

Production of alcohol-based handrub

Formulation 1

Diaporama

Formulation 1		For 10 litres
Reagents	Final concentrations (vol/vol)	Reagent quantity (mL)
a) Ethanol	80%	8333
b) Glycerol	1.45 %	145
c) Hydrogen peroxide	0.125 %	417
d) Distilled water	q.s	q.s



Before starting production, check that the factory line has been completely cleared. That is to say, ensure that the working area is free of any unnecessary raw ingredients and materials, and that it has been cleaned with alcohol.



Set out all the equipment needed for production and check that it is clean. If necessary, calibrate the final container for the volume of 10 liters by drawing a mark on it (engraving this mark is recommended to prevent its erasal by alcohol or other substances).



Set out on the workplace the amounts of raw ingredients required for production. Check that the names and quantities are consistent with the manufacturing documents and check their validity (expiration dates in relation to the period of use of the finished product).



To facilitate measurement in the measuring cylinder, use a funnel or transfer into a beaker beforehand.

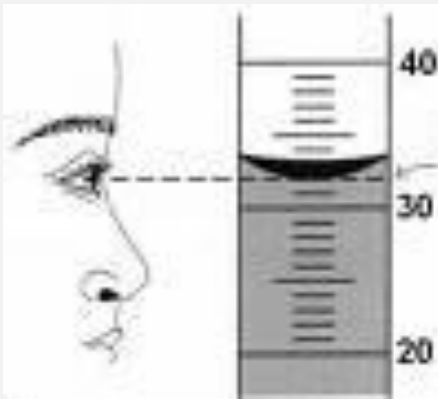
Measure **145 mL** of glycerol 98% into a 250ml graduated measuring cylinder



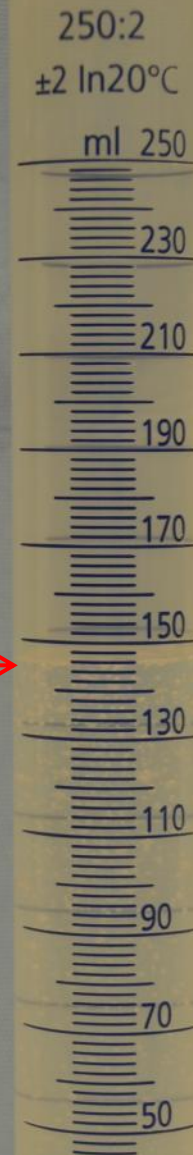
Try to avoid letting the viscous glycerol run down the side of the cylinder. Wait until all the bubbles formed have risen to the surface in order to be able to note the exact level of glycerol in the measuring cylinder.

Reading the volume

Set your sight horizontally at the base of the meniscus.



BEWARE: Misplacing your sight for reading a graduated measuring container can lead to significant errors in measurement. The best readings correspond to the **base of the meniscus***.

