Finisher's Think Tank



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Meeting Your Needs

Everyone has specific requirements that must be addressed. There is a wide array of items on anyone's agenda. Examples include responsibilities, meeting deadlines, future planning and certainly vacation time, to adequately recharge and refresh. It may not be so obvious, but we probably do a serviceable job in meeting our needs. Do our efforts extend to meeting our needs in the metal finishing sector? Let us review some areas that may have been overlooked, or could use some burnishing.

Metal finishing processes

Tried and true systems, from surface preparation to plating to post treatments, certainly are in place to meet requirements. Watch the progression of parts from incoming log-in to packaging for return shipment to customers. It is first very important to confirm that received parts arrive with 100% acceptance between the finisher and customer as to objective, limitations and requirements. This may be done by receipt of a certification or contract, signed off by both parties. Next, the parts should be assigned a job number, with process cycle and scheduling, usually done conveniently in a computer program. The plant manager or responsible staff will coordinate processing of parts with their staff. During processing or upon completion of the job, appropriate quality control testing is done, confirming a satisfactory status. Otherwise, non-conforming results allow for corrections to be made in specific steps. The job may have to be stripped (if possible) and re-run only after modifications or changes have been instituted, that acknowledge second time success. Many completed jobs are returned with accompanying paperwork that includes a certificate of quality control compliance, or of meeting a specification. Hard drive storage of important data is available for quick reference. This example of a general cycle should not precipitate any operating complexities. In fact, many job and captive finishers have become ISO 9001 or 14000 certified. This in itself should be helpful in the overall scope of receiving, finishing and shipping parts. Periodically scheduled internal audits help to keep the overall operation on track. It has become predominant that finishers and their customers are each ISO certified, therefore streamlining details and associated functions. The more thorough and complex NADCAP certification mandates more rigorous operation control and data retrieval. There is another important function provided by another entity, which is critical to meeting your needs.

The supplier as your aide

Suppliers are predominantly ISO certified, many per 9001:2000. They typically purchase raw materials from likewise certified companies that provide a Certificate of Analysis or Compliance with deliveries. Most of these raw materials are of high purity and quality, because of the sensitivity of most metal finishing processes to even relatively small (parts per million) levels of contaminants. Suppliers constantly inventory their stock, covering finished product orders, so as to minimize backlogs. Manufacturing steps include dedicated mixing and blending vessels, to avoid contamination with other incompatible raw materials. Products are then formulated in a specific order of charging and mixing times, to produce stable, homogenous blends. Finished products are packaged only after strict quality control test results are satisfactory. Computer programs are universally used to record all the information. This includes incoming raw materials per batch number, formula printout per batch size, quality control data per product batch number and recording where

specific batch numbers of products have been shipped. For the supplier, the product batch number is an essential identification to the life span of specific blends.

Finishers and suppliers, together meeting your needs

For the finisher, we have reviewed handling of parts, processing, appropriate quality control testing and overall documentation requirements. The supplier's work and responsibility to provide products that meet the manufacturing standards has also been discussed. Finisher and supplier generally are expected to say what they do and do what they say. This is the basic tenet of adhering to ISO certification. It helps each to meet their needs. However, both parties also work together to maintain the quality of process operations on site at the finisher's plant. This is accomplished by technical service and troubleshooting efforts. The supplier maintains a service lab to process parts and analyze working solutions. Routine analysis helps to maintain optimum concentrations, thereby maximizing efficient surface preparation, plating, post finishing steps or other baths. This can be determined on an agreed to, as-needed basis. Problems, when they arise, can be expedited, so as to determine the best corrective action, to minimize downtime or non-compliance. Suppliers can expeditiously assist customers by helping them to make use of their in-house labs. In this way, the finisher can more readily control analysis on a scheduled basis. Many jobs require quantitative measurements, such as plating thicknesses or wet chemical analysis. The supplier can assist the finisher's technical staff in best utilizing their own lab facility. It also speeds up the need for quick diagnosis and correction of most

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Next on the agenda was the installation of the newly elected Directors. Roy Goldsberry, DuPont, Brett Steffanni, Whirlpool Corporation and Randy Winchel, DRM Electrocoat Corporation were elected by their peers to the Board of Directors for the 2006-2009 term.

