Abstracts

Finishing Industries : Vol. 2 No. 2 Feb. '78 :

Effects of the Parameters of Abrasive Grains on Metal Removal Rates in Loose Abrasive Systems by D Podesta, Osro Ltd., — The effect of particle size, particle speed of abrasive finishing systems has been studied. Resin bounded media developments have widened the range of abrasive finishing.

Marine Coatings by J. Jackson, anti-corrosion consultant, Sheell International Marine Ltd., — The second in a series of papers read at the Paint Research Association's Golden Jubilee Conference. — It is hoped to publish most of the papers during the year.

A New Development In Deposition Efficiency And Colour Change of Electrostatically Applied Powders by R. Lever, Volstatic Coatings Ltd., — The development of a high transfer efficient powder coating unit is described. Powder within an enclosure constructed of a dielectric material is subjected to a booster electrostatic, charge and to aerodynamic 'levitation'. Due to the high deposition efficiency powder delivery from the guns can be reduced by about 50% thus reducing the powder – air ratio within the booth.

Vol. 2 No. 3 Mar. '78 :

New Aspects Of The Comparison Of Powder Coatings With Other Non - Polluting Electrostatic Coating Systems—by Dr P. G. de Lange, Wagemakers Veluvine (Associated with Berger) — Part 1 — A comparison is made between powder coatings, one and two-component high-solids, watersoluble and water-dispersible paints on one hand and a conventional solvent containing enamel on the other. All systems are polyester-based. Starting point for the comparision is the question : Which of the above systems is the best approximation of the 'ideal' coating system ? Based on requirements for such an 'ideal' coating system (such as high solids content, low material costs, low energy and application costs, general applicability, no shortage of raw materials and last but not least : non-polluting to the newest aspects of the pollution legislations) the powder coating scores the highest numbers.

High Technology In International Plating Scene : Vol. 2 No. 4 Apr. '78 :

Sherardizing—by F. Sjoukes Ing. Bammens Group-The process of coating steel substrates with zinc by heating with zinc dust in a rotating drum is described in some detail. Applications of the process are limited only by the size of the process drum.

Electrolytic Colouring of Anodised Aluminium — by S. John, V. Balasubramanium and B. A. Shenoy, CECRI, India.

Health and Safety — by G. L. Holbrow, Head of Chemistry Div., Paint Research Association and Dr. L. A O'Neill consultant to PRA — The third in a series of papers read at the Paint Research Association's Golden Jubilee Conference. — It is hoped to publish most of the papers during the year.

Metal Finishing : Vol. 75 No. 10 Oct. '77 :

Bismuth Salts As Nacreous Pigments by Wilhelm Baumer, Central Laboratories Industrial Chemicals, Applied Chemistry Department, E. Merck, Darmstadt, Germany.

Soldering Gold-Plated Surfaces

The Organic Corner by Joseph Mazia, Organic Finishing Editor.

Guidelines for Wastewater Treatment — Part 2. Treatment Procedures by John F. Beall & Rod Mc Gathen—DMJM/Technical Management Services, Inc., Los Angeles, Calif. The first half of this article on wastewater treatment appeared in the September issue. Ed.

The Coating System or Combination of Coatings by Norman I. Gaynes.

Non-Equilibrium Rinsing by J. B. Mohler, Kent, Wash.

Vol. 75 No. 11 Nov. '77 :

The Energy Reason for Using Coated Coil by Richard J. Anderson, Consulting Geologist, Columbus, Ohio.

Vapor Degreasing with Chlorinated Solvents by Robert Monahan, Ethyl Corp., Baton Rouge, La.

Using Prepainted Coil Material for Ecological Reasons by Harvin Au, General Electric Corp., Louisville, Ky.

Molybdenum Disulfide Conversion Coating — Significance of Process Parameters on Performance by R. G. Bayer & A. K. Trivedi, IBM Corp., System Products Div., Endicott, N. Y.

The Organic Corner by Joseph Mazia, Organic Finishing Editor — Automotive Coatings at the Crossroads.

Galvanotechnik : Vol. 69, No. 1 Jan. '78 :

Electrochemical Investigations on the Quality Testing of Chromate Films on Zinc by W. Paatsch — 69 (1978) 1, S. 3–6, 3 Abb., 13 Lit. Hinw. — The available methods of testing chromate films on zinc and cadmium are not at present satisfactory, as the time of testing according to DIN 50 941 is still too long. This applies particularly to the most recent development in the field of chromating electrolytes in which close technical control enables a constant, optimum bath composition to be achieved, so that rapid determination of the quality of the conversion coating is necessary. In the present paper an electrochemical method is put forward for discussion in which this requirement is fulfilled, and which is basically suitable for production control.