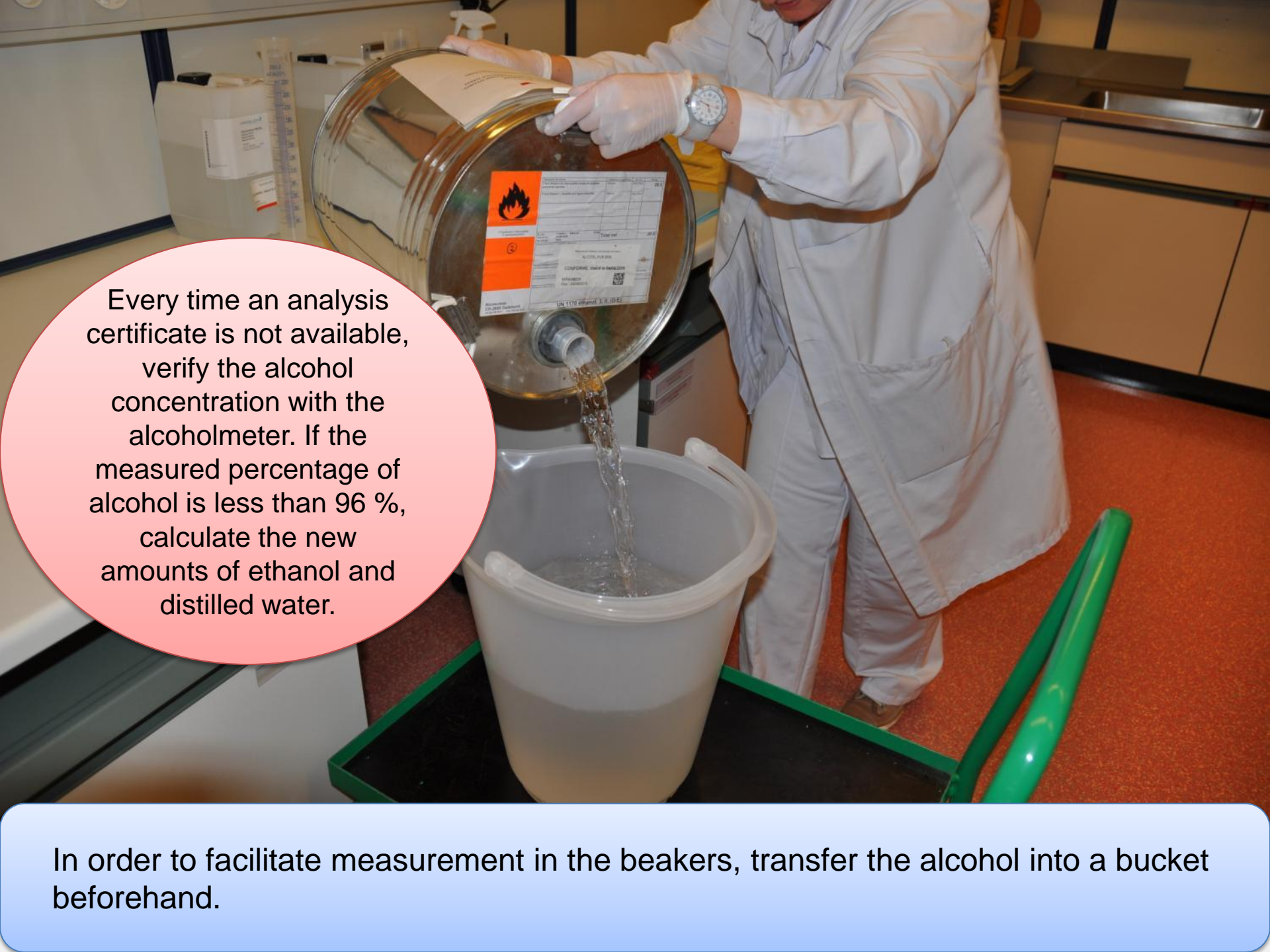


Wait until all the bubbles formed have risen to the surface in order to be able to note the exact level of glycerol in the measuring cylinder.

Measure **417 mL** of hydrogen peroxide 3% in a 500ml measuring cylinder



Proceed in the same way for the measurement of hydrogen peroxide 3%.

A person wearing a white lab coat, white gloves, and a watch is pouring a clear liquid from a large, shiny metal canister into a white plastic bucket. The canister has a label with a flame icon and some text. The bucket is sitting on a green cart. In the background, there are other lab equipment and a sink.

Every time an analysis certificate is not available, verify the alcohol concentration with the alcoholmeter. If the measured percentage of alcohol is less than 96 %, calculate the new amounts of ethanol and distilled water.

In order to facilitate measurement in the beakers, transfer the alcohol into a bucket beforehand.

Measure **8333 mL** of ethanol **96%**



- 5000 mL of ethanol 96% in a 5 litre measuring jug
- 3000 mL of ethanol 96% in a 5 litre measuring jug
- 333 mL of ethanol 96% in a 500mL measuring cylinder

Measure **1105 mL** of distilled water (or boiled cold water) into a 2 litre measuring jug



If distilled water is not available, boil water for 15 to 20 minutes and let it cool to room temperature (between 15-25°C).

