

## 1: Aspirin Synthesis Lab Analysis

*Results of the Synthesis Group report: hearing before the Subcommittee on Space of the Committee on Science, Space, and Technology, U.S. House of Representatives, One Hundred Second Congress, first session, July 10,*

It was thin, short white crystals and had a melting point range of degrees Celsius. This was a white powder and had a melting point range of degrees Celsius. Discussion To confirm that the final product of the synthesis was aspirin, an IR spectrum of the product was taken. This spectrum showed a broad peak at Hydroxyl groups tend to show characteristic peaks between  $\text{cm}^{-1}$  The Nujol contains many hydrocarbons which produce a very strong peak in the range. The structure of aspirin also indicates that there should be a peak for a carbonyl ester, and a carbonyl acid. These peaks usually occur in the  $\text{cm}^{-1}$  and  $\text{cm}^{-1}$  range respectively. The spectrum showed a peak at  $\text{cm}^{-1}$  which indicated the ester carbonyl and a peak at  $\text{cm}^{-1}$  for the acid carbonyl. There are also smaller peaks which indicate the other carbon-oxygen groups of the aspirin. However, these lie in the finger print region of the spectrum and are therefore too hard to differentiate. The melting points of both the salicylic acid and aspirin were taken as other means to identify, and test the purity of the products. Both the melting points of salicylic acid and aspirin were consistent with the literature values which are degrees Celsius and degrees Celsius respectively. This shows that both the products were relatively pure. The ferric chloride test was used to compare the salicylic acid, crude aspirin, and purified aspirin. After the addition of the ferric chloride, the salicylic acid solution turned purple, and both the aspirin solutions were yellow. Because both the aspirin solutions were yellow, there was not any unreacted starting material present in the product. If any was present in the crude or purified product it was not in a high enough concentration to complex with the ferric chloride to create the purple color. The salicylic acid was obtained with One possibility for loss of product could be during the acidification step. The synthesis of the salicylic acid is done by creating the anion of the acid which is soluble in the aqueous solution. It is then protonated to crash the salicylic acid out of solution. If not enough acid was added to protonate all the product, some will stay in the aqueous solution and will be lost. Another source of product loss is during the recrystallization. Because it is impossible to fully precipitate compound out of a solution, a small amount will always be loss. The aspirin was obtained with One possible source of error is in the nature of the reaction of aspirin. Therefore during the synthesis of the aspirin some of the aspirin will be converted back to starting material. To help push the reaction toward the products, one could distill off the acetic acid. This is because the reduction of the products will cause more starting material to react to regain equilibrium. Another source of product loss was during the filtration of the product. The aspirin was small, powdery crystals. Since they were so small, some could have passed through the filter paper. However, due to time constraints, refiltering could not happen.

### 2: IPCC Fifth Assessment Report - Wikipedia

*Results of the Synthesis Group report: Hearing before the Subcommittee on Space of the Committee on Science, Space, and Technology, U.S. House of.*

Most level chemistry labs require only worksheets to be filled out at the completion of each lab. Therefore, this information would be most useful for level students as lab reports are often required for those courses. Now that you have completed an experiment and have collected all of the necessary information in your lab notebook and any supplementary data from analytical instruments, you need to write up your results in a lab report.

**Abstract** The abstract is a one or two paragraph concise, yet detailed summary of the report. It should contain these four elements: What the objectives of the study were the central question ; Brief statement of what was done Methods ; Brief statement of what was found Results ; Brief statement of what was concluded Discussion. Often, the abstract is the last piece of the report written.

**Introduction** This section tells the reader why you did the experiment. Include background information that suggest why the topic is of interest and related findings. It should contain the following: Descriptions of the nature of the problem and summaries of relevant research to provide context and key terms so your reader can understand the experiment. A statement of the purpose, scope, and general method of investigation in your study. Express the central question you are asking. Descriptions of your experiment, hypothesis es , research questions. Explain what you are proposing for certain observations.

**Experimental Materials and Methods** This section should describe all experimental procedures in enough detail so that someone else could repeat the experiment. Some guidelines to follow: Explain the general type of scientific procedure you used to study the problem. Describe what materials, subjects, and equipment you used Materials. Explain the steps you took in your experiment and how did you proceed Methods. Mathematical equations and statistical tests should be described. Effective results sections include: All results should be presented, including those that do not support the hypothesis. Statements made in the text must be supported by the results contained in figures and tables.

