Rate of Reaction for chemicals to react they need to collide at right orientation and with energy equal or greater than activation energy so with time the amount of reactants which will lead to fewer collisions that meet the requirement of reaction which will lead into the reaction slowing down and lowering the yield at slower base because there will be less collisions per unit time for this experiment I added catalyst to speed up the reaction I don’t suspect that it will change the result since it’s a compared over time and the same catalyst was added with the same amount for all runs.

I hope that I will get an exponentially decreasing rate of yield over unit time since the experiment will be run over 5 10 15 min I expect ratio around 4:2:1 for the yield also the uncertainty of the equipment that has been used has been taken into consideration and to decrease the possibly of uncertainty ruining the data , each run have been repeated 5 times and the water tamp has been monitored with a thermometer and hotplate another controlled variable was the temps at which the test tubes sat in after they finish the time. That was important since the yield was being measured the time which the reaction stopped had to be controlled and since the experiment had been conducted throughout multiple days the room temperature could not be controlled without the ice bath the room would be the environment which the tubes sat in after the hot bath which could have effect on our yield since if the room temperature changed the speed at which the reaction will stop will vary according to the room temperature.

First 138mg of salicylic acid was added into a test tube with a two small drop of solfiric acid, and lastly 0,3ml acetic anhydride was added to a them.

After that some of the salicylic acid and was washed to the bottom of the test tube with the destllet water.

After the test tube was feiled and all of the salicy acid was washed and mixed the test tube use pleaced in 90C waterbath for measured time.

After the time has finished o.3ml of water was added to the test tube to cooled down to the room temperature then the tube was pleaced in icebath for 10 min .

After the ice bath the precipitat was washed into funnel with papper filter on it and waited until it dry the yeld then got wighted and the purety was measured.

|  |  |  |
| --- | --- | --- |
| Runs # time in min | wight | Purty |
| 1#5 |  |  |
| 2#5 |  |  |
| 3#5 |  |  |
| 4#5 |  |  |
| 5#10 |  |  |
| 6#10 |  |  |
| 7#10 |  |  |
| 8#10 |  |  |
| 9#10 |  |  |
| 10#15 |  |  |
| 11#15 |  |  |
| 12#15 |  |  |
| 13#15 |  |  |
| 14#15 |  |  |

So the reiation that is happening in the test tube is

salicylic acid + acetic anhydride → aspirin + acetic acid

C7H6O3+ C4H6O3 → C9H8O4 + HC2H3O2

I have to pint out that I have done 20 run but I forgot to add catalyst to some of them and the was one witch the glass of the test tube craked one run where the yeiled just got sopiled into the icebath