Recovery of Solid Metals From Waste Water by K. Marquardt — 69 1, S. 7–15, 10 Abb., 3 Lit.-Hirw. —The paper describes a process which was developed under the name "Servo-Katiolyse" from Hager & Elsasser. No sludge occurs, water is recovered.

Decolourising of waste water from anodising processes by H. Grossmann—69 (1978) 1, S. 16–23— Water soluble organic dyestuffs which are employed in the dyeing of anodic coatings on aluminium are not appreciably harmful in water supplies. Several methods are available for removing the colours from waste waters by chemical decomposition or by physical separation. Adsorption on activated carbon offers a particularly inexpensive and flexible solution to the problem of decolouring.

Electroplating of aluminium, pretreatment and corrosion behaviour by G. A. Dibari — 69 (1978) 1, S. 24–34, 2 Abb., 7 Tab., 2 Lit-Hinw.. — An extensive research programme on the valuation of processes for the electroplating of aluminium is described. The corrosion behaviour after nickel and chromium plating is influenced by the pretreatment process and the type of chromium employed. The test programme includes both accelerated and atmospheric exposure tests. The results are presented in tabular form.

Vol, 69 No. 2 Feb. '78

One Hundred Years : Measurement of Internal Stress in Elecroplated Coatings by H. Orth—69 (1978) 2, S. 102-106, 10 Abb., 14 Lit. - Hinw. — During the years 1858 to 1865 Gore and the Earl of Rosse reported that tensile and compressive stresses existed in electroplated coatings. The first attempts at measurement of the process followed in 1877. Since then some 400 papers have been published on this subject. The article deals with definition, measurement, theory of development of internal stresses, efforts in nickel and zinc., and the importance of the occurence of internal stress.

Recovery of Metals in Solid Form from Effluents by K. Marquardt -- 69 (1978) 2 S. 115-121, 11 Abb — Part I of this series of articles was published in No. 1/1978. In the present Part II the subject of Catiolysis "is considered to complement Ionolysis". This deals with a process whereby metals can be recovered from rinse waters, semiconcentrates and concentrates by a combination of ion exchange and electrolytic methods. Another process enables chromating baths to be reused. With a simultaneous reduction in the saline content of the waste water.

Vol. 69 No. 3, Mar. '78.

Industrial Medical Aspects of Electroplating by K. Foitzik—S. 192–197, 8 Abb., 5 Lit – Hinw—Preventive possibilities and first aid in working in the field of electroplating are dealt with from the medical point of view. Dangers are illustrated and practical first aid measures are described. The subjects considered are: cyanide salts – acids and alkalis – nitric acid and nitrogen oxides – solvents – chromium – legal principles and laws.

Protection of Electroplating Jigs and Plant Components against Corrosion in the Plating Industry with PVC Pastes by H. Berger—S. 210–217, 6 Abb., 1 Tab.—PVC pastes can be applied in greater thickness in a single operation than is the case with sloved enamel coatings. The coatings are resistant to impact

the shock, and afford good protection against abrasion. They can be applied by brushing, spraying, dipping, rolling, etc. After hardening, they become chemically and mechanically durable plastics

Purification of solvents and degreasing plants by V. Krause—S. 219–222, 2 Abb.– Coated filters are used for the purification of contaminated solvents (e g., trichlorethylene and perchlorethylene). The contaminated solvent first purified and returned for reuse. The article describes a practical example. The maintenance and cleaning of the degreasing plants themselves are also described.

Micro-Computers for the Control of Electroplating Plants — by K. Schindler — S. 223–224 — The development of a micro – computer which can be used for the economic control of electroplating plants is described.

Australian Corrosion Engineering: Vol. 21 No. 10 Oct. '77:

Specification for Non-Destructive Testing — by R.R. Malcom.

Vol. 21 Nos 11/12, Nov./Dec. '77:

The Possibilities of New Techniques in Industrial Radiology — by R. Halmshaw – Three new developments in radiological methods are described: 1. The X-ray flying-spot system; 2. Television fluoroscopic methods; 3. Image processing, image enhancement, image restoration.

Non-Destructive Testing for water pipeline by N.R. Beckwith.

Welding and NDT – The Role of the Fabricator — by W.R. Jenkins.