**Discussion** The discussion section should explain to the reader the significance of the results and give a detailed account of what happened in the experiment. Evaluate what happened, based on the hypothesis and purpose of the experiment. If the results contained errors, analyze the reasons for the errors. The discussion should contain: Summarize the important findings of your observations. For each result, describe the patterns, principles, relationships your results show. Explain how your results relate to expectations and to references cited. Explain any agreements, contradictions, or exceptions. Describe what additional research might resolve contradictions or explain exceptions. Suggest the theoretical implications of your results. Extend your findings to other situations or other species. Give the big picture:

**Conclusion** A brief summary of what was done, how, the results and your conclusions of the experiment. Similar to the Abstract.

**References** A listing of published works you cited in the text of your paper listed by author or however the citation style you are using requires the citation to be listed.

## 3: Fifth Assessment Report - Synthesis Report

*SDG 11 Synthesis Report on Sustainable Cities and Communities In , UN Member States adopted the historic Agenda, setting universal and transformative goals and targets, and committing to working tirelessly for their full implementation.*

Aspirin, acetylsalicylic acid, is a familiar drug, used for relieving cold and flu symptoms, fevers, and general aches and pains in the body, and, as made clear by its chemical formula, contains salicin – a chemical found in willow bark. In the following experiment, Aspirin was synthesized and analyzed in a laboratory setting in order to recognize the chemical process behind a common drug like aspirin and to relate it to the conceptual study of organic chemistry. The initial step of the experimental process was the synthesis of Aspirin, which required the reaction of salicylic acid, acetic anhydride, and phosphoric acid to produce aspirin and acetic acid. This reaction is represented visually below: As shown in the above reaction, phosphoric acid,  $H_3PO_4$  acts as a catalyst in the initial mixture of the reactants in order to speed up the reaction. After aspirin synthesis was complete, the aspirin was analyzed using both IR and NMR spectrometers in order to determine the hydrogen atoms and organic functional groups present in the synthesized aspirin and to verify the overall identity of the aspirin. To begin the experiment, 2. Salicylic acid was a white, chalky powder; acetic anhydride a clear, colorless liquid; and phosphoric acid a clear, yellow-tinted liquid. The final mixture, a clear, colorless liquid, was stirred occasionally and the temperature of the water was monitored. After 15 minutes of maintained heat, the flask was removed from the water and 2 mL of DI water was added, producing an aromatic vapor. After the vapor dissipated, a second volume of DI water, 20 mL, was added. The flask was then scratched on the bottom and placed in an ice bath to encourage crystallization. While the mixture in the flask cooled, a vacuum filtration system was created, and once crystallization occurred, the mixture was poured through the system so as to pull the liquid in the mixture through to the flask, leaving white, powdery crystals on the filter paper. The crystals were then washed three times with the vacuum using 5 mL amounts of DI water. After the crystals were completely dry, the beaker was weighed a second time, including the crystals, in order to obtain the actual yield of synthesized aspirin: This value was used, along with the theoretical yield value, to calculate the percent yield of the synthesized aspirin: Caution – acetic anhydride, salicylic acid, and phosphoric acid are all toxic chemicals and should not come into contact with the skin.  $CDCl_3$ , used later for spectroscopy, is also a toxic chemical. Next, NaOH was used to titrate commercial aspirin tablets – one tablet of aspirin, weighing mg, was dissolved in methanol, and then 10 mL of DI water and 4 drops of phenolphthalein indicator were added. This mixture was generated a total of three times, so as to have three separate flasks with identical mixtures for three trials. The starting reading of NaOH was recorded. Titration was then performed in three trials, each by adding NaOH to the mixture in the flask until the mixture turned light pink and maintained this color for 15 seconds. The end point reading of NaOH was recorded. To finish the experiment, three titration trials were performed using the synthesized aspirin. DI water and four drops of phenolphthalein were added, and the same process of titration was used. All three synthesized aspirin titrations yielded a light pink color for 15 seconds, thus each trial was successful and used in calculations. The synthesized aspirin was also used in two different types of spectroscopy: NMR was the first to be tested: The trial results of the commercial aspirin titrations are listed below:

## 4: SDG 11 Synthesis Report on Cities and Communities – UN-Habitat

*Synthesis of Esters Lab Report functional group each molecule contains, which is connected to an organic compound, a Analysis of Results. Part 1: Reactions.*

