Chemical Effects in the Corrosion of Aluminum and Aluminum Alloys

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By B.W. Samuels, C.M. Dacres and R.T. Foley

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**Corrosion, aluminum, anions, inhibitors**

A bibliography of the literature on aluminum corrosion for the years 1968-1975 is reported. Special attention is given to chemical effects in corrosion and inhibitors for aluminum corrosion.
"CHEMICAL EFFECTS IN THE CORROSION OF ALUMINUM AND ALUMINUM ALLOYS"

A Bibliography

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Bibliography of Literature on Chemical Effects in the Corrosion of Aluminum and Aluminum Alloys

Introduction

In 1969 a bibliography of the literature on chemical effects in the corrosion of aluminum and aluminum alloys was issued by this Laboratory. In that first survey the literature from the year 1913 and through the year 1968 was critically examined, specifically with reference to information on the influence of anions and other chemical species on the corrosion of aluminum. This first search served the basis for experimental investigations that have been conducted in our Laboratory from that year up to the present.

With this bibliography the literature is covered from 1968 through 1975. Thus the present search overlaps the first.

In the present bibliographic review, considerable attention is given to corrosion inhibitors, again to support experimental work being conducted in the Laboratory. An effort has been made to do some evaluation, that is, not all of the available references were included, only those, in the Author's opinion that offer pertinent information or would lead to sources that would be of value to the corrosion program.
1968-1 W.W. Ailor, Jr.
"Performance Of Aluminum Alloys At Other Test Sites"
Data covering a 7-year period are presented on the corrosion behavior of 11 Al test alloys at 4 test sites.

1968-2 David B. Boies and Barbara J. Northam
"Aluminum Corrosion: Possible Mechanisms of Inhibition" The corrosion of Al in a closed ethylene glycol/water system.

1968-3 William B. Brooks
Corrosion, 24, 335-6, (1968)
"Hazard Of Mercury To Metals And Alloys In The Process Industries And Some Little Known Sources Of Mercury Contamination" Hazards of traces of Hg on the corrosion of metal and alloys in the process industries.

1968-4 Dora M. Brasher
Centre Beige Etude Doc. Eaux, 300, 523-31, (1968)
"Mechanism Of The Inhibition Of Corrosion" Development of a corrosivity scale based on the theoretical treatment of anions in solution.

1968-5 V.E. Carter

1968-6 V.E. Carter

1968-7 John J. De Luccia and Irv S. Shaffer
"Evaluation And Comparision Of The Corrosion Susceptibilities Of 7178 Aluminum Plate Material Of Various Tempers" Evaluation of the resistance of plate material of 7178 Al alloy in T651 and T7651 tempers to exfoliation and stress-corrosion cracking.

1968-8 D.P. Doyle and H.P. Godard
"Determination Of The Corrosion Activity Of The Atmosphere In Relation To Aluminum" Compilation of data relating to the atmospheric corrosion of Al from 39 regions of 10 countries of America, Europe, Africa and Asia.
1968-9  A. Fiegna, G. Gilli, G. Trabaneli and G. Zucchini
Trib. CERDEAU, 300, 553-9, (1968)
"Atmospheric Corrosion And Its Inhibition"
Use of N, N-dimethylcyclohexylamine as a corrosion inhibitor of Al.

1968-10  W.D. France, Jr.
Corrosion, 24, 247-51, (1968)
"Passivation Of Crevices During Anodic Protection"
Use of Polkin-Timonin equation to predict passive-zone length
in partially protected narrow crevices.

1968-11  Gerhard Weinicke and Meinz Marenz
Schmierstoffe Schmierungstechn, 30, 4-18, (1968)
"Tribochemical Reactions Of Water On Mechanically Stressed Metal
Surfaces"
Protective action of water on the surfaces of metals in fric-
tion-lubrication, and wear processes.

1968-12  Yoshihiro Misamatsu
Keikinzoku, 18, 173-7, (1968)
"Corrosion Of Aluminum By Water. An Approach From The Theory
Of Thermodynamic Equilibrium"
The corrosion-immunity-passivation diagram, the metal-potential
of aq. system-pH diagram, and the Al-potential of aq. system-
PH diagram are discussed.

1968-13  Kinya Horibe
Keikinzoku, 18, 579-85, (1968)
"Pit Formation Of Aluminum Immersed In Artificial Waters"
The corrosion behavior of Al in pure water and in many kinds
of artificial waters.

1968-14  G. Ito, S. Ishida, M. Kato and T. Nakayama
Keikinzoku, 18, 530-6, (1968)
"Effect Of Minor Impurities In Water On The Corrosion Of Aluminum"
Corrosion characteristics of commercial-pure Al immersed in water
containing a few ppm impurities.

1968-15  B.J. Jung
Hwaehak Kwa Kangop Ui Chinbo, 8, 123-6, (1968)
"Corrosion By Water Used For Cooling Systems And Corrosion Control"
Review of inhibitors for corrosion prevention and microbial in-
terference with corrosion prevention in cooling systems.

1968-16  N.D. Karamatskikh
Tr. Altai Politekh Inst., 2, 101-4, (1968)
"Effects Of Impurities Contained In Aluminum On The Protective
Effect Of Corrosion Inhibitors In Acid Solutions"
Effects of corrosion inhibitors of aluminum on high-purity alumi-
num and aluminum alloys in 1 N H₂SO₄ and 1 N HCl solutions.
1968-17 Ferdinand Koch and Hans J. Schluessler
_S. African, 66_, (1968)
"Prevention Of Corrosion Of Aluminum And Its Alloys"
Use of aminopolyalkylene polyphosphonic acids as corrosion inhibitors of Al and its alloys in the presence of H₂SO₄ or H₃PO₄

1968-18 Hiroko Mihara and Yasumasa Hayakawa
_Denki Kagaku, 36_, 61-4, (1968)
"Corrosion Inhibitors For Aluminum In Alkaline Media. VIII. Naphthalene Derivatives As Corrosion Inhibitors For Aluminum In Alkaline Media"

1968-19 Hiroko Mihara and Yasumasa Hayakawa
_Denki Kagaku, 36_, 657-9, (1968)
"Corrosion Inhibitors For Aluminum In Alkaline Media. IX. Effects Of α-Amino Acids As Corrosion Inhibitors For Aluminum In Alkaline Media"
Use of α-amino acids as corrosion inhibitors of Al in caustic soda solutions of pH 9-12.

1968-20 V.F. Negreev, I.A. Mamedov and D.M. Abramov
"Corrosion Inhibitors In A Liquid Hydrocarbon-Aqueous Solution Systems"
Action of corrosion inhibitors on various metals in mixtures of water and liquid hydrocarbons systems.

1968-21 R.W. Tapper
"Corrosion Of Aluminum"
Summary of the literature of Al corrosion which includes stress-corrosion cracking, microbiol. corrosion and cathodic protection.

1968-22 O. Tegun
Keikinzoku, _18_, 127-38, (1968)
"Formation Of Pits In Aluminum And Its Alloys In Pure Water"
Corrosion of Al and its alloys when immersed in aerated pure water.

1968-23 I.E. Titova and V.A. Guseva
_Zashch. Metal., 4_, 588-90, (1968)
"Action Of Certain Inhibitors Of The Dissolution Of Metals In Hydrochloric Acid"
The inhibiting action of α-picoline (I) and thiourea (II) on the dissoln. of Zn, Al, Fe, Sn, Pb, and Cd was studied.

1968-24 E. Volrabova
"New Methods For Studying Volatile Inhibitors"
Use of optical ellipsometric methods to study volatile inhibitors.
Electrochemical properties of systems that inhibit corrosion.
1969-1 W.H. Ailor, Jr.  
"Aluminum Alloys After Five Years In Sea Water"  
Results of the five year exposure of Al and its alloys to sea water at Harbor Island, North Carolina.

1969-2 G. Butler, P.F. Francis and A.S. McKie  
"Corrosion Potential Of Some Common Metals In Oxygenated Solutions At 20° and 150°.

1969-3 M. Boehni and H.H. Uhlig  
"Environmental Factors Affecting The Critical Pitting Potential Of Aluminum"  
The crit. pitting potential detd. potentiostatically of pure Al in 0.1N NaCl is -0.40 v. (standard H electrode).