Korrozios Figgyelo: Vol: 17 No: 4, 1977:

Some Aspects of the Electrochemical Theory of Metal Corrosion—Part I —by Kiss, L. Some important aspects of the electrochemical corrosion of metals are discussed. The mixed potential of the metal undergoing dissolution, the rate of dissolution, the polarization curves measured during dissolution and the relationships calculated from the polarization resistance are given for some characteristic limiting cases. The results indicate the possibilities for determining the rate of corrosion with the help of the Tafel plot and of the polarization resistance. The relationships obtained are only valid if the kinetics of the process is not affected by the diffusion of the participants of the reaction.

Corrosion Control in the Production and Maintenance of Vehicle in Hungary, Part - III. — Doktor, K. - Mihalko, Z. - Dalmay, G. - Benyi, GY.: — The Painting of Vehicles, Paints for Vehicles—The structure of the vehicle industry in Hungary is determined mainly by the increasing production of the IKARUS Vehicle Factory and in part by the regular repair and maintenance of vehicles in the traffic. Previously a description of the possibilities of the protection of car frames and cavities in Hungary was given, now it is the turn of the paints for vehicles and the painting procedures.

A systematization of the great number of paints for vehicles and the presentation of the choice available in Hungary are attempted and a short description of painting procedures is given.

The trend is towards the blurring of the dividing line between industrial and repair paints with respect to quality, to a shorter time of painting and to systems containing a lesser number of layers. In case of repair paints, paints having two components and liable to stoving at low temperatures are used increasingly. As their use becomes more and more widespread the industrial and repair paintings of cars, buses and lorries will have the same quality.

The Production and Investigation of Silicon-Resin Based Coatings Having High Resistance to Heat and Corrosion: — by Nagy, J. – Ambrus, L. – Bihatsi, L. – Hencsei, P. – Somkovi, J.: Some sorts of pure methylsilicon resins and other silicon resins modified by polyesters were prepared for binding materials of paints having high thermostability and corrosion resistance. Paint coatings were made from the prepared silicon resins, produced by the Goldschmidt and the Budalakk Firms, and various properties of these coatings were investigated.

Molybdenum Mosaic Vol. 2, No. 4, 1977:

Heavy Wall HSLA Steels For Offshore Applications Produced by Centrifugal Casting — by Alain Royer and Pierre Boussel.

Metal Finishing: Vol. 76 No. 1. Jan. '78:

Developments In Electroplating and Electrochemistry Around the Turn of the Century — by George Duppernell, M & T Chemicals, Inc., Detroit, Mich.

Gestation of Chemical Coatings – Looking Back at the Origin and Growth of Organic Metal Finishing— by Joseph Mazia, Organic Finishing Editor.

The Effect of Orthophosphate In Copper Pyrophosphate Plating Solutions and Deposits — by B. F. Rothschild, Rockwell International Crop., Anaheim, Calif.

Treatment of Electroless Nickel Plating Rinse Waters — by R. E. Wing, W. E. Rayford, & W. M. Doane.

Semi-Quantitative Measurement of Pressure Tape Adhesion for Vacuum Metalizing — by John Ott.

Current State Of Water Borne Coatings Technology – by J. Robert Pickering.

Vol. 76, No. 2. Feb. '78 :

Technical Developments in 1977 — Inorganic (Metallic) Finishes, Processes and Equipment — by Nathaniel Hall, Editor.

Technical Developments In 1977 — Organic (Paint) Coatings, Processes and Equipment — by Joseph Mazia, Organic Finishing Editor.

Vol. 76, No. 3 Mar. '78 :

Bismuth-Nickel Alloy Deposition— Effects of Some Parameters — by R. Kumar and Y. N. Sadana.

Water-Borne Coatings for Galvanized Steel — by Don E. Smith.

Use of Spent Pickle Liquor in Waste Treatment — Evaluation for Electroless Copper and Copper Etchant — by R. E. Wing and W. E. Rayford.

Water-Borne Coatings in Coil Coating Aluminium for the Building Products Market – by William L. Johnson.

Current Industrial Applications of High Rate Sputtering — by Hugh R. Smith, Jr.

Mineral Science and Engineering: Vol. 10 No. 1, Jan. '78:

Porphyry Molybdenite Deposits Of The North American Cordillera — by J. R. Woodcock and V. F. Hollister – Synopsis. Prophyry molybdenite deposits of the western Cordillera of North America occur most commonly in areas where a thick sialic crust has been penetrated by a composite quartz bearing pluton with acid and intermediate phases. The largest molybdenite tonnages are restricted to areas where this type of deposit develops in abnormally thick sialic crust. No large molybdenite porphyry deposits have been found in ophiolitic or marine volcanic terranes.

