

RETOUR AUX SOURCES

Coming back to original Carl Wagner's papers

CARL WAGNER BIBLIOGRAPHY ON METAL OXIDATION.

For a complete bibliography of Carl Wagner, please refer to « Carl Wagner – In Memorial », a paper by Prof. R. Rapp (Corrosion, 1978, Vol. 34, N°7, pp.219-225). The references given below were extracted from Rapp's paper.

Some brief comments in red colour.

- On the Theory of Scaling Reactions
Z. Phys. Chem. B, 1933, Vol. 21, p.42.
- Beitrag zur Theories des Anlaufvorganges
Z. Phys. Chem. B, (1936) Vol.32, p.447.
These two articles are the Wagner's seminal papers predicting the parabolic time dependance under assumptions of local equilibrium and quasi steady state.
- Elementarvorgänge bei der Bildung von Metalloxyd aus Metall und Sauerstoff sowie bei verwandten Reaktionen.
Angewandte Chemie, 1936, Vol. 49, p. 735.
- Die oxydationsgeschwindigkeit von Nickel bei kleinen Zusätzen von Chrom und Mangan mit K.E. Ziemens
Acta Chimica Scandinavica, 1947, Vol.1, p. 547 .
Effect of scale doping
- Reactions of Metals and Alloys with Oxygen, Sulfur and Halogens at high Temperatures
Corrosion and Material Protection, 1948, Sept-Oct, p.9.
- Diffusion and high Temperature Oxidation of Metals
Atom Movements, 1951, an ASM Seminar, p.153.
Extending the calculation of the oxidation rate constant to self diffusion coefficients
- Mechanisms of the Reduction of Oxides and Sulfides to Metals
Journal of Metals 1952, Vol.4, p. 214.
- Theoretical Analysis of the Diffusion Processes determining the Oxidation Rates of Alloys.
J. Electrochem. Soc 1952, Vol. 99, p. 369.
- Oxidation of Cobalt Metal
Journal of Metals 1955, Feb. p. 336.
- Oxidation of Tungsten
With W.W. Webb, and J.T. Norton
J. Electrochem. Soc , 1956, Vol.103, p. 107.
- The Oxidation of Alloys involving noble Metals
J. Electrochem. Soc 1956, Vol. 103, p.571.
- The Formation of Composite Scales consisting of Oxides of different Metals
J. Electrochem. Soc 1956, Vol.103, p. 627.
- Local Cell Action during the Scaling of Metals
with Ch. Ilschner-Gensch
J. Electrochem. Soc 1958, Vol.105, p. 198.
- Passivity during Oxidation of Silicon at elevated Temperatures
J. Appl.Phys 1958, Vol. 29, p. 1295.
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- Mindestgehalte von Legierungsbestandteilen für die Bildung von Oxydschichten hoher Schutzwirkung gegen Oxydation bei höheren Temperaturen
mit F. Haak
Werkstoffe und Korrosion, 1961, Vol. 12, p. 273.

- Passivity and Inhibition during Oxidation of Metals at elevated Temperatures
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Role of ternary alloy components
- Überlegungen zum Übergang vom linearen zum parabolischen Zeitgesetz der Oxydation eines Metalls zu einem Oxyd mit Metall deficit.
Ber. Bunsen. Physik. Chem. 1966, Vol. 70, p. 775.
- Internal Oxidation of Cu-Pd and Cu-Pt Alloys
Corrosion Science, 1968, Vol. 8, p. 889.
Combined internal and external oxidation of the same component
- The Distribution of Cations in Metal Oxides and Metal Sulfide solid Solutions formed during the Oxidation of Alloys
Corrosion Science, 1969, Vol. 9, p. 91.
Possibility of solid solution scales
- The Concept of the Virtual Maximum Rate of individual Steps in a Reaction Sequence
Z. PhysChem. N.F. Vol. 64, p. 49.
- Dissociation of Molecular O₂ as the rate determining Step during the Initial Stage of the Oxidation of Ni at 250°C.
Corrosion Science, 1970, Vol. 10, p. 641.
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- The Formation of thin Oxide Films on Metals
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- General Aspects of High Temperature Corrosion of structural Materials
AGARD Conf. Proc., 120, High Temperature Corrosion of Aerospace Alloys, 1973, p. 3-7.
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Ber. Bunsen. Phys. Chem. 1974, Vol. 78, p. 6-11.
- Equations for Transport in Solid Oxides and Sulfides of Transition Metals
Progr. Solid State Chemistry 1975, Vol. 10, p.3-16.
Diffusion analysis extended to include the Onsager coefficients of irreversible thermodynamics.