1969-4 H. Boswinkel  
Construktiewe materialen, 3, 24-5, (1969)  
"Stress-Corrosion Dangers In Aluminum-Magnesium Alloys"  
Effects of temperature on the stress corrosion of Al/Mg alloys.

1969-5 L. Clebois  
"Behavior Of Aluminum In Concentrated H2O2"  
The electrochemical behavior of commercial aluminum (99.6%) in conc H2O2 containing a stabilizer (stannate), a corrosion inhibitor (nitrate) and a buffer (phosphate).

1969-6 Howard L. Craig, Jr. and J.R. Scott  
"Importance Of Mass Transfer In Determining The Corrosion Rate Of Aluminum Using Polarization Measurements"  
Use of the Stern polarization resistance method to determine the dissolution of Al.

1969-7 M.N. Desai and Y.B. Desai  
"Meta-Substituted Anilines As Corrosion Inhibitors For Aluminum-2S In HCl"  
Use of m-chloroaniline and m-toluidine as corrosion inhibitors of Al-2S in 1-4N HCl.

1969-8 M.N. Desai and Y.B. Desai  
"Nitrogen-Substituted Anilines As Corrosion Inhibitors For Aluminum 2S in HCl"  
Investigation of the retardation of N-substituted aniline on the inhibition of corrosion of Al-2S in HCl.
1969-9  M.N. Desai and Y.B. Desai
"Cyclohexane Derivatives As Corrosion Inhibitors For Aluminum
Inhibitors For Aluminum - 2S in HCl"
Use of cyclohexane derivatives as corrosion inhibitors for Al-
2S in 1 and 2N HCl solutions.

"Morpholine As A Corrosion Inhibitor For Aluminum Alloys in HCl"
Inhibition studies of the corrosion of Al alloys 2S, 57S and
65S in HCl of varying concentrations with morpholine added.

1969-11  M.N. Desai, G.H. Thanki and M.M. Gandhi
"Vapor Phase Corrosion"
A review with 21 references.

1969-12  Zisis A. Foroulis
"Molecular Designing Of Organic Corrosion Inhibitors"
Guiding principles for designing organic chemical compounds
having corrosion inhibition properties.

1969-13  T.K. Grover and B. Sanyal
"Corrosion Inhibitors For Cooling Water. III Inhibitors For
Bimetallic, Multimetallic Assemblies In Mains Water Studies Under
Conditions For Intermittent Heating (80°) and Cooling"
A study of the action of inhibitors on selected bimetallic and
multimetallic combinations representing cylinder head and block,
radiator and other materials of engines of vehicles.

1969-14  V.P. Grigor'ev and V.V Ekilik
"The inhibitive effects of the introduction of various substi-
tuent groups into aniline on metals.

1969-15  I.N. Gladkii and Yu. P. Chmyrev
"Corrosion Resistance Of Aluminum And Its Alloys In A Sodium
Chloride Medium"
Corrosion resistance of Al and its alloys in a NaCl medium.

1969-16  N. Guglielmi
"Electrochemical Behavior Of Aluminum In Water Containing Trace
Impurities"
Corrosion of Al in water from municipal water supplies.
1969-17 Y. Hayakawa, H. Kato and S. Kawai
"Inhibition Mechanism Of Organic Corrosion Inhibitors"
A review of the methods of evaluating the inhibition of corrosion and classical and modern aspects on the mechanism of inhibition.

1969-18 Kinya Horibe
Keikinzoku, 19, 184-8, (1969)
"Pit Formation On Aluminum Immersed In Artificial waters. III"
Methods of preventing or retarding pit formation on Al in artificial water.

1969-19 Ito, Goro, Kenjiro and Shimizu, Yoshihiko
Keikinzoku, 19, 264-8, (1969)
"Effect Of Barrier Layer Thickness On Aqueous Corrosion Of Aluminum"
Barrier layer thickness of Al which had been subjected to corrosion tests in water contg. a few ppm of various reagents was detd. by the polarization method proposed by W.S. Hunter and P. Fawle. The thickness of the barrier layer formed in air decreased with increasing time of immersion in pure water up to 100 hrs.

Otkrytiya, Izobret, Prom. Obratsy Towarne Znaki, 46, 125, (1969)
"Protection Of Metals From Acid Corrosion"
Protection of metals from acid corrosion using the reaction product of resorcinol or alkylresorcinol with hexamethylenetetraamine used as the inhibitor.

1969-21 V. Kapali, S.V. Iyer and N. Subramanyan
"Anodic Behavior Of Aluminum And Its Alloys In Alkaline Media In The Presence Of Inhibitive And Complexing Substances"
Study of corrosion rates of Al and Al alloys 2S, 3S, and 57S in 1M NaOH with the addition of CaO and Na citrate.

1969-22 N.G. Klyuchnikov and V.F. Ushenina
"Mechanism Of The Action Of Inhibitors In Atmosphere And In Neutral Media And The Role Of Complexing In Protection Of Metals"
Evaluation of the effectiveness of 11 complex-forming agents in inhibiting corrosion of Armco-Fe, M-1 Type Cu, Al and Type Ts 1 Zn.

1969-23 N.G. Klyuchnikov and V.F. Ushenina
"Role Of Complexing In Corrosion And Protection Of Metals"
Study of effectiveness of the formation of insoluble metal-complex film to inhibit corrosion of various metals when immersed complex media.
1969-24 G.V. Kiryutkin, A.A. Rozov and A.I. Klychev
"Hypochlorides, Their Corrosive Action And Methods For Reducing It"
The effect of CoCl₂, NiCl₂, FeSO₄, & Pb SO₄ on the decompn. of NaClO contg. active Cl 5.14 and NaOH 0.61 or 1.30%.

1969-25 K.F. Lorking
"Studies Of The Corrosion Of Aluminums"
Investigation of six anions on the corrosion of Al in 0.1 N Na salt solutions.

1969-26 R. Mazzone and É. Nyvoid
"Effect Of pH On Corrosion Rates Of Aluminum In NaCl Solutions"
Corrosion rate of Al in deaerated 3% NaCl solutions at pH 1-7.

1969-27 Apolonia Malinowska
"Corrosion Of Aluminum As A Function Of The pH Of The Corroding Medium"
Corrosion of Al (99.99% pure) in acetic, tartaric and citric acids and their mixtures with NaOH.

1969-28 Hiroko Mihara, and Yasumasa Hayakawa
"Inhibitor Of Aluminum Corrosion In Alkaline Media. II. Effects Of Hydroxycarboxylic Acids On The Corrosion Of Aluminum In Alkaline Media"
Effects of the addition of hydroxycarboxylic acids to aq. alk. solns. as chelating agents on the corrosion of Al.

1969-29 T. Neznamova and N. Romanova
"Protection Of Metals From Corrosion By Inhibitors"
Action of azole-type compounds containing a benzene ring as inhibitors of corrosion on steel, Al and Cu.

1969-30 N. Ohtani
"Countermeasures For Pitting Corrosion And Stress-Corrosion Fracture"
Countermeasures for pitting corrosion control in terms of its potential, its induction period and the chemical mechanism involved.

1969-31 T.L. Rama Char and D.K. Padma
"Corrosion Inhibitors In Industry"
Review of literature of inhibitors minimizing corrosion in different environments from 1965-68.
1969-32 T.L. Rama Char
"Aspects Of Corrosion Research"
A review with 72 references of fundamental and corrosion prevention studies on Al, its alloys and mild steel in acid and alkaline media.

1969-33 P.R. Shibad, N.S.D. Elayathu and J. Balachandra
"Corrosion Of Aluminum Alloys In Dilute HCl Solutions With Organic Inhibitors"
Influence of various organic inhibitors on the corrosion of some commercial and experimental Al-base alloys in 0.1 and IN HCl solutions.

1969-34 Charles R. Southwell
"Corrosion Rates Of Structural Metals In Sea Water, Fresh Water, And Tropical Atmospheres. Summary Of A Sixteen-Year Exposure Study"
A summary is presented of a 16-year exposure trial on 52 structural metals and alloys in 5 uncontaminated natural environments.