Porphyry molybdenite and porphyry copper deposits have many similarities. Each is genetically related to a large heat source, commonly a pluton, and each has a pyrite halo encompassing the zone of metallization. Both have similar zones of silicate metasomatism related to mineralization. Important differences between the two justify their separation. Fluorine-bearing minerals are common in most molybdenite deposits but inconspicuous in many porphyry coppers. Lithophile elements such as tungsten and tin are generally detectable in porphyry molyb enite deposits, but such elements are rare in the average porphyry copper. Trace element composition in each is distinct.

Porphyry molybdenite deposits may occur as stockwork or as breccia structural types and they may be classified as batholitic or stock-type, depending on the size of the associated pluton.

Implications of Disequilibrium In Exploration For Uranium Ores In The Surficial Environment Using Radiometric Techniques – A Review— by A. A. Levinson and G. L. Coetzee.-Synopsis: The search for uranium deposits by means of field and airborne techniques is based on the detection of either gamma rays or alpha particles emitted by certain nuclides in the uranium decay series, which are generally assumed to be in equilibriun with the parent uranium isotope (^{238}U). However, of the 13 principal intermediate unstable nuclides produced during the decay of ^{238}U to ^{206}Pb, most have chemical or physical properties that are distinctly different from each other and from ^{238}U. Hence, disequilibrium can result.

The most important nuclides in the ^{238}U series (the only series discussed here) that are sufficiently

long lived and can separate by chemical or physical means from the parent are ^{234}U, ^{230}Th, ^{226}Ra, and ^{222}Rn. Under favourable climatic (e.g., humid environment) and goelogic (e.g., permeable aquifers) conditions, it is possible for the above nuclides to separate from each other and from the parent ^{238}U. This results in two basic types of disequilibrium. (1) residual, i.e., where uranium is reached and the daughter nuclides remain; and (2) where "young" uranium has not reached equilibrium with its daughter products. Consequently, where either case of disequilibrium occurs, field and airborne techniques based on gamma or alpha radiation may give misleading results or false anomalies. Fortunately, for the purposes of most radiometric surveys, equilibrium can be assumed.

This paper (1) discusses the possible mechanisms by which the separations are affected, and (2) suggests the pitfalls that may be encountered in the use of radiometric exploration techniques when disequilibrium has occurred. Clearly, in the exploration for uranium, it is not possible to consider this element to be a simple, one-element system.

Australian Chemical Engineering: Vol. 18 No. 10. Oct. '77:

Zinc Coating Mass Measurement and Control on a Continuous Galvanising Lane — by R. F. Evans.

Measuring Microscopes — by G. Birk.

Tin and Its Uses: No. 115, 1978:

Continuous Casting Of Bronze — Part-3 — by C. J. Evans, I.T.R.I.

Production Of Tin And Tin-Lead Foils — by A. Delwasse.

Tributyltin Oxide: A Versatile Chemical — by C. J. Evans, I.T.R.I.

Platinum Metals Review: Vol 22 No. 2. Apr. '78:

Fuel Cell Energy Generators — Platinum Catalysts Used In Alternative Energy Source — by D. S. Cameron — Improvements in the preparation and utilisation of platinum metal catalysts have now made megawatt scale fuel cell systems economically viable. The high thermal efficiency and low pollution characteristics of this novel power source are likely to result in it forming an increasing proportion of the generating capacity utilised for both peaking and intermediate applications. This paper briefly reviews the development of fuel cells; it also describes how they work, including the function of the catalyst, and indicates the more important of the many factors which have to be considered when selecting a commercial system.

Cluster Compounds of the Platinum Metals — Considerable Potential As Industrial Catalysts — by Brian F. G. Johnson – In recent years metal cluster compounds with large numbers of metal atoms in the molecule have been prepared and characterised. The intermediate role of such clusters between monometal co-ordination compounds and metal surfaces is apparent, and is of great importance in studies of surface reactions for use in catalytic and other industrial processes. Investigation of the modification of the behaviour of carbon monoxide and simple organic ligands on co-ordination to such "metal fragments" is consequently one of the most rapidly expanding areas of chemical research.

The Oxidation State of Rhenium and Its Role in Platinum-Rhenium Reforming Catalysts — by Robert Burch.

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