General[ edit ] Warming of the atmosphere and ocean system is unequivocal. Many of the associated impacts such as sea level change among other metrics have occurred since at rates unprecedented in the historical record. There is a clear human influence on the climate It is extremely likely that human influence has been the dominant cause of observed warming since , with the level of confidence having increased since the fourth report. IPCC pointed out that the longer we wait to reduce our emissions, the more expensive it will become. It is virtually certain the upper ocean warmed from to It can be said with high confidence that the Greenland and Antarctic ice sheets have been losing mass in the last two decades and that Arctic sea ice and Northern Hemisphere spring snow cover have continued to decrease in extent. There is high confidence that the sea level rise since the middle of the 19th century has been larger than the mean sea level rise of the prior two millennia. Concentration of greenhouse gases in the atmosphere has increased to levels unprecedented on earth in , years. Play media This video presents projections of 21st century temperature and precipitation patterns based on a buildup of greenhouse gases with a combined effect equivalent to ppm of atmospheric CO<sub>2</sub>, a scenario the IPCC called "RCP4. The changes shown compare the model projections to the average temperature and precipitation benchmarks observed from – Climate models have improved since the prior report. Model results, along with observations, provide confidence in the magnitude of global warming in response to past and future forcing. Projections[ edit ] Further warming will continue if emissions of greenhouse gases continue. The global surface temperature increase by the end of the 21st century is likely to exceed 1. The oceans will continue to warm, with heat extending to the deep ocean, affecting circulation patterns. Decreases are very likely in Arctic sea ice cover, Northern Hemisphere spring snow cover, and global glacier volume Global mean sea level will continue to rise at a rate very likely to exceed the rate of the past four decades Changes in climate will cause an increase in the rate of CO<sub>2</sub> production. Increased uptake by the oceans will increase the acidification of the oceans. Future surface temperatures will be largely determined by cumulative CO<sub>2</sub>, which means climate change will continue even if CO<sub>2</sub> emissions are stopped. The summary also detailed the range of forecasts for warming, and climate impacts with different emission scenarios. Compared to the previous report, the lower bounds for the sensitivity of the climate system to emissions were slightly lowered, though the projections for global mean temperature rise compared to pre-industrial levels by exceeded 1. HadGEM2 can produce hundreds of terabytes to perhaps tens of petabytes of climate model data for analysis. Instead of the scenarios from the Special Report on Emissions Scenarios the models are performing simulations for various Representative Concentration Pathways. Public debate after the publication of AR4 in put the IPCC under scrutiny, with controversies over alleged bias and inaccuracy in its reports. In , this prompted U.

## 5: SDG 11 Synthesis Report – UN-Habitat

*The Synthesis Report was the final step of the CEDR process and relied on multiple lines of evidence to respond to 13 evaluation questions. These lines of evidence included 14 country strategy and program evaluations, individual project assessments, and 20 topic or sector evaluation reports.*

## 6: Synthesis of Aspirin: Lab Analysis

*the phenolic alcohol group of salicylic acid is replaced by an acetyl (H<sub>3</sub>CCOO) group. Phosphoric acid is added to Phosphoric acid is added to catalyze the reaction.*

*Introduction: Revisiting the intellectual transformation of nineteenth-century France The unwritten law in the pre-rabbinic period. Unreasonableness and danger of indecision C. Wilcox Chinas new diplomatic offensive. Reforestation . Report. Health Journeys Relaxed Awake During Medical Procedures (Health Journeys) Good health do it yourself! Kermit's Mixed-Up Valentines Today I will nourish my inner martyr List of direct expenses and indirect expenses Cardiovascular function The blind beggar of Bednall Green The Female of the Species (The Bulldog Drummond Series) New Adventures of Mary-Kate Ashley #46: The Case of the Unicorn Mystery The Original Teachings of Jesus Reinventing American myth Misfortunes Daughter (SIGNED) Our battalion organization should not be as volunteers [sic but as a militia active force Hp m775 service manual Hertfordshire (His the Buildings of England) Clinical Handbook of Health Psychology The Catholic lifetime reading plan California on My Mind (On My Mind Series) Birds of Western North America Once upon an Eskimo time Calling his children home The Gospels tell the truth about Jesus The seven states of California Christianity, Cults The Occult (pamphlet) Climbin up the mountain children Role of calcium in biological systems The mental status of psychoneurotics Difference b w two stroke and four stroke engine Lets cook japanese food Michael Blakemore The offician guide for mba 2018 Trane xe80 furnace manual The parable of the arrest Plant (Eye Wonder) History gcse 9-1 revision*