Ideas were exchanged to evaluate and market the benefits of electrocoat technology to manufacturers and the public, while providing the best service value possible to members. More involvement with government relations and industry statistics was suggested, providing more decisionmaking information to members.

For more information on the Electrocoat Association, contact Karen McGlothlin, Executive Director (816/496-2308 or 800/ 579-8806;kmcglothlin@electrocoat.org) or visit the website at www.electrocoat.org.

ASTM International announces Committee Meetings

ASTM International, West Conshohocken, PA has announced the meeting schedule for ASTM Committee E07 on Nondestructive Testing. The winter meeting will be held January 21-25, 2007 at the Holiday Inn Express in Plantation, FL. The summer meeting is scheduled for June 24-28, 2007 at the Waterside Convention Center in Norfolk, VA. ASTM meetings are open to all interested individuals. For more information, contact George Luciw at ASTM (610/832-9710; gluciw@astm.org) or visit the website at www.astm.org/COMMIT/ E07.htm.

ASTM International has also announced that Committee E57 on 3D Imaging Systems is scheduled for January 28-30, 2007 at the Hilton Orange County/Costa Mesa, in Costa Mesa, CA and is open to all interested individuals. For more information, contact Pat Picariello at ASTM (610/832-9720; ppicarie@astm.org) or visit the website at www.astm.org/COMMIT/E57.htm.

Technology Information

Manufacturing Engineering Digest Research Papers Now Available

The Society of Manufacturing Engineers (SME), Dearborn, MI, recently published three articles in a new, pioneering *Manufacturing Engineering Research Digest* series. Entitled "Performancebased Predictive Models and Optimization Methods for Turning Operations and Applications," covering tool wear, chip forms and cutting conditions in three parts, the papers were spearheaded by Professor I.S. Jawahir of the University of Kentucky with academic and industrial coauthors, including Dr. R. Stevenson of the General Motors R&D Center (Warren, Mich.).

The Manufacturing Engineering Research Digest series aims to disseminate current research in a variety of manufacturing areas. The approach is to synthesize or digest manufacturing research to empower the practicing engineer toward innovative problem solving. The published papers are not intended to be historically and academically exhaustive reviews, but rather to present appropriate content that has potential industrial application. The papers also will be published in an upcoming issue of the Journal of Manufacturing Processes, one of SME's two peer-reviewed research journals.

The articles are available free online for SME members and, for a limited time, free for nonmembers. For more information, please visit www.sme.org and use product identifications JP06WBD1, JP06WBD2 and JP06WBD3. *P&SF*

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problems that may occur. Many customers of finished parts appreciate their vendor having in-house analytical capabilities. It lets them know there is a technical system in place to maintain compliant finishes and keep deliveries of finished parts on time.

There are many resources available to help meet your needs. The internet is a concentrated compendium of related information. Professional organizations, meetings and trade shows tend to exchange information, update and introduce new items. Past experience builds on future requirements. Suppliers offer dedicated service and a wealth of processing related background. This has been steadily built on dedicated research, development and field expertise. They also provide technical seminars and training.

Meet your needs in the upcoming year and beyond. *P&SF*

Answers to I.Q. Quiz #425

- 1. Resistance to penetration
- 2. The Vickers indenter is a square pyramid-shaped diamond. The Knoop indenter is a rhomboid diamond which produces an elongated diamond.
- 3. The Knoop indenter is useful for work with plated coating cross-sections, as it produces an elongated diamond shape which fits well with the confines of a thin plated coating. At the same time it penetrates less deeply at a given load, which further allows it to fit within a plated layer.
- 4. The applied load must always be reported, because the microhardness number is known to vary with the load.
- This is the correct nomenclature for a microhardness reading. The microhardness reading of 600 was measured by a Knoop indenter (HK = Knoop hardness) with a 50-g load.



Test Your Plating IQ— The Complete Collection of Quizzes for Finishers (1968–1996) Fred Pearlstein, CEF & John Laurilliard, CEF

To Order: Phone 202-457-8404 www.aesf.org Click on "Bookstore"

Member \$20 Non-member \$24

"Test Your Plating I.Q.," a popular series of short quizzes first published in 1968 in the Society's official journal (*Plating*, now known as *Plating and Surface Finishing*, was the brainchild of Fred Pearlstein, CEF, Philadelphia Branch. Those taking training courses found that the quiz booklet was helpful in testing their knowledge in preparation for taking the Society's voluntary certification exam