

Flame Test Lab

Activity Key

Background

The heat from a laboratory burner will cause the ions of some elements to give off light. Electrons will absorb the heat energy from the flame and will “jump” to a higher energy level. When the electrons return to their original energy levels, this absorbed energy is released as light. Different elements absorb and release different amounts of energy and thus produce different kinds of light. This light may be visible or invisible, infrared or ultraviolet radiation. Analysis of this light can be used to identify elements and molecules. In today’s lab, we will observe the visible range of light emission.

Objectives

1. Perform a flame test to identify the characteristic color of metal ions.
2. Identify the metal ion in an unknown solution.
3. Calculate the energy of emitted photons.

Materials: (per lab group)

10 ml dilute solutions of the following:

Barium Chloride
Calcium Chloride
Lithium Chloride
Potassium Chloride
Sodium Chloride
Strontium Chloride
Unknown Solution

7 Wood Splints

1 Bunsen Burner

Safety Goggles & Aprons

Note:

If chloride compounds are not available, metal nitrate compounds may be substituted.

Use dilute or approximately 0.1 M solutions

Unknowns:

Number the beakers 1-12.

Add solutions as follows:

1. Strontium Chloride

2. Calcium Chloride

3. Potassium Chloride

4. Barium Chloride

5. Lithium Chloride

6. Sodium Chloride

7. Calcium Chloride

8. Strontium Chloride

9. Barium Chloride

10. Potassium Chloride

11. Sodium Chloride

12. Lithium Chloride

Procedure

1. Put on your safety goggles and an apron.
2. Obtain a wood splint and the barium chloride solution.
3. Dip the wood splint into the solution and allow it to soak for 1-2 minutes.
4. Light Bunsen Burner. USE CAUTION!
5. Remove the splint from the solution and hold the end of the splint into the flame. Do not burn the splint.
6. Observe and record the color of the flame.
7. Repeat steps 2-6 using the remaining chloride solutions.
8. Obtain an unknown solution from your teacher. Record the number of your unknown.
9. Soak a wood splint in the unknown solution.
10. Hold the splint in the flame and record the color of the flame that is produced.
11. Using your data, identify the metal ion in your unknown solution.

Flame Test Lab Answer Key

Christian Drosten

A red circular graphic with a gradient, appearing as a semi-circle or a partial circle, located to the right of the author's name.

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look at student engagement and teacher best practices through the eyes of an educational researcher enrolled as a public high school student Over the course of seventy nine consecutive days John D Butler participates in and observes Rhode Island 2013 Teacher of the Year Jessica M Waters s high school chemistry class documenting his experiences as they unfold Who s the New Kid in Chemistry is a compelling example of what can be accomplished when an educational researcher and teacher collaborate in the classroom This work includes a discussion on flexible homework assignments data driven instruction and thirty teacher best practices This book is an invaluable resource for teachers across all content areas masters and doctoral research method classes and future Teachers of the Year

English Communication for International Teaching Assistants Greta Gorsuch, Colleen M. Meyers, Lucy Pickering, Dale T. Griffiee, 2016-08-26 In order to become successful communicators in undergraduate teaching environments in the United States nonnative English speaking graduate students require hands on and relevant practice Now in its second edition English Communication for International Teaching Assistants continues to provide constructive insights and versatile tools to facilitate such learning The authors convey the principals of cross cultural awareness within the classroom and emphasize the importance of discourse intonation in building rapport conveying meaning and structuring information The accompanying CD includes audio and video recordings of real teaching settings that can be examined and dissected for successful discourse intonation practices Dozens of applied exercises interactive tasks and skills building problems address communication proficiencies and deficiencies Readers will transcribe and evaluate their own conversations in order to acquire strategies to become more effective speakers and to resolve communication breakdowns with undergraduate students As a valuable tool the ITA Performance Test is included along with its developmental theory and guidelines for its use

Practical Chemistry Labs Leonard Saland, 1989 Features self contained step by step activities using common materials and covering topics from food chemistry to papermaking and electrochemistry Illustrates the connection between the real world and chemistry concepts such as solutions chemistry acids and bases and more Includes teacher notes quizzes and answers to help monitor student progress

