if the industry is to maintain and continue to expand its commercial successes.

The 8ELBC will be held at the Cavalieri Hilton in Rome, Italy, in September 2002.

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