1969-35 M. Subramanyan and A.R. Yamuna
"Behavior Of Aluminum In Alkaline And Neutral Tartrate And Citrate Solutions"
The influence of tartrate ions in alk. solns. during the anodic polarization and corrosion behavior of com. Al.

1969-36 J.D. Talati and B.M. Patel
"Inhibition Of Corrosion Of Aluminum In Trichloracetic Acid"
The inhibition of corrosion of Al (99.8%) and Al-Mg (2%) alloy in decinormal solutions of trichloracetic acid by different inhibitors.

1969-37 A.I. Vol'fson and S.A. Il'ina
"Tragacanth As A Corrosion Inhibitor For Aluminum And Aluminum Alloys In Alkaline Solution"
Effectiveness of gum tragacanth in protecting aluminum alloys (A Mg, V-95 and D-11) from corrosion in 1-1.5N NaOH at 60-70°C.

1969-38 L.P. Volkov and M.G. Yartsev
Khimiya, 73, (1969)
"Quantitative Evaluation Of Atmospheric Corrosion Rate Of Aluminum By Microbrightness Change"
Estimation of rate of atmospheric corrosion of aluminum by changes in the microbrightness of the surface.
1969-39 W. Vedder and David A. Vermilyea
"Aluminum + Water Reaction"
Mechanism of $\text{Al} + \text{H}_2\text{O}$ reaction, Al ions and electrons are
removed in sep. steps at different sites on the surface.

1969-40 C. Yoshimura and S. Ito
"Electrochemical Behavior Of Hexacyanoferrate (III) In
Dilute NaOH And Its Corrosion-Inhibiting Effect For Aluminum"
Potentiostatic studies and chemical analysis of hexacyano-
ferrate (III) on $52\%$, $257\%$ aluminum alloys and pure aluminum
(99.50%).
1970-1 J.M. Abdel-Kader and A.M.S. El Din
"Efficiency Of Alkylamines And Alkylammonium Ions In
Retarding The Dissolution Of Aluminum"
Dissolution of Al in 2-4N HCl and 0.5-3N NaOH in the presence
alkylamine and alkylammonium ions.

1970-2 M.H. Akstinat
'Organic Corrosion Inhibitors"
Detailed review of action mechanism of corrosion inhibition
in terms of three systems: inhibitor-acid, metal-acid and
metal-inhibitor.

1970-3 Jean Y. Boos and Claude Goux
"Intergranular Corrosion Of Pure Aluminum In Water: Boundaries
With Symmetrical Bending Around \langle001\rangle And \langle011\rangle 
Intergranular corrosion of pure Al bicrystals in water with
symmetrical bending around \langle001\rangle and \langle011\rangle .

1970-4 H. Boehni
"Pit Corrosion Of Metallic Materials And Detection Methods"
Determination of pitting potentials of stainless steel and Al
in corrosive solutions and the effects of various anions on the
pitting potentials.

1970-5 J.M. Brooke
"Inhibitors: New Demands For Corrosion Control. Circulating
Water And Miscellaneous Inhibitors"
A review with one reference.

1970-6 A. Bukowiecki
"Metal Corrosion And Corrosion Protection"
Review of metallic corrosion to include protection against cor-
rosion by chemical inhibitors, coatings, deaeration of corrosive
solutions and electrochemical methods.

1970-7 N.G. Chen, A.S. Kiryukha and L.N. Chen
"Protective Action Of EKP Acid Corrosion Inhibitor Of Metals"
Inhibiting action of EKP on steel (St.3) in 10-20% H₂SO₄ and
10% HCl; Al in 10% HCl and Cu in 10% HNO₃.

1970-8 Mahendra N. Desai and Mrs. S.M. Desai
"Ethylamines As Corrosion Inhibitors For Aluminum-65S In Hydro-
chloric Acid"
"Influence Of The Combined Effect Of Cathodic Polarization And Inhibitors On The Corrosion Of Aluminum In Hydrochloric Acid"
Study of the effect of external cathodic polarization on the behavior of org. inhibitors for Al alloys in HCl.

1970-10 M.N. Desai and S.M. Desai
"Inhibition Of The Corrosion Of Aluminum-3S In NaOH"
Inhibitive effect of sodium alginate on Al-3S in 0.2-0.6N NaOH.

1970-11 M.N. Desai and C.B. Shah
"Corrosion Inhibitors For Aluminum-57S In HCl Solutions"
Inhibiting action of methylamines on corrosion of Al-57S in 1-4N HCl.

1970-12 A.K. Dunlop
"Using Corrosion Inhibitors"
Use of electrochemical properties of corrosion inhibitors in attacking the weakest link in the chain of electrochemical reactions.

1970-13 I.A. Efimov, N.G. Smetanina and B.I. Lur'e
"Corrosion Resistance Of Aluminum Alloys"
Nine alloys of the Al-Mg., Al-Mg-Si, and Al-Cu-Mg systems were corrosion tested in various industrial atms.

1970-14 H. Fischer
"Definition And Modes Of Inhibition Of Electrochemical Electrode Reactions"
Definition and modes of inhibition of electrochemical electrode reactions in terms of the interface and electrolyte layer.

Corrosion rate of Al coupled with and insulated from a large mild-steel cathode in 5 different solutions and 2 inhibitor solutions.

1970-16 S. Fujii, H. Tanabe and H. Maeda
Boshoku Gijutsu, 19, 177, (1970)
"Amine-Type Corrosion Inhibitors. XL. Effects Of Active Hydrogen Atoms Of Inhibitor Adsorbate"
Study of the effects of amine-type corrosion inhibitors whose active hydrogens have been replaced by methyl radicals on metallic corrosion.
1970-17 J.R. Galvele and Stella Mae De Micheli
"Mechanism Of Intergranular Corrosion Of Aluminum-Copper
Alloys"
The function of Cl in the intergranular corrosion of Al-Cu alloys.

1970-18 J.R. Galvele and S.M. De Micheli
"Mechanism Of Intergranular Corrosion Of Aluminum Alloys
Containing 4% Copper"
Anodic polarization studies of intergranular corrosion and
pitting corrosion of pure Al, Al-Cu alloys and Al$_2$Cu in NaCl solutions.

"Effect Of Some Oxidizing Agents On Pitting Corrosion Of
Aluminum In Neutral Water"
Effects of some oxidizing agents on the occurrence and pro-
pagation of pitting corrosion of Al in neutral water.

"Surface Activity Of Some Amino Compounds"
Inhibition of dissolution of Al in 2N HCl by thiosemicarbazide,
cystine, cysteine and semicarbazide.

1970-21 N.D. Karmatskikh
"Effect Of Temperature On Corrosion Resistance And Electrode
Potential Of Aluminum In Inhibited Electrolyte Solutions. 1.
Hydrochloric Acid"
Effects of acridine, thiourea and hexamine on the corrosion rate
of Al in 1M HCl at 25-85°C.

1970-22 N.D. Karmatskikh
"Effect Of Temperature On The Corrosion Resistance And Electrode
Potential Of Aluminum In Inhibited Electrolyte Solutions 2. So-
dium Hydroxide"
Effects of dextrin and benzotriazole on the corrosion rate of
Al in 1M NaOH at 25-85°C.

1970-23 M. Kato and Y. Kayakawa
Denki Kagaku, 38, 9-12, (1970)
"Corrosion Inhibitor Of Aluminum In Alkaline Medium"
Effects of aliphatic and aromatic amines on the corrosion of Al
in alkaline media.
1970-24 K Kawano and S. Tajima
"Corrosion Behavior Of Couples Of Aluminum And Mild Steel
In Sodium Chloride Solution Containing An Inhibitor"
Corrosion studies of behavior of couples of Al and mild
steel in 0.42M NaCl containing an inhibitor.

1970-25 T.E. Kil'chevskaya
"Influence Of Temperature And Concentration On The Corrosion
Of Metals In Aliphatic Acids"
Study of the corrosion of stainless steels, aluminum and its
alloys in aliphatic acids.

1970-26 A.M. McKissick, Jr., A.A. Adams and R.T. Foley
"Synergistic Effects Of Anion In The Corrosion Of Aluminum Alloys"
A ratio of NO3/Cl of 5 exerts an inhibiting effect on the cor-
rosion of Al alloys.

