Hair

Making shampoo

Make your own shampoo including a herb extract and an essential oil as natural ingredients. Use the information sheet to find out which oils and herb best suits your hair type.

What you need

for 100 cm$^3$ shampoo - Formulation from Neal's Yard Remedies:

- 30 cm$^3$ ammonium lauryl sulfate (Irritant)
- 10 cm$^3$ lauryl betaine (Irritant)
- 5 cm$^3$ herb extract (Minimal hazard)
- 2 cm$^3$ polysorbate-20 (Irritant)
- 0.5 cm$^3$ essential oil (Minimal hazard)
- 52.5 cm$^3$ water
- Bunsen burner
- Heatproof mat
- Glass rod
- 250 cm$^3$ beaker
- 10 cm$^3$, 50 cm$^3$ and 100 cm$^3$ measuring cylinders, or pipettes appropriate for the volumes
- Eye protection.

Shampoo testing equipment:

- Universal Indicator solution (Check supplier sheets for safety information)
- Distilled water
- Test-tube
- Test-tube rack
- Dropping pipette
- Petri dish
- About 30 cm$^3$ cooking oil (Minimal hazard)
- Ruler
- Square of dark coloured paper about 10 cm x 10 cm
- Eye protection
- Access to Cosmetic ingredients database
- Copy of Results table for shampoo tests.

What you do

1. Prepare the herb extract - to do this heat a handful of fresh or dried herb in 150 cm$^3$ water. Boil gently for 20 minutes, then strain into a clean container.
2. Add the herb extract to the ammonium lauryl sulfate and stir.
3. Add the lauryl betaine and stir.
4. Add the polysorbate and stir.
5. Add the essential oil and stir.

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Hair

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Testing the shampoo
Test the shampoo as described in Wash in style.

Questions
1. What makes this shampoo different from most others?
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   ………………………………………………………………………………………………………………….

2. Find out which of the ingredients is the surfactant, the emulsifier, the perfume and the foam-maker.
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   ………………………………………………………………………………………………………………….
   ………………………………………………………………………………………………………………….

3. Now imagine you need to make 200 litres (200 000 cm$^3$) of the shampoo. What problems would you need to solve?
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Making shampoo: herb ingredients

<table>
<thead>
<tr>
<th>Hair type</th>
<th>Essential oils</th>
<th>Herbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>normal</td>
<td>cedarwood, lavender, orange, rosemary</td>
<td>rose, rosemary, thyme</td>
</tr>
<tr>
<td>greasy</td>
<td>bergamot, cedarwood, cypress, grapefruit, juniper, lemon</td>
<td>bay, lemon balm, mint, rosemary, sage</td>
</tr>
<tr>
<td>dry</td>
<td>dry chamomile frankincense, geranium, rose, patchouli</td>
<td>calendula, seaweed, chamomile</td>
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<tr>
<td>damaged</td>
<td>frankincense, lavender</td>
<td>calendula, seaweed, comfrey</td>
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<tr>
<td>dull</td>
<td>melissa, rosemary</td>
<td>ginseng, nettle, rosemary, sage</td>
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<td>fine</td>
<td>geranium</td>
<td>calendula, seaweed</td>
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<td>rosemary, thyme</td>
<td>nettle, rosemary, thyme</td>
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<td>fair</td>
<td>roman chamomile</td>
<td>chamomile</td>
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<tr>
<td>grey</td>
<td>sage</td>
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<td>frequent wash</td>
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<td>elderflower, seaweed</td>
</tr>
<tr>
<td>dandruff</td>
<td>cedarwood, patchouli, rosemary, sage, tea tree, thyme</td>
<td>lavender, nettle, peppermint, rosemary, sage, thyme</td>
</tr>
</tbody>
</table>

Based on Natural Health and Body Care by Neal's Yard Remedies p 137