Looking toward the future, electrochemical manufacturing faces the issue of readily available, low-price electricity — if it is to grow and prosper. Where will electricity come from? How will it be distributed? Can it be stored? What would be the environmental impact? And, in my opinion, how efficiently can the electricity be utilized? Whether you consume or produce electricity, I found in general that you can expect to obtain a voltage efficiency of say 50%; the rest of the energy being lost as heat. Thus, voltage efficiency is a major crux in the pathway to exploiting electrochemical manufacturing.

In this issue of Interface, three articles take a look at various facets of electrochemical manufacturing, ranging from an overview of traditional and emergent avenues of electrochemical manufacturing in the chemical industry, to electrochemical surface finishing and impedance based characterization of raw materials. In the case of electrochemical surface finishing, E. J. Taylor and M. Inman reveal to us that not only is the process more robust; but, the manufacturing cost is lower. D. Riemer and M. E. Orazem demonstrate how electrochemical impedance spectroscopy (EIS) can measure the state of the oxide film on raw materials, which is a critical parameter in electrochemical through-mask etching of stainless steel parts. Finally, G. Botte revisits industrial electrochemical processes used to synthesize both organic and inorganic chemicals and introduces new opportunities in electrochemical manufacturing. These authors welcome your interest in their work and hope that their viewpoints stimulate future dialogue in the exploitation of electrochemical manufacturing.

About the Author

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