WHO Guidelines on Hand Hygiene in Health Care

Health-care settings currently using commercially-available handrubs should continue to use them, provided that they meet recognized standards for microbicidal efficacy (ASTM or EN standards) and are well accepted/tolerated by HCWs (see also Implementation Toolkit available at http://www.who.int/gpsc/en/). It is obvious that these products should be regarded as acceptable, even if their contents differ from those of the WHO-recommended formulations described below. WHO recommends the local production of the following formulations as an alternative when suitable commercial products are either unavailable or too costly.

**Formulation I**
To produce final concentrations of ethanol 80% v/v, glycerol 1.45% v/v, hydrogen peroxide (H₂O₂) 0.125% v/v.
Pour into a 1000 ml graduated flask:
- a) ethanol 96% v/v, 833.3 ml
- b) H₂O₂ 3%, 41.7 ml
- c) glycerol 98%, 14.5 ml
Top up the flask to 1000 ml with distilled water or water that has been boiled and cooled; shake the flask gently to mix the content.

**Formulation II**
To produce final concentrations of isopropyl alcohol 75% v/v, glycerol 1.45% v/v, hydrogen peroxide 0.125% v/v:
Pour into a 1000 ml graduated flask:
- a) isopropyl alcohol (with a purity of 99.8%), 751.5 ml
- b) H₂O₂ 3%, 41.7 ml
- c) glycerol 98%, 14.5 ml
Top up the flask to 1000 ml with distilled water or water that has been boiled and cooled; shake the flask gently to mix the content.

https://www.who.int/gpsc/5may/tools/who_guidelines-handhygiene_summary.pdf
Virucidal Activity of World Health Organization–Recommended Formulations Against Enveloped Viruses, Including Zika, Ebola, and Emerging Coronavirus

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Figure 1. Virucidal activity of World Health Organization (WHO) formulations I and II against hepatitis C virus (HCV), Zika virus (ZIKV), Middle East respiratory syndrome coronavirus (MERS-CoV), and severe acute respiratory syndrome coronavirus (SARS-CoV). A, World Health Organization formulations I and II were tested for their efficacy in inactivating HCV. The biocide concentrations ranged from 0% to 80% with an exposure time of 30 seconds. For this inactivation assay, 1 part virus and 1 part organic load were mixed with 8 parts biocide. Residual infectivity was determined by a limiting dilution assay. Viral titers are displayed as 50% tissue culture infectious dose (TCID₅₀/mL) values. The cytotoxicity was calculated in analogy to the determination of virus titer (TCID₅₀/mL) and is depicted as a dashed line. The means of 2 independent experiments with standard deviations are shown. Efficacy of WHO formulations I and II against ZIKV (B), MERS-CoV (C), and SARS-CoV (D) was assessed by a quantitative suspension assay as described for panel A. Abbreviation: nd, not detected.