

Alcohol-Based Hand Rubs

During the pandemic the popularity of alcohol-based hand rubs (ABHRs) has risen considerably. It's hard to walk through just about any hospital, school, dentists' office, airport terminal, hotel or shopping centre without encountering ABHR stations.

ABHRs are commercially available as liquid solutions, gels and foams. The active ingredient in ABHR may be ethanol, isopropanol or n-propanol in concentrations typically ranging from around 60 to 95% (v/v) but what should we consider when selecting an ABHR?

What to consider when selecting an ABHR?

ABHRs are chosen for a variety of considerations, including:

- 1 The effectiveness of the product in reducing the microorganisms on the hands
- 2 The amount of the product (dose) needed on the hands
- 3 How quickly the product works
- 4 If emollients/moisturisers are added, to improve and maintain the health of the hands
- 5 If there are any health and safety issues with the product
- 6 If they are compatible with other hand hygiene products like soaps and moisturisers.

Effectiveness

Not all ABHRs are equal. ABHR solutions containing 60-80% alcohol are considered most effective, with higher concentrations being less potent.¹ It's important to look at the manufacturer's data sheets to determine how effective their product is at removing microorganisms as they will vary in their effectiveness.

As a minimum products should meet EN 1500 (Hygienic Disinfection), which is a European Standard test method that evaluates the efficacy of an ABHR by measuring the number of viable bacteria remaining on the fingertips after contamination and ABHR exposure.

There are currently products on the market that do not meet this standard, so a simple question to ask is if the manufacturer has efficacy data to show that they meet the recommended EN standard. It's important to note that ABHR's are not considered to be effective when hands are visibly contaminated, as it does not have detergent properties. If your hands are visibly dirty, then you should either wash hands with soap and water or use hand wipes.

Application

ABHR can be provided from a wide range of dispensers, individual bottles, disposable plastic bottles wall-mounted systems or cartridge systems. The volume of the ABHR dispensed plays a critical role in the quality of hand hygiene to ensure you cover all surfaces of the hands, which is important to performing effective hand hygiene. The amount of ABHR dispensed is important, if you dispense an insufficient amount, then it may lead to reduced effectiveness, and that can increase the risk of cross-transmission. If the pump dispenses too much, then this can produce excess fumes which can lead to respiratory issues and other risks.

Applying enough ABHR to cover all surfaces of the hands is important to ensure effective hand hygiene. The manufacturer's instructions should be followed for the volume of ABHR required to provide adequate coverage of the hands. In the absence of manufacturer's instructions, volumes of approximately 3mL are recommended to ensure full coverage.²⁻⁵

How quickly the product works

The volume of ABHR required for the highest efficacy is likely to vary for different formulations. The optimal volume of ABHR is that which is sufficient to keep the hands wet for 20-30 seconds, to ensure you remove the microorganisms. This will vary by product type and individual hand size.^{6,7} In the absence of manufacturer's instructions, the World Health Organization (WHO) recommends that a palmful of product is enough to cover your entire hands.^{1,7}

In addition to the volume of ABHR applied, you should ensure you undertake the correct application of the product as well. Effective hand hygiene should take 20-30 seconds with the ABHR still wet on the hand.



Hand Health

The WHO cites skin irritation as one of the most common barriers to a good hand hygiene technique. Selecting the right products can help prevent irritation and dryness, yet not all ABHRs contain emollients and the addition of emollients to ABHRs can significantly decrease irritant contact dermatitis under frequent-use conditions.

Health and Safety

Placement

Risk assessments should be carried out considering aspects such as location, visibility, dispenser size and whether the use of personal dispensers is required. This assessment should also consider the risk concerning fire, ingestion or unintended use. Dispensers act as a visual cue for hand hygiene behaviour so should be placed to encourage timely hand hygiene; for example at entry and exit points of a building.

Refilling

Potential safety risks that may be associated with refilling containers of ABHR include inadvertent contamination, reduced effectiveness from the evaporation of alcohol and irritant effects from mixing formulations. For example, when you refill a dispenser with the wrong product, it can impact how many pumps you need to apply to perform effective hand hygiene.

The wrong product may be incompatible with the pump of the dispenser, resulting in the product potentially clogging the pump, or continually dripping from the pump, which can be a safety issue and result in needing unnecessary maintenance or replacement. If refilling then you could be also mixing batch numbers and products with different expiry dates, therefore, refilling of ABHR dispensers is generally not recommended and should only be considered following the manufacturer's guidance.

Storage

Many commonly found ABHR solutions are classified as flammable liquids and can release ignitable vapours at room temperature and above. When exposed to an ignition source, they can ignite and cause a fire. Some premises may be stockpiling ABHR products and storing them in locations not protected or designed to accommodate hazardous materials in such quantities, hence why the storing of large ABHR containers is not recommended.

Compatibility

Not all soaps and moisturisers are compatible with ABHRs. It is important to ensure that the selected ABHR, soaps, and moisturising lotions are chemically compatible to minimise skin reactions. In public spaces and workplaces, people now expect to find ABHRs, so promote your commitment to well-being by using effective hand hygiene products that are known for great ingredients and perfectly balanced formulas.

References

1. World Health Organization. WHO Guidelines on Hand Hygiene in Healthcare: First Global Patient Safety Challenge Clean Care is Safer Care. Geneva: World Health Organization, 2009.
2. Gould D and Drey N. Hand hygiene technique. Nursing Standard 2008; 22: 42-46.
3. Goroncy-Bernes P, Koburger T and Meyer BJ. Impact of the amount of hand rub applied in hygienic hand disinfection on the reduction of microbial counts on hands. 2010; 74: 212-218.
4. Macdonald DJM, McKillop ECA, Trotter S, et al. One plunge or two?—hand disinfection with alcohol gel. International Journal for Quality in Health Care 2006; 18: 120-122.
5. Zingg W, Haidegger T and Pittet D. Hand coverage by alcohol-based handrub varies: volume and hand size matter. Am J Infect Control 2016 44(12):1689-1691.
6. Wilkinson MAC, Ormandy K, Bradley CR, et al. Dose considerations for alcohol-based hand rubs. Journal of Hospital Infection 2017; 95: 175-182.
7. Girard R, Aupee M, Erb M, et al. Hand rub dose needed for a single disinfection varies according to product: A bias in benchmarking using indirect hand hygiene indicator. Journal of Epidemiology and Global Health 2012; 2: 193-198.
8. Pittet D, Allegranzi B, Boyce J, et al. The World Health Organization guidelines on hand hygiene in health care and their consensus recommendations. 2009; 30: 611-622.



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