

ABSTRACTS

DEPARTMENT OF INORGANIC AND PHYSICAL CHEMISTRY

1. LEAD PLATING FROM THE PYROPHOSPHATE BATH, (Miss) Vananta Sree, *J. Sci. and Ind. Research*, 1959, 18A, 478.

The pyrophosphate bath has been studied in detail for the plating of lead, and the optimum operating conditions established. The deposits are finer grained than those from acid baths. The throwing power of the plating solution is high.

2. CORROSION OF ALUMINIUM AND ITS INHIBITION, T. L. Rama Char and J. Sundararajan, *Chemical Age of India*, 1959, 10, 503.

The importance of corrosion of metals and its prevention has been outlined. The corrosion of aluminium in acid, neutral and alkaline media has been reviewed with reference to corrosion rates, inhibitor efficiencies and corrosion potentials. The investigations carried out by the authors have been reported. The practical and theoretical aspects of inhibition of metallic corrosion have been discussed. Four tables and 35 references.

3. ELECTRODEPOSITION FROM SULPHAMATE SOLUTIONS, PART V. CADMIUM-ZINC ALLOYS. S. Venkatachalam and T. L. Rama Char, *Bull. India Section, Electrochem. Soc.*, 1959, 8, 65.

The codeposition of cadmium and zinc from the sulphamate bath has been studied with special reference to the effect of the variables on alloy deposit composition, cathode efficiency and potential. The optimum conditions for obtaining satisfactory alloy plates in the composition range 0.80 per cent zinc have been established. Anode corrosion of the cast alloy is normal.

4. INHIBITION OF THE CORROSION OF ALUMINIUM IN ALKALINE SOLUTIONS: POLARIZATION STUDIES, J. Sundararajan and T. L. Rama Char, *J. Sci. and Ind. Research*, 1959, 18B, 496.

Results of polarization studies for 99.5 per cent aluminium in 0.3 N sodium hydroxide have been reported. Table gives effect of current density on weight loss as well as polarization of the aluminium cathode and anode, with and without dextrin inhibitor. Cathodic or anodic protection of the metal is not possible under the experimental conditions. The corrosion process occurs under cathodic as well as anodic control, with predominance of inhibitor action on the anodic areas of the metal surface.

5. INHIBITION OF CORROSION OF ALUMINIUM IN ACID SOLUTIONS: POLARIZATION STUDIES, J. Sundararajan and T. L. Rama Char, *J. Sci. and Ind. Research*, 1959, **18B**, 539

Polarization studies for 92.0 and 99.5 per cent aluminium in 1 N hydrochloric acid have been made. The effect of current density on anode weight loss and cathode polarization, with and without thiourea inhibitor, has been shown. Cathodic protection is possible by impressing low currents, whereas anodic protection cannot be obtained. A combination of impressed cathodic current and inhibitor gives a total efficiency very close to 100 per cent. It is concluded that the corrosion process is essentially under cathodic control.

6. ELECTRODEPOSITION OF NICKEL ALLOYS FROM THE PYROPHOSPHATE BATH, T. L. Rama Char, *Tech. Proc. Golden Jubilee Convention, Amer. Electroplaters' Soc. Fifth International Conf. Electrodeposition and Met. Finishing*, 1959, 76.

Investigations carried out in the author's laboratory have shown that nickel can be codeposited with tin, copper, zinc, cobalt and iron from the pyrophosphate bath. The optimum conditions for each alloy have been established, and some of the important aspects of alloy deposition discussed. Preliminary work with pyrophosphate electrolytes indicates that alloys of nickel with manganese, tungsten and molybdenum can also be deposited successfully. Two figures, four tables and 29 references.

7. NICKEL PLATING FROM THE PYROPHOSPHATE BATH, S. K. Panikkar and T. L. Rama Char, *Symp. Electrodeposition and Met. Finishing, India Section, Electrochem. Soc.*, 1960, 25.

The optimum conditions have been established for the electrodeposition of nickel from pyrophosphate solutions. They give good quality deposits, and have some advantages over the Watts bath.

8. BRASS PLATING FROM THE PYROPHOSPHATE BATH, (Miss) Vasanta Sree and T. L. Rama Char, *Symp. Electrodeposition and Met. Finishing, India Section, Electrochem. Soc.*, 1960, 39.

Electrodeposits of brass, 60 per cent copper and above, can be obtained from the pyrophosphate bath at high electrode efficiencies.

9. ELECTRODEPOSITION OF NICKEL ALLOYS FROM THE PYROPHOSPHATE BATH, S. K. Panikkar, J. Vaid, (Miss) Vasanta Sree and T. L. Rama Char, *Symp. Electrodeposition and Met. Finishing, India Section, Electrochem. Soc.*, 1960, 55.

The codeposition of nickel with tin, copper, zinc and cobalt has been studied from the pyrophosphate bath. Table gives the plating characteristics under optimum conditions for each alloy.

10. TIN-COPPER ALLOY PLATING FROM THE PYROPHOSPHATE BATH, J. Vaid and T. L. Rama Char, *Symp. Electrodeposition and Met. Finishing, India Section, Electrochem. Soc.*, 1960, 58

The effect of variables on plate composition, cathode efficiency and potential has been studied during the electrodeposition of tin-copper alloys from the pyrophosphate bath. Sudden changes in alloy composition and cathode potential were noticed corresponding to the deposition of alloys of different phases—alpha, gamma plus eta, and eta plus tin. This bath has a high efficiency and compares well with the stannate-cyanide solution.