1970-27 N.A. Mikhailova, N.P. Zhuk, A.V. Turkovskaya, Yu P. Adler and
A.I. Ratner
"Corrosion Resistance Of Aluminum In Acetic Acid-Formic Acid-
Water System"
Corrosion resistance of 3 grades of Al (99.97%, 99.7% and 99.6%)
at various temperatures in the ternary system: Acetic acid- Formic
acid-water.

1970-28 R. Natarajan and A.D. Purohit
"Substituted Benzoates As Corrosion Inhibitors For Ferrous
And Nonferrous Metals In Neutral Aqueous Solutions"
Study of substituted benzoic acid salts as corrosion inhibitors
for mild steel, cast iron, Cu, brass, Al and Zn in Aqueous
solution.

1970-29 R.S. Ondrejcin
Reduction of corrosion rate of Al cladding on fuel elements in
Savannah River reactors by lithium silicate.

"Corrosion Of Aluminum In Mixtures Of Salts And Effect Of Copper
Ions"
The corrosion of Al in NaCl + NaHCO3, NaCl + Na2CO3 and Na2CO3 +
NaHCO3 with a 3% total concn.
1970-21 Marcel Pourbaix
"Meaning Of The Protection Potential During Pitting Corrosion,
Intergranular Corrosion, And Stress-Corrosion Cracking"
Pitting and protection potentials are given for Armco Fe, C
steels, stainless steels, Cu, Al and Ti in Cl^- contg. soln.
of pH 5,7,9,11 and 13.

1970-32 M. Pourbaix
Corrosion, 26, 431-8, (1970)
"Significance Of Protection Potential In Pitting And Inter-
granular Corrosion"
Experimental conditions of immunity general corrosion and pas-
sivity as a function of pH and electrode potential for Armco Fe,
Cu, Ti, Al and various stainless steels.

1970-33 P.I. Protsenko, A.A. Ugryumova and T.E. Kutsenko
"Physicochemical Properties Of Ammonium Nitrite-Ammonium Nitrate-
Water System Solutions Saturated at 20°"
Study of physicochemical properties of NH₄NO₂ - NH₄NO₃ - H₂O systems
and their use as corrosion inhibitors for liquid nitrogen fertili-
zers (conc. solns.) and Fe, Al and Zn alloys (dil. solns.).

1970-34 I.L. Rozenfel'd
"Problems Of Metal Corrosion"
Review of mechanism of corrosion processes, local-corrosion
processes, passivity of metals, corrosion inhibitors and cor-
rosion-resistant alloys.

1970-35 N. Subramanyan and K. Ramakrishnaiah
"Effects Of Some Amino Compounds On The Corrosion Of Aluminum"
Effects of some amino compounds on the corrosion of Al in 1 M
HCl and 0.1 M NaOH.

1970-36 J. D. Talati and B.M. Patel
"Corrosion Of Aluminum In Trichloracetic Acid"
Corrosion of Al (99.8%) and Al-2% Mg alloy in solutions of
chloro-substituted acetic acid.

Sosina, K.I. Zimina and E.V. Koroleva
"Effect Of Functional Groups Of Additives On Electrochemical
Corrosion Processes"
Synergetic effect exhibited by combining anodic, cathodic and
shielding inhibitors on long-time protection of ferrous and non-
ferrous metals.
"Surface-Active Agents As Corrosion Inhibitors For Aluminum"
Use of capacitance changes of anodic Al₂O₃ film to measure
the inhibiting effects of inorganic groups attached to a
hydrocarbon on the corrosion of Al at pH 5.

"Chelation Compounds As Cooling Water Corrosion Inhibitors"
Determination of inhibition effectiveness of chelating com-
ounds as cooling water inhibitors.
1971-1 T.A. Abasov, A.F. Aliev and V.V. Shchepetkina
"Effect Of Inhibitors On The Corrosion Of Pipes From
Aluminum Alloys By Caspian Sea Water"
Retardation of corrosion of pipes from Al alloys in
desalinating apps. by addn of Na$_2$O·3SiO$_2$ and K$_2$Cr$_2$O$_7$

"Effect Of A Mixture Of Surface-Active Agents On The Local
Corrosion Of Metals"
Use of the inhibitors KKh-I and KKh-2 (by products of coke
production) to reduce the local corrosion of steel and Al.

1971-3 K.G. Compton
"Effect Of Aerobic Marine Bacteria On The Corrosion Of Metals
In Sea Water"
A limited study of the corrosion of 5052 Al by bacteria.

1971-4 G.A. Dibari and H.J. Read
Corrosion, 27, 483-93, (1971)
"Electrochemical Behavior Of High-Purity Aluminum In Chloride
Containing Solns"
Corrosion of high-purity Al in O-free and O-std saline solns
of varying pH.

"Corrosion Inhibitors For Aluminum And Aluminum Based Alloys 2"
A review. 125 refs.

"Corrosion Inhibitors For Aluminum And Aluminum-Based Alloys"
A review of the inhibitors reported in the literature up to
1967 for the corrosion of aluminum in water, sea water and
salt solutions and alkaline solutions.

"Ethylenediamine As A Corrosion Inhibitor For Aluminum Alloys
In Hydrochloric Acid"
Study of ethylenediamine as a short-term inhibitor of Al alloys,
2S, 57S, and 65S in 1-4N HCl at 35-55°C.

1971-8 M.N. Desai, Y.B. Desai, C.B. Shah and M.H. Gandhi
"Influence Of Temperature On Inhibitors For Corrosion Of Aluminum
In Hydrochloric Acid"
The influence of temperature on the performance of corrosion in-
hibitors of Al in 1.0 N HCl.
1971-9 G.A. Dibari
"Corrosion Behavior Of Aluminum"
Study of the electrochem. behavior of high-purity Al when exposed to O-free and O-sat'd salines solns of varying pH.

1971-10 I. Drimus
Rev. Coroz., 1, 47, (1971)
"Corrosion Inhibitors And Derivatives"
A review w/15 refs regarding chemical structure of corrosion inhibitors and their useful ranges.

1971-11 Z.M Evenshtein
"Electrochemical Corrosion Of Aluminum In Contact With Beer"
Corrosion of Aluminum (99.50% and 99.99%) in contact with beer.

1971-12 A.C. Fraker and A.W. Ruff
Corrosion, 27, 151-6, (1971)
"Hot Saline Water Corrosion Of Aluminum Alloys"
Use of transmission electron microscopy and diffraction to study the corrosion film formed on Al in hot salt water (100-177°).

1971-13 S. Friberg and H. Mueller
"Investigation On The Bonds Between Corrosion Inhibitors And Metal Ions By Means Of Surface Pressure And Infrared"
Investigation on the bonds between corrosion inhibitors and the metal ions by means of surface pressure and infrared spectra of collected monolayers.

1971-14 S. Fujii and R. Sugano
Boshoku Gijutsu, 20, 127, (1971)
"Amine Corrosion Inhibitors. XLI. Corrosion And Inhibition Of Aluminum In Carbon Tetrachloride"
Use of amine-type inhibitors on pure Al in pure CCl₄ at 50°.

1971-15 H. Graefen
"Anodic Corrosion Protection"
A review w/41 refs.

1971-16 Y. Hoshida, H. Kawabe and M. Maki
"Inhibitors For A Hot Water Central Heating System"
The effect of inhibitor formations consisting of an org.-acid salt, 2 heterocyclic compds. and 2 buffer reagents on Al, Cu, Fe and their alloys.
Keikinzoku, 21, 27, (1971)
"Effects Of pH And Dissolved Oxidizing Agents On The Pitting
Corrosion Of Aluminum"
Corrosion com. pure aluminum in various solutions containing
5ppm of an inhibitor, 0.5-5ppm of an oxidizing agent, deionized water.

1971-18 F. Joerg
Werke, Korros., 22, 682, (1971)
"Microscopic Analysis Of Corrosion Phenomena On Some Natural
Elements Consisting Predominantly Of Aluminum"
Microscopic analysis of Al wire coated with Cu and Au and corroded
in chlorofluorohydrocarbons.

