Surface Technology White Papers
99 (4), 1-3 (April 2012)

Plating's Heyday

by
James H. Lindsay, Jr.
NASF Technical Editor

The technical papers featured this month depart from our usual format in that they offer a look back at what many consider the most exciting time to be working in the surface finishing industry. A half-century ago, plating was coming into its heyday, with the automotive industry comprising its largest segment. The cars of that era were "dripping with chrome" and new technologies seemed to be emerging every week. Ever improving coating systems and processes for multilayered copper-nickel-chromium were advancing apace. The output of area plated could be expressed in terms of square miles per year, as the engineers designed and developed the machines and processes to manufacture the millions of grilles, bumpers and other automotive body hardware that was the essence of the automobiles of that time.

The technical papers that were coming out were ground-breaking articles, particularly in the decade from 1955-65. Many of the classics were contained in the *Proceedings of the AES Annual Technical Conference*s (later known as SUR/FIN). In this month's package, we offer three of those papers, each selected for their point-of-view: one from the metal finisher, one from the metal finishing supplier and one from the independent researcher. In addition to the manuscripts themselves, we are fortunate to have the discussion which followed each author's presentation at the conference session.

In those days, the vast majority of automotive plating in North America was done in-house, by the manufacturers. Chrysler, Ford and General Motors all had major facilities and staff dedicated to plating operations and technology. The paper presented here is a joint effort by Ternstedt Division of General Motors and the General Motors Research Laboratories. Written by James Lindsay, Sr., Bill Lovell and Dave Hardesty, it deals with the operating experience in working with dual chromium and the rigorous control required to maintain the proper finish in critical part areas.

The technology could not have come to fruition without the efforts of the metal finishing suppliers, who all worked hand-in-hand with the manufacturers, both in terms of equipment and process. Familiar supplier names of the day included Harshaw, Udylite, MacDermid, Allied Kelite, M&T, Lea-Ronal and many others. The suppliers were all concerned that their processes produced coatings which provided the high-quality finishes needed by the manufacturers and ultimately the customer. A paper by Don Millage, Ed Romanowski and Roy Klein of Udylite Corporation discussed the performance of their processes on the parts themselves - in this case a nickel-chromium plated hubcap - in a variety of environments, including accelerated corrosion tests as well as real-time exposure in industrial and marine environments.

Behind all of this were research efforts from many quarters. While the automotive manufacturers and plating suppliers did the majority of research in their own corporate laboratories, other research institutions were well represented. These included universities such as the Pennsylvania State University (Dr. Harold Read) and institutions such as the National Bureau of Standards (William Blum, Abner Brenner and others). The paper presented here comes from Battelle Memorial Institute on work sponsored by the American Zinc Institute. Bill Safranek, Robert Hardy and Hugh Miller looked at the electrochemistry of the nickel-chromium couple, using a variety of commercial deposits to get a clearer picture of the corrosion mechanism.

It is unfortunate that space only allows us to present three papers. There are many other “classics” from that era. This package tells a story of some great years - some say “golden years” - in the industry that should be retold from time to time, if only because during those days, the foundations of today’s industry were laid. It’s quite a story.