Teacher Personal Theorizing Gail MacCutcheon, 1992-01-01 This book examines the relationship between teacher theorizing and teacher action as illustrated by the curricular and instructional practices of teachers The authors show that all teaching is guided by theory developed by the teachers Teachers could not begin to practice without some knowledge of the context of their practice and without ideas about what can and should be done in those circumstances In this sense teachers are guided by personal practical theories that structure their activities and guide them in making decisions This literature is very significant in explaining and interpreting many phenomena of schooling such as why teachers alter curriculum documents and other policies how inservice education can be improved how supervisors can help teachers to improve their practices and how administrators can become leaders to improve education This perspective has broad and specific implications for every facet of education Those interested in teacher education and development in supervision in curriculum

and in administration will find it especially relevant *Science*, 2001 Gourmet Lab Sarah Reeves Young, 2011 Hands on inquiry based and relevant to every student OCOs life Gourmet Lab serves up a full menu of activities for science teachers of grades 6 OCo12 This collection of 15 hands on experiments OCOeach of which includes a full set of both student and teacher pages OCOchallenges students to take on the role of scientist and chef as they boil bake and toast their way to better understanding of science concepts from chemistry biology and physics By cooking edible items such as pancakes and butterscotch students have the opportunity to learn about physical changes in states of matter acids and bases biochemistry and molecular structure The Teacher pages include Standards addressed in each lab a vocabulary list safety protocols materials required procedures data analysis student questions answer key and conclusions and connections to spur wrap up class discussions Cross curricular notes are also included to highlight the lesson OCOs connection to subjects such as math and literacy Finally optional extensions for both middle school and high school levels detail how to explore each concept further What better topic than food to engage students to explore science in the natural world **Laboratory Manual for Chemistry** Karen C. Timberlake, 1976 **Matter, Building Block of the Universe**, 1993 **Laboratory Test Handbook with Key Word Index** David S. Jacobs, 1988 **Gunky's Adventures** Jim Reuther, 2019-08-06 A few days after the passing of his beloved wife author Jim Reuther better known as Gunky discovered her extraordinary letter in a handwritten notebook titled How to Get Along Without Me The notebook was a simple How to Guide for the tasks she had done faithfully for him until the end But one request stood out she challenged him to continue his writings In Gunky s Adventures Reuther features a collection of twenty five tales one for each letter of the alphabet beginning with his late wife s note Afterlife Love Letter and Wish Ranging from the humorous to tear jerkers to odd happenings and surprise endings to musings on rock and roll to stories about family friends foes and fails he reflects on an array of life experiences His first poems ever written are included under the title of Xtraordinaire Silent Sentinels Narrating a life hearted series of alphabetic escapades Gunky s Adventures offers an anthology of poems and short stories reflecting on a life wonderfully lived Side Impact Padding Integration Study. Final Report Michael W. Monk, 1981 *Toxicological Risks of Selected Flame-Retardant Chemicals* National Research Council, Commission on Life Sciences, Board on Environmental Studies and Toxicology, Committee on Toxicology, Subcommittee on Flame-Retardant Chemicals, 2000-07-06 Ignition of upholstered furniture by small open flames from matches cigarette lighters and candles is one of the leading causes of residential fire deaths in the United States These fires accounted for about 16% of civilian fire deaths in 1996 On average each year since 1990 about 90 deaths primarily of children 440 injuries and property losses amounting to 50 million dollars have resulted from fires caused by the ignition of upholstered furniture by small open flames Certain commercial seating products such as aircraft and bus seats are subject to flammability standards and sometimes incorporate FR treated upholstery cover materials but there is no federal government requirement for residential upholstered furniture and it is generally not treated with FR chemicals It is estimated that less