1971-19 K. Kawano, N. Baba and S. Tajima
Denki Kagaku, 39, 296-301, (1971)
"Effect Of Chromate Ions On The Corrosion Of Aluminum In Alkaline
Solutions"
Effects of chromate ions on the corrosion of aluminum in alkaline
solution.

1971-20 I. Sh. Kharitonov, V.V. Vainstok, S.A. Gintsberg and I.F. Bun'kin
"Mechanism Of The Protective Action Of Some Oil Soluble Corrosion
Inhibitors"
Inhibitors of the MSDA-11 type used to inhibit the anodic metal
ionization in aqueous extracts separated from the oil plus inhibitor.

1971-21 Ya. M. Kolotyrkin
"Theory Of Electrochemical Corrosion"
Review of the current status of electrochemical corrosion theory
and its connection with chemical passivity.

1971-22 N.A. Mi'hailova, N.P. Zhuk, I.A. Barten'eva and A.V. Turkovskaya
"Mechanism Of Aluminum Corrosion In Acetic And Formic Acids And
Their Mixtures"
The corrosion and electrochemical behavior of Al in 43% formic
acid, 50% acetic acid and a ternary mixture contg. 33% acetic acid
+ 27% formic acid + 40% H₂O at 22° and 50°.

1971-23 L. Milicka
"Electrochemical Studies Of The Protective Effect Of Calcium Sac-
charate During The Dissolution Of Aluminum In Sodium Hydroxide"
Use of Ca saccharate as an inhibitor of the dissolution of Al in
strong alkalies.
1971-24 R. Natarajan and A.D. Purchit
"Corrosion Of Metals In Brackish Waters"
Behavior of mild steel, cast iron, Cu, brass, Zn, Al
and Sn solder under static and circulating conditions.

1971-25 C.C. Nathan and C.L. Dulaney
"Statistical Concepts Facilitate Evaluation Of Corrosion
Inhibitors"
Statistical concepts to facilitate evaluation of corrosion
inhibitors.

1971-26 B.D. Oakes and J.S. Wilson
"Sea Water Corrosion Control By Environment Modification II"
Use of Na₂CrO₄ (3ppm) + Na₂CO₃ as a corros. inhibitor for Al
in desalination plants.

1971-27 I.M. Orudzheva; S.A. Rasuljva, Z.M. Jalamzade, A.M. Kyazimov
and S.A. Sultanova
"Amides Of Phosphorous And Triphosphoric Acids As Corrosion
Inhibitors For An Aluminum Alloy In Alkaline Solutions"
The inhibiting effects of amides of phosphorous and tri-
phosphoric acids on the corrosion of Al alloy D-16T.

1971-28 M.J. Pryor
Corros. Sci., 11, 463, (1971)
"Study Of The Pitting Corrosion Of Aluminum By Scanning
Electron Microscopy Comments"
Comments on Richardson & Wood theory of pitting of Al in
Cl⁻ electrolytes by anodic attack at various suggested flaws.

1971-29 K.S. Rajagopalan, P. Annamalai, M. Sundaram, C. Rajagopal and
V. Chandrasekaran
"Atmospheric Corrosion Of Metals At Mandapam Camp, India"
Corrosion studies of mild steel, ccm. pure Zn, Cu, 60-40
brass, com. pure Al and 18-8 stainless steel in tropical
marine locations.

1971-30 P.R. Shibad, and J. Balachandra
"Corrosion Of Some Alloys In 3% NaCl Solution"
The influence of temp., agitation and oxygenation on the cor-
rosion of com. Al alloys (2S, 3S and 57S), Al, brass, 304 stain-
less steel, and Ni cast iron in 3% NaCl Solutions.

1971-31 O.F. Shevchenko
Zashch. Metal., 7, 434-6, (1971)
"Effect Of The Removal Of Corrosion Products And Growths On
The Corrosion Of Metals In Seawater"
Effects of the removal of corrosion products and growth on
the corrosion of metals immersed in seawater.
1971-32 S.S. Sampat, J.C. Vora and A.M. Trivedi
Indian J. Technol., 9, 74, (1971)
"Sodium Diethylidithiocarbamate as an Inhibitor for The
Corrosion of Aluminum by Trichloroacetic"
Use of sodium diethylidithiocarbamate as an inhibitor of
the corrosion of Al in trichloroacetic acid.

1971-33 Yu. N. Shekhter, S.E. Krein, L.N. Tetevina, E.V. Fertman
and E.S. Churshukov
"Reaction of Polarity and Protective Properties of Oil-
Soluble Corrosion Inhibitors"
Synergism of protective effects on ferrous and non-ferrous
metals by combining anodic, cathodic and shielding inhibitors.

1971-34 N. Subramanyan and K. Ramakrishnaiah
"Effect of Alkaloids on the Corrosion of Aluminum"
Study of 5 alkaloids, brucine, strychnine, narcotine,
ephedrine and papaverine in reducing the corrosion of
Al in HCl and NaOH.

1971-35 N. Subramanyan, V. Kapali and S.V. Iyer
"Influence of Hydroxy Compounds on the Corrosion and
Anodic Behaviour of Aluminum in Sodium Hydroxide Solutions"
Effect of different hydroxy compounds on the suppression
of Al corrosion in 0.01 and 0.1 M NaOH.

1971-36 N. Subramanyan and V. Kapali
Corros. Sci., 11, 55-7, (1971)
"Difference in the Effects Produced by Nonradioactive
and Radioactive Calcium"
Inhibition mechanism of the corrosion of Al 2S in an
alkaline soln. by Ca and citrate ions.

1971-37 Z. Szklarska - Smialowska, "Inhibitors of Metal Corrosion",
Wyd Nauk-Tech.: Warsaw, Pol. (1971)

1971-38 W. Von Baecckmann, F. Gisen and D. Funk
"Breaks Caused by Corrosion Pitting"
Application of cathodic protection to pitted surfaces to
inhibit corrosion.

1971-39 J. Vosta and J. Eliasek
"Corrosion Inhibition from the Aspect of Quantum Chemistry"
Selection and quant. evaluation of corrosion inhibitors
from a quantum-chem viewpoint.
Desalination, 9, 245-58, (1971)
"Corrosion Of Aluminum Alloys In Hot Brine"
Corrosion of Al and its alloys in flowing acid-treated brine at 120° and 140°.

1971-41 B.A. Wilson
Corros. Sci., 11, 527, (1971)
"Identification Of Inhibitor Films On Aluminum In Silicate Solutions"
Electron diffraction examination of corrosion-inhibiting films stripped from pure Al substrates that had been immersed in silicate solutions.

1971-42 M. K. Zagoruiko, G.V. Mashtakova and V.P. Barannik
"Effect Of Double Bonds On The Anti-Corrosion Action Of Carboxylic Acid Salts"
Study of Na salts of succinic and fumaric acids as water corrosion inhibitors for ferrous and non-ferrous metals.
1972-1 J.D. Alekseenko, I.K. Maroshkov, A.P. Karavaeva and T.I. Koroleva
"Corrosion of Desalted Water Used for the Technological Cleaning of Metallic Products"
The rate of corrosion of several metallic materials caused by a desalinated cleaning water.

1972-2 O.P. Arora, and M. Mezger
"Corrosion Anisotropy in Aluminum"
Corrosion of Al in 16% HCl with particular attention to orientation.

1972-3 R.D. Armstrong and H.R. Thirsk
"Effect of Thin Anodic Films on Metal Dissolution"
The effect of anion adsorption and thin anodic film formation on metal dissolution.

1972-4 F.D. Bogar and R.T. Foley
"Influence of Chloride Ion on the Pitting of Aluminum"
Identification of the primary intermediate species in the corrosion of Al immersed in saline solutions.

1972-5 M.N. Desai
"Corrosion Inhibitors for Aluminum Alloys"
A review on corrosion inhibitors of the alloys Al-2S, Al-3S, Al-57S, and Al65S in HCl, H2SO4, H3A, H2C2O4, and NaOH.

1972-6 M.N. Desai
Anti-Corros. Methods Mater., 19, 21, (1972)
"Corrosion Inhibitors for Aluminum in Hydrochloric Acid. Vanillan on Aluminum 2S, 57S and 65S"
Use of vanillan for corrosion protection of various Al alloys in 1-2 N HCl.

