



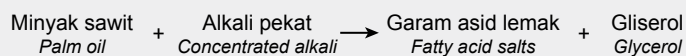
Tugasan PEKA

4

Kaji dialog di bawah.
Study the dialogue below.

Persamaan perkataan ini adalah persamaan bagi penghasilan sabun melalui proses saponifikasi. Mari kita jalankan eksperimen bagi mengesahkan sabun boleh dihasilkan dengan memanaskan lemak atau minyak dengan alkali melalui proses saponifikasi.

The word equation describes the production of soap through the saponification process. Let us carry out an experiment to verify that soap can be produced by heating a fat or oil with an alkali through the saponification process.



1. Nyatakan inferens bagi dapatan eksperimen ini.

State the inference from the findings of the experiment.

Sabun terhasil apabila minyak sawit dipanaskan dengan larutan natrium hidroksida pekat kerana terhasilnya pepejal putih yang licin.

Soap is produced when palm oil is heated with concentrated sodium hydroxide solution because a white slippery substance is formed.

2. Berikan definisi secara operasi bagi sabun dalam eksperimen ini.

Give an operational definition of soap based on this experiment.

Sabun ialah bahan yang berwarna putih, bersifat alkali, berbuih dan licin apabila disentuh dengan jari setelah minyak sawit dicampurkan dengan larutan natrium hidroksida pekat dan dipanaskan.

Soap is a white, alkaline substance that foams and feels slippery when touched with fingers after palm oil is mixed with a concentrated sodium hydroxide solution and heated.

3. Apakah kesimpulan eksperimen ini?

What is the conclusion of this experiment?

Sabun dihasilkan oleh hasil tindak balas antara minyak sawit dengan alkali pekat (larutan natrium hidroksida pekat) dalam proses yang disebut proses saponifikasi.

Soap is produced by the reaction between palm oil and concentrated alkali (concentrated sodium hydroxide solution) in a process known as the saponification process.

4. Apakah tujuan memasukkan natrium klorida dalam proses pembuatan sabun?

What is the purpose of adding sodium chloride during the process of soap production?

Natrium klorida ditambah untuk mengurangkan keterlarutan sabun dalam air dan menyebabkannya terasing daripada larutan.

Sodium chloride is added to reduce the solubility of soap in water causing it to separate from the solution.

5. Molekul sabun boleh dibahagikan kepada dua bahagian, iaitu kepala dan ekor. Bahagian manakah yang larut di dalam air dan bahagian manakah yang larut di dalam gris?

A soap molecule can be divided into two parts, namely the head and the tail. Which part dissolves in water and which part dissolves in grease?

Bahagian yang larut di dalam air ialah kepala manakala bahagian yang larut di dalam gris ialah ekor.

The part that dissolves in water is the head whereas the part that dissolves in grease is the tail.

6. Cadangkan penambahbaikan kepada kaedah penyiasatan dalam eksperimen ini.

Suggest an improvement to the investigation method in this experiment.

- Pastikan campuran dididihkan mengikut masa yang ditetapkan, iaitu 5 minit.

Make sure the mixture is boiled for the specified time, that is, for 5 minutes.

- Keringkan sisa turasan dengan baik menggunakan kertas turas.

Dry the residue well using filter paper.

7. Adakah dapatan eksperimen yang anda peroleh boleh diterima? Jelaskan jawapan anda.

Can the findings that you have obtained from the experiment be accepted? Explain your answer.

Ya. Kerana pepejal putih (sabun) dihasilkan apabila minyak sawit dengan alkali pekat (larutan natrium hidroksida pekat) bertindak balas selepas dipanaskan dan proses ini dinamakan proses saponifikasi.

Yes. Because a white solid (soap) is produced when palm oil reacts with concentrated alkali (concentrated sodium hydroxide) on heating and this process is known as saponification.