Pour the measured quantity of hydrogen peroxide 3% into the final recipient

If using a plastic container with tap, check that it is closed.



Pour the measured quantity of hydrogen peroxide 3% into the final recipient



Then rinse the cylinder that was used for the glycerol with some ethanol (using ethanol from the amount already measured), until all glycerol residues have been removed.



Add the measured amount of ethanol gradually, in 3-4 doses, and mix between each addition.

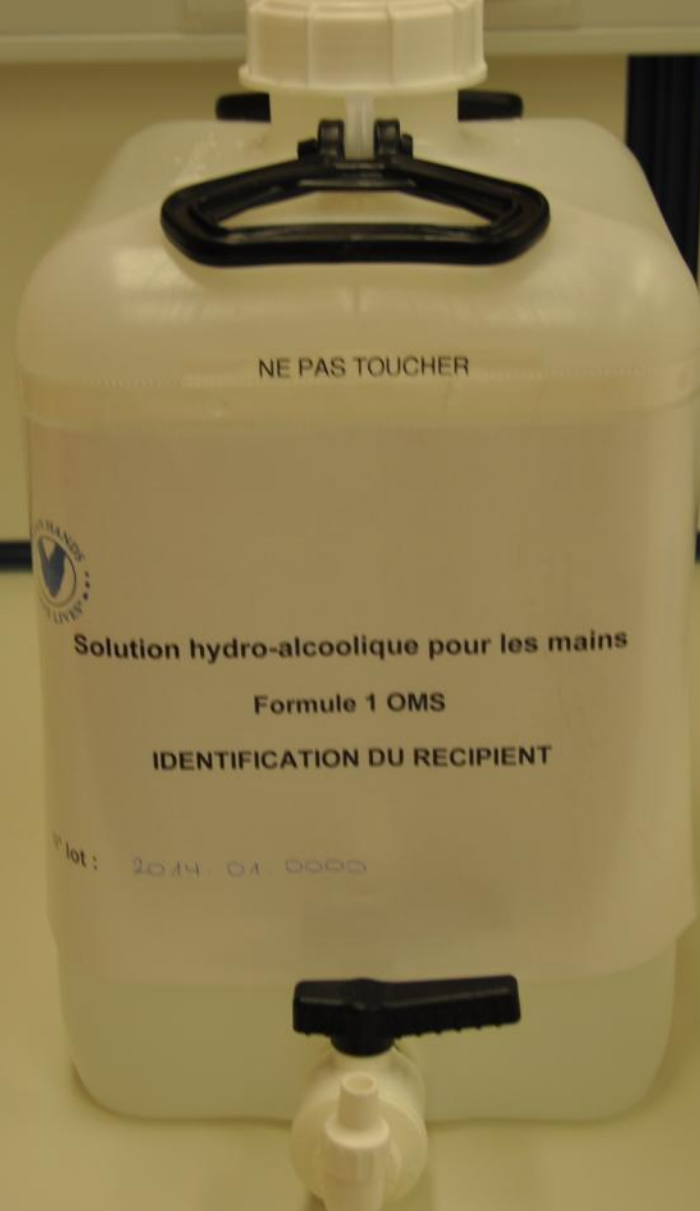
Add the quantity of boiled cold water or distilled water needed to complete the volume of solution to 10 litres.



10 litres: previously marked



Close the container with the screw cap as quickly as possible to prevent any evaporation and then gently mix by shaking the recipient for 5 minutes.



Identify the container (name of institution, preparation name, batch number, production date)



Tidy up and then clean the workspace with alcohol.

Packaging: Distribute the solution **immediately** into bottles.