1972-7 M.N. Desai and R.P. Patel
Anti-Corros. Methods Mater., 19, 12, (1972)
"Aromatic Amines as Corrosion Inhibitors for Aluminum 3S In Hydrochloric Acid"
The use of chloranilines and anisidines as inhibitors of the corrosion of Al-3S in HCl.

1972-8 M.N. Desai and S.M. Desai
Anti-Corros. Methods Mater., 19, 17, (1972)
"Corrosion Inhibitors for Al in HCl. 3 Anilines for Aluminum 65S"
The corrosion inhibition of Al-65S in HCl by anilines and N-substituted anilines.
1972-9 M.N. Desai, S.H. Desai and M.H. Gandhi
J. Inst. Chem., Calcutta, 44(Pt1), 14, (1972)
"Molecular Structure Of Amines And Their Inhibitive
Action On The Corrosion Of Aluminum 65-S In Hydro-
chloric Acid"
Use ethylenediamine as an inhibitor of the corrosion
of Al in HCl.

1972-10 A.A. El Hosary, R.M. Saleh and A.M.S. El Din
Corros. Sci., 12, 897, (1972)
"Corrosion Inhibition By Naturally Occurring Substances.
I. Effect Of Hibiscus Subdariffa (Karkade) Extract On
The Dissolution Of Aluminum And Zinc"
Study of retardation of the dissolution of Al and Zn in
NaOH and HCl by aqueous extract of Hibiscus subdariffa
(Karkade or Roselle).

1972-11 P. Feuillat
Trait. Surface, 13, 37, 39, (1972)
"Chemical Treatment Of Aluminum"
Passification of Al surfaces by treatment with chromate
solutions.

1972-12 T. Hori, K. Yano and H. Uchida
Bosei Kanri, 16, 536, (1972)
"Performances Of Commercial Corrosion Inhibitors For
Radiators"
Study of 10 soln inhibitors and 15 colloidal inhibitors
on the corrosion of Al, cast iron and steel.

1972-13 Ching-Fung Huang and Mou-Lung Cheng
Shih You Tsuan T'sai Kung Ch'eng, 13, 220, (1972)
"Electrochemical Corrosion Of Metals And Its Control"
Methods of controlling corrosion by increasing passivity,
addn of lining, addn of drying agent, increasing polarity,
etc. are described.

1972-14 S.V. Iyer and N. Subramanyan
"Influence Of Some Organic Acids And Calcium On The
Corrosion And Anodic Polarization Of Al In 1 M NaOH
Solin"
The influence of aliphatic and aromatic acids on the
corrosion and anodic behaviour of Al-2S.

1972-15 H. Kaesche
"Electrochemical Methods Of Corrosion Protection"
A discussion of electrochemical methods of corrosion
protection with respect to fundamental aspects, criteria
of safe protections, and possible causes of failure.
1972-16 V. Kapali and N. Subramanyan
"Ketones And Ethers As Inhibitors For 2S Aluminum In 1N HCl"
The effects of some ketones and ethers on the self corrosion and anodic/cathodic polariz. of 2S Al in N HCl in the presence/absence of Ca++. 

1972-17 M. Krishnan and N. Subramanyan
"Effect Of Some Aldehydes On The Corrosion And Polarization Of Aluminum In HCl"
Effects of some aldehydes on the corrosion of Al in 1.0 M HCl.

1972-18 L. Kawano, N. Baba and S. Tajana
Denki Kagaku, 40, 29-32, (1972)
"Radioactive Tracer Study Of Inhibitive Action Of Chromate Ions On An Aluminum Surface"
Behaviour of CrO$_4^{2-}$ ions, inhibiting the corrosion of Al specimens in chloride soln., was investigated by using Cr tracer.

1972-19 L. Kawano, N. Baba and S. Tajima
Denki Kagaku, 40, 632-6, (1972)
"Radioactive Tracer Study Of Inhibitive Action Of Chromate Ions For Reactions Occurring On The Aluminum Surface II."
Inhibitive action of chromate ion on an Al surface was studied in 10$^{-4}$ M Na$_2$ CrO$_4$ (pH 6.5) radioactive soln. using Cr as a tracer.

Vop Mitalloved, Korroz., 261-7, (1972)
"Corrosion Of Alloys Under Conditions Of A Seaside Humid Subtropical Climate"
Corrosion of steels (Kh17, St. 3, 1Kh18N9T) and Fe-Cr-Na, Al, and Ti alloys

1972-21 Y. Li, S. Chen and C. Huang
'Tai-wan Lu Yeh Ku Fen Yu Hsien Kung Szu Yen Chin Fa Chan King Tso Pao Kao, 71-99, (1972)
"Corrosion Test Of Aluminum & Aluminum Alloys In Sea Water"
Corrosion of Al and its alloys in underground areas in the presence of water, oil or steam at 150°.

1972-22 E.Y. Lyublinskii and N.N. Bibikov
Zashch. Metal', 8, 36-9, (1972)
"Cathodic Processes Parameters Of The Protection Of Aluminum & Its Alloys In Sea Water"
1972-23  J.M. Moreau  
"Corrosion Of Aluminum By Liquid Ammonia"  
Corrosion of aluminum by liquid NH₃ and an  
assessment made of various methods of pro-  
tection of the material against this form of attack.

1972-24  M. Pourbaix  
"Significance Of Protection Potential In Pitting,  
Intergranular Corrosion And Stress-Corrosion Cracking"  
Significance of protection potential under conditions  
of restricted diffusion.

1972-25  S.N. Prajapati, K.P. Soni and A.M. Trivedi  
Indian J. Technol., 10, 73, (1972)  
"2-Mercaptobenzothiazole As A Corrosion Inhibitor  
For Cu, Brass And Al In Halogen Substituted Acetic  
Acid"  
Inhibitive action of 2-mercaptobenzothiazole against  
the corrosion of Cu, brass and Al in 0.1 N chloro-  
substituted acetic acid.

1972-26  T.L. Rama Char  
"Corrosion-Resistant Nonferrous Metals And Alloys  
In The Chemical Industry"  
A review of the corrosion resisting characteristics  
of the alloys of Ti, Al, Cu, Ni and rarer metals. 160 refs.

1972-27  T.L. Rama Char and R.P. Dambal  
"Aluminum In Corrosion Prevention By Cathodic Protection"  
A review showing the importance of Al, composition and  
performance of anode installation, principles and design  
aspects, recent applications and scope of the method.

1972-28  F.M. Rheinhart, and J.E. Jenkins  
"Corrosion Of Materials In Surface Sea Water After 12  
And 18 Mths. Of Exposure"  
Compilation of data from the immersion of 1150 spe-  
cimens of 189 different alloys immersed in surface sea  
water for 12 and 18 months.

1972-29  I.L. Rozenfield, M.N. Ronzhin and V.G. Pedanova  
Zashch. Metal., 5, 560-2, (1972)  
"Effect Of Temp. On The Pit Formation Potential Of  
Aluminum And Its Alloys"
1972-30 R.M. Saleh and A.A. El Rosary
"Corrosion Inhibition By Naturally Occurring Substances.II. Effect Of Pomegranate Juice And The Aqueous Extract Of Pomegranate Fruits And Tea Leaves On The Corrosion Of Aluminum"
The effect of the juices and tea leaves on the dissolution of Al in 2N HCl and 1.5M NaOH.

1972-31 N. Subramanyan and K. Ramakrishnaiah
"Radiotracer Study Of The Adsorption Of Dibutyl Sulfide By Copper, Mild Steel, Zinc And Aluminum In Normal H_2SO_4."
Adsorption of Bu,S by Cu, mild steel, Zn and Al in N H_2SO_4 using radioactive S.

1972-32 N. Subramanyan and M. Krishnan
"Corrosion And Anodic Polarization Behaviour Of Aluminum In Sodium Hydroxide Soln Containing Sucrose Or Allied Products With Or Without Calcium"
The effect of sucrose, glucose, fructose, mannose, and mannitol on the corrosion and anodic polarization of Al-2S in M NaOH in the presence of Ca.

