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#### **Risk assessment**

Before you start to perform an experiment with substances you need to take precautions and be conscious of all the risks you're going to face.

Obviously you need to wear glasses to protect your eyes, lab coat to avoid to dirt your clothes and gloves for maximum precaution.

This is the list of all the hazardous chemicals to which you MUST pay attention during your experiment:

• Sodium Hydroxide or NaOH (hazard symbol: CORROSIVE) – it can severely affect you when inhaled, by passing on your skin, irritate your eyes, mouth, nose, throat and even your lungs. It can cause the



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Repeating skin contact an cause dermatitis, erosion of teeth, fetal effects, conjunctivitis and possible blindness.

Some advices in case of accidents:

- Eye contact Don't allow the person to rub or keep his eyes closed. It's necessary to flush them with amounts water for at least 30 minutes. Get medical attention immediately. Do not use ointments in eye or oils.
- II. Skin contact Flush skin immediately with amounts water for 15 minutes and remove contaminated clothing. Get medical aid as soon as possible.
- III. Ingestion Don't induce vomiting if swallowed. Only if the person is conscious give him a cupful of water. Get immediately medical aid.
- IV. Inhalation Remove to fresh air. If the person doesn't breath give universal precautions. If breathing is difficult, give oxygen.

The results we got are:

	Range finding/cm <sup>3</sup>	Run 1/cm <sup>3</sup>	Run 2/cm <sup>3</sup>	n 3/cm <sup>3</sup>
Second burette reading	19.70	39.20	19.60	39.10
First burette reading	0.00	19.70	C C	19.60
Volume delivered	19.70	19:10	10.60	19.50
Calculations: preview from 16 of 33				
2(M alkali x V alkali) = M acid x V acid				
19.50+10.60+19.50/3=16.53cm <sup>3</sup>				
2(m×10/1000)=0.1×(16.53/1000)				
2(m×0.01)=16.53×10 <sup>-3</sup>				
M=1.653×10 <sup>-3</sup> /0.0				
M=0.0827M				

M alkali = unknown concentration of alkali

V alkali = volume of alkali in the conical flask

M acid = known concentration of acid

V acid = volume of acid added from the burette

## Conclusions

The concentration of Na<sub>2</sub>Co<sub>3</sub> is 0.0975 mol dm<sup>-3</sup>. We can say that the result obtained is very close to the main value.

The experiment went but still and the result of the experiment was 100% accurate but still there was some apparatus errors which calculated above. Apparatus errors can not be minimised. So if anyone use the same method as this exoperiment and use the same apparatus as this experiment should get the same result and if he didn't get the same result that means observational errors have occurred in his experiment.

### Discussion

According to the result the value I have obtained, is not exactly the same as the concentration I have made up for NaOH which suggest that there must have been some experimental errors have occurred during the investigation. As know that none experiment can be 100% accurate there will be at least little bit of error in every single experiment.

- Maybe we didn't wash completely the weighing boat during the transfer of Na<sub>2</sub>co<sub>3</sub> from it • to the volumetric flask.
- Maybe we didn't accurately check the end point of tritation when changing colour. •
- Notesale.co.uk Maybe we didn't accurately check the line of the water. •
- The percentage of error di 2%.

## **Evaluation**

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Discuss what went well in the investigation and what could You need to calculate woo an aratus error and then your experimental error.

According to the result of this experiment, there were some errors in the experiment because the result we obtain from the experiment is not fully accurate but by considering the errors can occur in the experiment, the result we have obtained isn't that bad.

- Make sure of washing properly the weighing boat.
- Make sure the menisgus of liquid is perfectly on the line. ٠
- As you are approaching the end point add drop by drop for precision. Ask partner opinion.

#### Other types of bonding

# HCI (Hydrogen Chloride)

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