than 0.2% of all U.S. residential upholstery fabric is treated with flame retardant FR chemicals. The Consumer Product Safety Act of 1972 created the U.S. Consumer Product Safety Commission (CPSC) as an independent federal regulatory agency whose mission is to protect the public from unreasonable risks of injury and death associated with consumer products. CPSC also administers the Flammable Fabrics Act under which it regulates flammability hazards and the Federal Hazardous Substances Act (FHSA) which regulates hazardous substances including chemicals. In 1993, the National Association of State Fire Marshals petitioned CPSC to issue a performance based flammability standard for upholstered furniture to reduce the risk of residential fires. The Commission granted that portion of the petition relating to small open flame ignition risks. In response to concerns regarding the safety of FR chemicals, Congress in the fiscal year 1999 appropriations report for CPSC requested that the National Research Council conduct an independent study of the health risks to consumers posed by exposure to FR chemicals that are likely to be used in residential upholstered furniture to meet a CPSC standard. The National Research Council assigned the project to the Committee on Toxicology (COT) of the Commission on Life Sciences Board on Environmental Studies and Toxicology. COT convened the Subcommittee on Flame Retardant Chemicals which prepared this report. Subcommittee members were chosen for their recognized expertise in toxicology, pharmacology, epidemiology, chemistry, exposure assessment, risk assessment, and biostatistics. *Toxicological Risks of Selected Flame Retardant Chemicals* is organized into 18 chapters and two appendices. Chapter 2 describes the risk assessment process used by the subcommittee in determining the risk associated with potential exposure to the various FR chemicals. Chapter 3 describes the method the subcommittee used to measure and estimate the intensity, frequency, extent, and duration of human exposure to FR chemicals. Chapters 4-19 provide the subcommittee's review and assessment of health risks posed by exposure to each of the 16 FR chemicals. Data gaps and research needs are provided at the end of these chapters.

Scientific and Technical Aerospace Reports, 1995. Microgravity Combustion Howard D. Ross, 2001-09-03. This book provides an introduction to understanding combustion, the burning of a substance that produces heat and often light in microgravity environments, i.e., environments with very low gravity such as outer space. Readers are presented with a compilation of worldwide findings from fifteen years of research and experimental tests in various low gravity environments including drop towers, aircraft, and space. Microgravity Combustion is unique in that no other book reviews low gravity combustion research in such a comprehensive manner. It provides an excellent introduction for those researching in the fields of combustion, aerospace, and fluid and thermal sciences. An introduction to the progress made in understanding combustion in a microgravity environment. Experimental, theoretical, and computational findings of current combustion research. Tutorial concepts such as scaling analysis. Worldwide microgravity research findings.

Power Practice: Physical Science, eBook Beth Barber, 2004-09-01. This book supplements and enriches classroom teaching to enhance students' understanding of vocabulary, functions, and fundamental processes of physical sciences work. Topics include force and motion, chemistry, atoms and elements, scientific process, simple machines.

energy light and sound magnetism and electricity

The book delves into Flame Test Lab Answer Key. Flame Test Lab Answer Key is a vital topic that needs to be grasped by everyone, ranging from students and scholars to the general public. This book will furnish comprehensive and in-depth insights into Flame Test Lab Answer Key, encompassing both the fundamentals and more intricate discussions.

1. This book is structured into several chapters, namely:
 - Chapter 1: Introduction to Flame Test Lab Answer Key
 - Chapter 2: Essential Elements of Flame Test Lab Answer Key
 - Chapter 3: Flame Test Lab Answer Key in Everyday Life
 - Chapter 4: Flame Test Lab Answer Key in Specific Contexts
 - Chapter 5: Conclusion
2. In chapter 1, the author will provide an overview of Flame Test Lab Answer Key. This chapter will explore what Flame Test Lab Answer Key is, why Flame Test Lab Answer Key is vital, and how to effectively learn about Flame Test Lab Answer Key.
3. In chapter 2, the author will delve into the foundational concepts of Flame Test Lab Answer Key. The second chapter will elucidate the essential principles that must be understood to grasp Flame Test Lab Answer Key in its entirety.
4. In chapter 3, the author will examine the practical applications of Flame Test Lab Answer Key in daily life. The third chapter will showcase real-world examples of how Flame Test Lab Answer Key can be effectively utilized in everyday scenarios.
5. In chapter 4, this book will scrutinize the relevance of Flame Test Lab Answer Key in specific contexts. This chapter will explore how Flame Test Lab Answer Key is applied in specialized fields, such as education, business, and technology.
6. In chapter 5, this book will draw a conclusion about Flame Test Lab Answer Key. This chapter will summarize the key points that have been discussed throughout the book.

The book is crafted in an easy-to-understand language and is complemented by engaging illustrations. It is highly recommended for anyone seeking to gain a comprehensive understanding of Flame Test Lab Answer Key.

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