1972-33 A.K. Vijh
Corros. Sci., 12, 105, (1972)
"Corrosion Potentials Of Some Common Metals In Oxygenated Solutions In Relation To Semiconductivity Of The Corrosion Films"
The role of estd. semicond. of corrosion films in the detn of the magnitudes of open-circuit corrosion potentials of Cu, Sn, Al, Ni, Fe, Zn and Pb in Cl^- solutions.

1972-34 R. Winand
Metallurgie, 12, 122, (1972)
"Fundamental Aspects Of Anodic Oxidation Of Metals. Anodization"
A review on the anodic behaviour of metals based on thermodynamic, kinetic, and morphological conditions.

1973-1  R. Alwitt and L.C. Archibald  
"Hydrous Oxide Film On Al Immersed In Warm Water"  
Scanning electron microscopy was used to examine films produced on electropolished 99.99% Al immersed in H₂O contg. dissolved 0 from air at 40°C.

1973-2  T.A. Buraya, I.V. Turkovskaya and Yu. M. Zhuk  
_Zashch Metal.,_ 9, 35, (1973)  
"Corrosion Of Aluminum And A Mg-3 and A Mte Alloys In Cu'Side Containing Aqueous Solutions Of Ethylene Glycol"  
An electrochemical evaluation of the corrosion resistance of Al and Al alloys in aq. ethylene glycol solns containing chloride ions.

1973-3  A.V. Byalobzheskii, G.M. Anurova and O.P. Darovskikh  
"Use Of Gas Chromatography For Studying The Corrosion Of Metals In Water Of High Temp."  
Use of gas chromatography to study the corrosion of metals in water at high temperatures.

1973-4  S. Ciolac and P. Matei  
"Anticorrosive Protection Methods Based on Metal Passivity Property"  
A review w/43 refs.

1973-5  C.P. Cherepanov  
"Mechanics Of Corrosion Failure"  
A review is given with 44 refs. on the corrosion of steels, Ti and Al alloys.

"Alicyclic Compounds As Corrosion Inhibitors For Aluminum 3S In Hydrochloric Acid"  
Use of alicyclic compounds as inhibitors for Al 3S in HCl.

_Labdev Part A_, 11, 8, (1973)  
"Effect Of External Anodic Polarization On The Efficiency Of Corrosion Inhibitors for Al Alloys in HCl"  
An evaluation is given of various inhibitors, mostly amines, for Al alloys in HCl under the influence of ext. anodic pol.

1973-8  M.N. Desai, J.D. Talati and B.M. Patel  
"Colloidal Substances As Inhibitors Of Corrosion Of Aluminum 2S And 5S In Acetic Acid And Chloro-Substituted Acetic Acids"  
Use of colloidal substances as corrosion inhibitors for Al in acetic and chloro-substituted acetic acids.
1973-9 R. Graner and E. Wiedmer
"Behavior Of Aluminum At Cathodic Polarization"
Current-voltage curves of an Al-0.28% Fe alloy and highly pure Al in buffered M NaCl solns.

1973-10 K. Goto, Y. Shimiza and G. Ito
Keikinzoku, 23, 164-72, (1973)
"Pitting Corrosion Of Al In Synthetic Supplemented Water"
Corrosion behavior of pure Al in water containing Ca²⁺, Mg²⁺, HCO₃⁻, Cl⁻, SO₄²⁻ and free Cl.

1973-11 M. Magiwaru
Keikinzoku, 23, 471, (1973)
"Effects Of Some Ions In Water On The Pit Shape Of Aluminum"
Effects of some ions in water on the number of corrosion pits and the depths of these pits on Al.

Ana J. Belgrad, 38, 545-53, (1973)
"Properties Of The Oxide Layer On Anodized Aluminum Studied Under Corrosion Conditions"
A method was given for detn. of the thickness of anodized layer on Al (7429-90-5) by measuring the intensity of changes in the diffuse reflected light from the dyed surface.

1973-13 V. Ken
Inf. Chim., 123, 93, (1973)
"Corrosion Inhibitors In Acid Medium"
The mechanism of acid attack, the mechanism of corrosion inhibition and different types of corrosion inhibitors are discussed.

1973-14 Ya. M. Kolotyrkin
"Scientifica And Technical Problems Of Controlling The Corrosion Of Metals"
Presentation of the general aspects of scientific and technical problems of metal corrosion in the USSR.

1973-15 E. Ya. Lyublinski
"Criteria To Evaluate And Protect Metals From Corrosion"
Criteria to evaluate materials for electrochem. protection of steel and Al alloy.

"Effect Of Some Thio Compounds On The Corrosion Of Aluminum In Hydrochloric Acid Solutions"
Use of some thio compounds as corrosion inhibitors for 3S Al in 0.5 M HCl.
"Influence Of Aldehydes On The Corrosion Of 3S Aluminum In HCl Solutions"
The corrosion inhibiting effects of aldehydes on the corrosion of Al-3S in 0.5 N HCl.

"Action Of Thioureas As Corrosion Inhibitors For 3S Aluminum In HCl Solution"
Action of some thioureas as corrosion inhibitors for Al 3S in HCl solutions.

Indian J. Technol., 11, 135, (1973)
"Inhibitory Action Of Some Organic Thiocompounds Towards 3S Aluminum In HCl Solutions"
The influence of some organic thiocompounds on the corrosion rate of 3S Al in 0.5 N HCl solutions.

1973-20 Y.V.V.R.S. Murty, T.Z. Kattamis and O.F. Devereux
Met. Trans., 4, 2575, (1973)
"Effect Of Solidification Microstructure On The Corrosion Behavior Of A Columar Al-Cu Alloy"
Evaluation of the morphology and kinetic nature of corrosion of directionally solidified Al-4.5 wt% Cu.

1973-21 N. Ohtani, Y. Fujishima, W. Sato, and K. Ito
Technol., Nagoya, (Japan), (1973)
"Effect Of Stress And Surface Film On The Anodic Dissolution Of Aluminum Alloys"
The mechanism of anodic dissoln. of various heat treated Al alloys under plastic deformation was examd. in a 1% NH₄ borate soln.

1973-22 N.K. Patel and S.C. Makwana
Werkst. Korros., 24, 964, (1973)
"Action Of Phenols On The Corrosion Of 3S Al in HCl Solns"
The inhibitor effect of some phenols on the corrosion of Al-3S in HCl.

1973-23 A.H. Roebuck
"Corrosion Inhibitors"
Edited by C.C. Nathan, MACE: Houston (1973)
Corrosion inhibitors for Al in a wide range of acidic and alk. environments.

1973-24 W. Sato
Mizu Shori Gijutsu, 14, 165, (1973)
"Corrosion And Corrosion Control Of Metals"
A review.
1973-25 K. Sugimoto and Y. Savada
Nippon Kinzoku Gakkaihi, 37, 148-55, (1973)
"Relations Between The Polarization Characteristics Of
Aluminum Intermetallic Cpds & The Corrosion Morphology
Of Binary Aluminum Alloys"
The potentials of binary Al alloys (Al-0.5% Fe, Al-0.5% Ni,
Al - 0.5% Mn, & Al-4% Cu) & the polarization curves of pure
Al (99.999% Al) & Al intermetallic cpds.

1973-26 H. Weber
Schweiz. Alum. Rundsch., 23, 201-6, (1973)
"Corrosion & Surface Protection Of Aluminum Automatic Machine
Alloys"
The types of corrosion to which Al alloys are subject are re-
viewed. Methods of protection are described with special ref.
to anodizing. Applications of Al alloys in the food industry
are given. No refs.
1974-1 S.A. Awad, Kh. M. Kamel and A. Kassab
"Corrosion behaviour of aluminum in phosphate solutions"
The potential of the Al (7429 - 90 - 5) electrode was measured at 30° in 5 x 10^{-4} M aq. phosphate (14265 -44 -2) solns. as a function of pH and electrolyte concn.

1974-2 A. Becerra and R. Darby
"Influence of Copper Bicarbonate Ions on the Corrosion of Aluminum Alloy in Saline Solutions"
Corrosion rate studies of 3 Al. alloys (1100, 5052, 6063) were conducted in saline solns.

