

Effectiveness of Hand Washing and Hand Gels

- The use of soap and warm running water for hand washing remains an effective method for reducing the levels of hand borne microbiological contamination. This need not involve specialist medicated soaps, though these have been shown to enhance decontamination effects in some studies.
- The use of soap and cold running water has also been shown as effective for hand decontamination, though is likely to be marginally less effective than soap and warm water. Although not proven, it is reasonable to assume that the availability of cold water alone might deter some individuals from washing their hands or shortening the duration of washing of hands.
- Alcohol preparations based on either gels or liquid hand rubs can offer a significant reduction in microbiological hand contamination, with some studies claiming multi-log reductions under specified conditions that are greater than hand washing approaches. However, there are important limitations to how alcohol rubs and gels should be used, and these may introduce uncertainties regarding their efficacy:
- There is evidence to show that any active alcohol content in a hand rub, gel or foam can be neutralised by the presence of visible organic soiling, especially proteinaceous residues. Alcohol based gels and rubs should therefore only be used when the hands are visibly (i.e. physically) clean. This constraint may have implications for the use of such products in work sectors where hand soiling is unavoidable;
- In particular, the levels of soiling on the hands of workers may vary considerably for builders, farm workers, waste recycling operatives and for similar activities where hand soiling is likely. Hand rubs, gels and foams will not physically remove soiling from the hands of such workers and may render antimicrobial products ineffective;
- The ‘dose’ of alcohol-based product used per application is critical to the success of its use. Studies show that at least 3 ml of product should be applied to the hand. More than 4 ml is not likely to improve efficacy providing that at least 3 ml is normally applied. This should equate to sufficient alcohol-based product to fully lubricate both hands, so that a film of liquid product can be felt to cover the skin of the hands;
- Hand soiling may include chemical contamination of the skin, not just organic soiling and microorganisms. Basic cleansing principles mean that hand rubs and foams alone – whether alcohol based or alcohol free – will relocate but not effectively remove chemical contamination. Only the effect of wash-off using soap and running water will reliably remove chemical contamination;
- Alcohol based cleaning products should not be used to clean paints and resins from the body. The primary effect of alcohol-based sanitizers is to kill microbial agents which are not present in paints and resins. In addition, the introduction of alcohol may result in (increased) penetration and/or absorption of these agents and thereby increasing the overall exposure to the worker.

Source: A review of the data on efficacy of handcleaning products in industrial use as alternatives to handwashing, Health and Safety Laboratory, HSE, 2014