11. TIN-ZINC ALLOY PLATING FROM THE PYROPHOSPHATE BATH, J. Vaid and T. L. Rama Char, *Symp. Electrodeposition and Met. Finishing, India Section, Electrochem. Soc.*, 1960, 61.

Satisfactory deposits of tin-zinc alloys can be obtained from pyrophosphate plating solutions at current densities up to 6 amp/dm². The bath is equal in performance to the commercial stannate-cyanide type. Corrosion of the alloy anodes is normal.

12. RECENT DEVELOPMENT IN HARD ANODIZING, T. L. Rama Char and J. Sundararajan, *Symp. Electrodeposition and Met. Finishing, India Section, Electrochem. Soc.*, 1960, 160

A review is made of the recent developments in the hard anodizing of aluminium. Operating conditions have been given for anodizing baths containing sulphuric, oxalic and malonic acids, and mixed electrolytes. The coatings are compared with hard finishes obtained by other processes.

13. COORDINATION COMPOUNDS IN ELECTRODEPOSITION, T. L. Rama Char and S. K. Panikkar, *Proc. Symp. The Chemistry of Coordination Compounds, National Academy of Sciences, India*, 1959, part 3, 288.

The advantages of using coordination compounds in electrodeposition of metals and alloys have been outlined. Physico-chemical studies on these compounds have been reported with special reference to pyrophosphate complexes of different metals. The work done on the deposition of various metals and alloys from the pyrophosphate bath has been discussed with reference to the mechanism of deposition, structure of the deposit, polarization phenomena and codeposition of two metals. 47 references.

14. TIN-COBALT ALLOY PLATING FROM THE PYROPHOSPHATE BATH, (Miss) Vasanta Sree and T. L. Rama Char, *Bull. India Section, Electrochem. Soc.*, 1960, 9, 13.

It has been shown that the pyrophosphate bath can be used for the electrodeposition of satisfactory alloys of tin with cobalt in the composition range 13-100 per cent tin.

PHARMACOLOGY LABORATORY

1. PROPERTIES OF *Sambucinin*, AN ANTITUBERCULAR SUBSTANCE DERIVED FROM *Fusarium sambucinin*, FÜCKEL M. O. Tirunaryan and M. Sirsi *Archiv Inter. de Pharmacodynamie et de therap.*, Belgium 1959, 118, 258

The antibiotic sambucinin is highly toxic to dogs when given intravenously. The drug causes lowering of the blood pressure. This hypotensive action seems to be partly due to a direct effect on the cardiac musculature and partly to its influence on the peripheral vasomotor ganglia.

2. SOME GENERAL PHARMACOLOGICAL AND ACUTE TOXICITY STUDIES ON I-p. BROMOPHENYL-2:4 DIAMINO 1:6-6 DIMETHYL, 1,3,5-TRIAZINE HYDROCHLORIDE (M. I. S. 11), M. Sirsi and H. L. Bami *Indian J. Malariol*, 1958, 12, 57.

M. I. S. 11, an active metabolite of P. bromo analogue of proguanil, has an L. D. 50 of 150 mg/kg. for rats by oral and 130 mg/kg by intraperitoneal route. I. V. toxicity in mice, (LD₅₀) is found to be 11.69 mg/kg.

The drug lowers the blood pressure, causes an acceleration of rate and diminution of amplitude of respiration. The hypotensive action is partly due to a direct myocardial effect.

The spasmolytic activity is non-specific in nature. The drug exhibits neuromuscular blocking action of a low degree.

3. *Studies on Endotuberculin:*

SOME BIOCHEMICAL PROPERTIES OF ENDOTUBERCULIN FROM HUMAN AND BOVINE STRAINS OF *M. tuberculosis*. H. Billaudelle, (Miss) M. Indira, P. Suryanarayana Murthy, T. Ramakrishnan, M. Sirsi and L. E. Warfvinge *Z. Immunitätsforsch.* 1958, 118, 1.

Endotuberculin is a lypopolysaccharide extracted by freezing and thawing of living tubercle bacilli. In gel-electrophoresis, the protein portion of the complex moves without splitting. ET is inactivated by trypsin. The small protein or polypeptide fraction is responsible for the skin reaction. Enzyme activity of ET is low. The amino acid composition of the free sugars of ET have been analysed by means of circular paper chromatography.

4. OBSERVATIONS ON THE ROLE OF METHIONINE IN EXPERIMENTAL MALARIA (*P. gallinaceum* IN CHICK MALARIA). R. Rama Rao, K. Nagarajan, A. S. Ramaswamy and M. Sirsi. *Curr. Sci.*, 1958, 27, 399.

Quantitative alterations in the free and combined methionine content of whole blood, plasma and erythrocytes during normal, prepatent and parasitaemic states are presented. Supplementation of methionine accelerates the onset of

parasitaemia and the severity of infection. Ethionine prolongs the prepatent period and reduces the degree of parasitaemia.

5. PRELIMINARY OBSERVATIONS ON THE PHARMACOLOGY OF *Cassia sophera*,
LINN. P. Suryanarayana Murthy and M. Sirsi *Indian J Pharm.* 1958,
10, 299.

The alcoholic extract of the leaves of *C. sophera* produces relaxation of the intestinal and bronchial musculature and is found to be both a neurotropic and musculotropic antispasmodic.