1974-3 P.L. Bonora, G.P. Ponzano and V. Lorenzelli
"Localized Corrosion of Al and its Alloys. I. Critical Potential, E_p, with respect to Pitting"
Determination of the critical potential for Al and its alloys with Si and Zn in 0.5 M NaCl at pH 2 and pH 6.

1974-4 P.L. Bonora, G.P. Ponzano and V. Lorenzelli
"Localized Corrosion of Aluminum and Its Alloys. II. Influence of Environment"
Corrosion of Al and its alloys in 0.5 M HCl and 0.5 M NaCl.

1974-5 M.N. Desai and R.R. Patel
"N-Substituted Anilines as Corrosion Inhibitors for Aluminum -3S in HCl"
Study of N-substituted anilines as corrosion inhibitors for Indal 3S (11146-15-9) in HCl solns.

1974-6 A. Broli, H. Holtan and K.L. Prestrud
"Use of Galvanokinetic Methods for the Determination of Characteristic Potentials for Pitting Corrosion on Aluminum"
Use of galvanokinetic methods to det. the pitting potential and protection potential against pitting for unalloyed Al in a deaerated soln of 3% NaCl at 0° and 30°.

1974-7 V.V. Ekilik, V.P. Grigor'ev, G.N. Ekilik and N.M. Gontmakher
"Effect of the Nature of a Solvent on the Inhibiting Effect of Some Organic Compounds in HCl-Alcohol Systems"
Use of pyridine derivatives or perylium perchlorates to inhibit corrosion of Fe, Al and Zn in 0.5-4.0 M HCl.

1974-8 F.E. Faller
"Corrosion behaviour of aluminum in sea water and brackish waters with special reference to shipbuilding conditions"
The importance of the low electro-chem. potential of Al. & phy. chem. properties of Al. oxide on the corrosion resistance of Al. are reviewed with 8 refs.
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1974-17  V.P. Kassyura and E.M. Zaretski  
"Effect Of Magnesium On The Anodic Behavior Of Aluminum  
Magnesium Alloys In Alkaline Nitrate Solutions"  
Mg effect on the corrosion rate of Al-Mg alloys in alk-  
nitrate solns was determined by studying the anodic be-  
havior of this system.

1974-18  B.S. Lee, M. Seno and T. Asahara  
Kinzoku Hyomen Gijutsu, 25, 393, (1974)  
"Vapor Phase Corrosion Inhibitors. 4. Effects Of Various  
Sub-Components On The Corrosion-Inhibiting Action Of  
Hexamethylenetetramine On Aluminum"  
Investigation of vapor-phase corrosion-inhibiting papers,  
powders, tables and oils for Al.

1974-19  R.T. Lawson  
"Al Corrosion Studies. I. Potential-pH-Temperature  
Diagrams For Aluminum"  
The potential-pH-temp. relation for the Al-H2O system  
were calc'd. by the methods of Bethune,Khodakovskiy,  
Criss & Cobble and Welgeson & a crit. comparison made.

1974-20  T.J. Lennox, M.R. Peterson, J.A. Smith and R.E. Groover  
"Corrosion And Cathodic Protection Of 5086-H32 Aluminum  
Coupled To Dissimilar Metals"  
Study of corrosion of 5086-H32 aluminum in various en-  
vironments.

1974-21  M. Lommel  
"Corrosion Behavior And Corrosion Protection Of Light  
Metal Alloys In Shipbuilding & Similar Applications"  
The corrosion behavior of Al and its alloys in ship-  
building is reviewed with 7 refs. The effect of struc-  
ture, compn., heat treatment, welding & contact with  
other metals is considered.

1974-22  V.A. Makavov  
"Anodic Electrochemical Protection"  
A review w/194 refs.

1974-23  A. Maitra and S. Barua  
"Dicyandiamide. Inhibitor For Acid Corrosion Of Pure  
Aluminum"  
Inhibition efficiency of dicyandiamide an Al in 0.5-2.0  
N HCl at 27° for 1-6 hrs.
1974-24  M. Marek and R.F. Hochman  
"Stimulated Crevice Corrosion Expt. For pH And Solution Chemistry Determination"  
Crevice corrosion in dental amalgam

1974-25  T.L. Rama Char  
"Aluminum Corrosion And Metal Finishing Bibliography Of Publications"  
A list of 83 papers published from the electrochem. labs of the world covering various aspects of the use of Al(7429-80-5).

1974-26  B. Sanyal, et. al.  
"Corrosion Of Metal In Different Chemical Environments And Its Protection"  
Corrosion of Al, steels and bronzes in acids, water, sea water, cutting oil emulsions, detergents, petroleum and org. solvents is reviewed.

"Azoles As Corrosion Inhibitors For 3S Aluminum In Local Supply Water"  
Use of 2-mercaptobenzothiazole and 2-mercaptobenzimidazole as corrosion inhibitors for 3S Al in Gujarat Univ supply water.

1974-28  V.S. Sinyavskii, V.D. Val'Kov, G.M. Budov and V.D. Kalinin  
"Corrosion Resistance Of Al Alloys"  
Statistical study of the corrosion of Al alloys in sea water and in an industrial atm for 5 yrs.

1974-29  A. Soudan  
"Protection Of Metals And Light Alloys"  
A review is given of industrial Al and Mg alloys and of corrosion and its prevention.

1974-30  M. Subramanyan and K. Ramakrishnaiah  
"Effect Of Some Amino Acids In The Corrosion Of Al In 1M HCl"  
The influence of 10 amino acids on the corrosion of Al (7429-90-5) in 1 M HCl both in the presence and absence of Ca (7440-90-2).
1974-30 N. Subramanyan and K. Ramakrishnaiah
"Effect Of Some Amino Acids In The Corrosion Of Al in 1M HCl"
The influence of amino acids on the corrosion of Al (7429-90-5) in 1N HCl both in the presence and absence of Ca (7440-90-2).

1974-31 T. Suzuki
"Corrosion Inhibitors"
Types of inhibitors and their applications in various chem. and environmental processes are reviewed.

1974-32 J.D. Talati and J.M. Pandya
"Amines As Corrosion Inhibitors For B26S Al in H3PO4" The inhibition of corrosion of Al-Cu (4%) alloy B26S in 0.1 M solns of H3PO4 (7664-38-2) by different amines.

1974-33 S. Terai, Z. Tanabe and M. Hagiwara
Suiyokai-Shi, 18, 80, (1974)
"Corrosion And Corrosion Control Of Aluminum And Its Alloys. I"
A revi w/46 refs.

1974-34 S. Terai, Z. Tanabe and T. Suzuki
Suiyokai-Shi, 18, 80, (1974)
"Corrosion And Corrosion Control In Aluminum And Its Alloys. II"
A review w/84 refs is given on cathodic protection of Al, corrosion inhibitors and corrosion protection by surface treatment.

"Electrochemical Investigation Of Fretting Corrosion Of A Number Of Pure Metals In 0.5M Sodium Chloride" Free potential measurement supplemented by transient linear polarization was used to study the effect of fretting corrosion on Zn, Al, Ag, Ta, Cu, Cr, and Ni in 0.5 M NaCl.

1974-36 E.D. Verink, Jr.
"Aluminum Alloy For Saline Waters"
Work at an exp. desalting plant shows that Al alloys can handle saline water with min. corrosion.
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<th>Year</th>
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<td>1975-1</td>
<td>M. Izuyama</td>
<td>Bosei Kanri, 19, 22, (1975)</td>
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<td>&quot;Corrosion Inhibitors For Al And Their Applications&quot;</td>
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<td>A review on corrosion inhibitors for Al in acid, basic, neutral solns and alcohols.</td>
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<td>The effects of some aldehydes on the corrosion of Al AA 3003 in HCl solutions.</td>
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<td>&quot;Anodic Polarization Behavior And Pitting Corrosion Mechanism Of Aluminum In NaCl Soln&quot;</td>
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<td>Anodic polarization studies of 99.999% Al in 0.5 N NaCl soln of pH 4, 5, 8, 5, 10 and 12.</td>
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<td>&quot;Dihydroxy-benzenes As Corrosion Inhibitors For Al-Cu Alloy In NaOH&quot;</td>
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<td>Investigation of dihydroxy-benzenes as corrosion inhibitors of Al-4% Cu alloys in NaOH.</td>
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