Balancing redox equations

Example

Balance the equation showing the oxidation of Fe²⁺ ions to Fe³⁺ ions by dichromate ions (Cr₂O₇²⁻) in an acidic medium

$$Fe^{2+} + Cr_2O_7^{2-} \rightarrow Fe^{3+} + Cr^{3+}$$

Step 1: Identify oxidising and reducing agents and write half reactions

Fe²⁺: +2
$$Cr_2O_7^{2-}$$
: 2Cr + 7(-2) = -2
Fe³⁺: +3 2Cr = 12
Cr³⁺: +3 Cr = +6

$$Fe^{2+} \rightarrow Fe^{3+}$$

Iron loses one electron, i.e. it is oxidised. It donates one electron to dichromate, i.e. it is the reducing agent.

$$Cr_2^{6+} \rightarrow Cr^{3+}$$

Chromium gains three electrons, i.e. it is reduced. It gains its electrons from iron, i.e. it is the oxidising agent.

Half equation: Reduction reaction: Cr26+ + 3e- → Cr3+

Analyzing Oxidation Reduction Reactions Answers

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Analyzing Oxidation Reduction Reactions Answers:

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Zhang, 2024-07-04 This is the Solutions Manual to accompany Fundamentals of Environmental Sampling and Analysis Second Edition It provides solutions to the exercises and problems found in the main volume This book introduces a comprehensive overview on the fundamentals and applications of environmental sampling and analysis for students in environmental science and engineering as well as environmental professionals involved in sampling and analytical work The book details fundamentals of sampling selection of standard methods QA QC sample preparation chemical and instrumental principles and method applications to various contaminants in environmental matrices air water soil waste and biological samples The book gives an integrated introduction to sampling and analysis both are essential to quality environmental data For example contrary to other books that introduce a specific area of sampling and analysis this text provides a balanced mix of field sampling and laboratory analysis essential knowledge in chemistry statistics hydrology regulations wet chemical methods for conventional chemicals as well as various modern instrumental techniques for contaminants of emerging concerns The new edition adds three standalone chapters regarding the basics of analytical and organic chemistry environmental data analysis mass spectrometry and other significant amounts of new materials such as time integrated passive sampling incremental sampling green sample preparation Raman spectroscopy chiral separation and non target analysis In addition the second edition provides more examples visual aids case studies and end of chapter exercise problems to enhance a better understanding of the fundamentals of environmental sampling and analysis while incorporating current literature mostly peer reviewed journal papers regarding the applications and challenges in the field of environmental sampling and analysis

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Julius Stieglitz,2020-08-13 Reproduction of the original The Elements of Qualitative Chemical Analysis vol 1 by Julius Stieglitz Agricultural Chemical Analysis Percy Frankland,1883 Handbook of Radioactivity Analysis Michael F.

CliffsNotes AP Chemistry Bobrow Test Preparation Services,2009-02-09 The book itself contains chapter length subject reviews on every subject tested on the AP Chemistry exam as well as both sample multiple choice and free response questions at each chapter s end Two full length practice tests with detailed answer explanations are included in the book

 $\begin{tabular}{ll} \it Technical Abstract Bulletin \ Defense \ Documentation \ Center \ (U.S.), 1963 & \underline{\it Methods for Collection and Analysis of Water} \\ \underline{\it Samples} \ Frank \ Hays \ Rainwater, Leland \ Lincoln \ That Cher, 1960 & A \ Manual \ for \ the \ Chemical \ Analysis \ of \ Metals \ , \\ \end{tabular}$

Electrochemical Methods for the Synthesis and Analysis of Advanced Functional Layers and Coatings Stephan Vladymirov Kozhukharov,2024-11-07 The content of this book is devoted to the synthesis of advanced nano materials and layers by application of electrochemical methods Examples for their applications in fuel cells batteries photovoltaics magnetic materials environmentally friendly anticorrosion coatings and surface pretreatments especially anodization are provided Cu metallization of non conductive substrates is proposed as well In addition electrochemical coating of copper surfaces by Ni Co Ni P Co P and Ni Co P alloys with catalytic and magnetic properties is described in detail The application of such layers is proposed PEMFC bipolar plates after additional coating by polytetrafluoroethylene The topic of the surface phosphatation is further extended by brief study of the properties of cesium dihydrogen phosphate for potential application in the fuel cell technology Meanwhile the Zn and Al anodization as metal surface treatment approach is also proposed Among the electrochemical analytical methods special attention is turned to Electrochemical Noise analysis Electrochemical Impedance Spectroscopy and to classical potentiodynamic scanning techniques

Nuclear Science Abstracts ,1976-05

Practical Hand book of Pharmaceutical Analysis Phoolsingh Yaduwanshi Reenu Yadav Prashanti Chitrapu, 2023-02-20

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