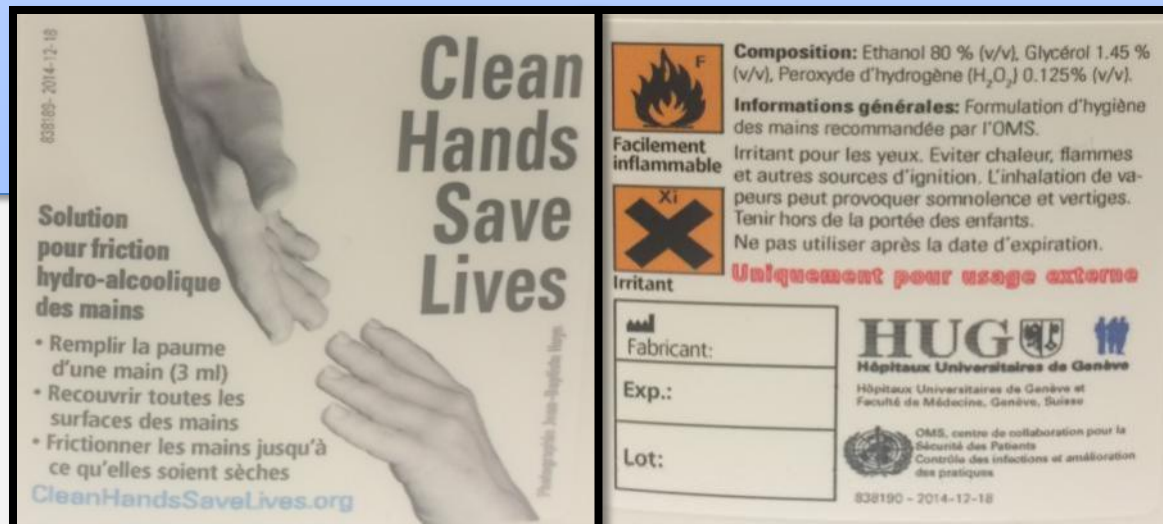
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Use a beaker to transfer the solution into a measuring cylinder.
Measure 100 mL of solution in a measuring 100 mL cylinder, and then pour the 100 mL into the individual bottles.

LABELLING

- Check that the labelling table is free of any other labels or equipment before starting
- Use self-adhesive labels preferably or appropriate adhesive
- Check that the label includes all required information, namely:
Name of institution, Preparation name, ingredients and concentration, batch number and expiration date, instructions for use, precautions and warnings
- Stick a label on each bottle, in a way that ensures that the information is legible



838190 - 2014-12-18

Clean Hands Save Lives

Solution pour friction hydro-alcoolique des mains

- Remplir la paume d'une main (3 ml)
- Recouvrir toutes les surfaces des mains
- Frictionner les mains jusqu'à ce qu'elles soient sèches

CleanHandsSaveLives.org

Photographie Jean-André Berge

F
Facilement inflammable

Xi
Irritant

Composition: Ethanol 80 % (v/v), Glycérol 1.45 % (v/v), Peroxyde d'hydrogène (H₂O₂) 0.125 % (v/v).

Informations générales: Formulation d'hygiène des mains recommandée par l'OMS.

Irritant pour les yeux. Eviter chaleur, flammes et autres sources d'ignition. L'inhalation de vapeurs peut provoquer somnolence et vertiges. Tenir hors de la portée des enfants. Ne pas utiliser après la date d'expiration.

Uniquement pour usage externe

Fabricant:
Exp.:
Lot:

HUG
Hôpitaux Universitaires de Genève et
Faculté de Médecine, Genève, Suisse

OMS, centre de collaboration pour la
Sécurité des Patients
Contrôle des infections et amélioration
des pratiques

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QUARANTINE

Once labelled, put the entire batch into **quarantine** (= every bottle) for **at least 72 hours** in order to allow the destruction of any spores that may be present in the alcohol and on the surfaces of the bottles.



DO NOT DISTRIBUTE

$\geq 72h$

Product designation :

Batch number :

Production date :

Batch size :

Identify the quarantined batch using an identification form.

Place the quarantined batch in a separate and identified area in order to avoid any risk of use before release of the batch.