



Hand Dryers and Hygiene

A definitive statement on the bacteriological safety of warm air

Excel Dryer, Inc. wants our distributors and end users to be confident in the safety and health benefits of warm air hand and hair dryers. It is important to us that you feel comfortable and assured that our products are both reliable and hygienic. Several studies have been published in well known medical reviews on the health benefits and hygienic superiority of warm air dryers. Hand Dryers are almost unanimously declared to be more sanitary than other drying techniques.

Only one study, the Westminster report has suggested something other than the praise warm air dryers have always received. After careful scrutiny, independent researchers found the testing methods in the report to be inaccurate and incomplete. According to Dr. Syed Saatar of the University of Ottawa, "certain flaws in the methodology . . . compromise its value" (3). This heavily-biased paper, funded by the Association of Makers of Soft Tissue Papers, was not published or recognized by any medical or health review. In an attempt to spread false and damaging information to the public, however, the researchers sent copies to many major media centers in the hope that this information would be eagerly gobbled up by media scaremongers.

Most researchers claim that "irrespective of the hand washing agent used" electric air drying produces "the highest and cloth the lowest reduction in numbers" of bacteria and viruses on washed hands (Ansari et al. 243). Theories explaining why warm air dryers are more hygienic have been put forward by medical authorities.

Doctors at the University of Ottawa have proposed that "the blowing of warm air may lead to an accelerated dehydration of the skin surface, thereby affecting the viability" of the microorganism (248). Moreover, the warm air may "penetrate all the crevices in the skin, whereas absorbent towels may not reach such areas, even though the skin appears dry" (Ansari et al 248). Hand Dryers are so effective that researchers Meers and Leong have declared that there is "no bacteriological reason to exclude them from the clinical areas" (171). Paper towels, on the other hand, create unsanitary conditions even *after* use. The European Cleaning review affirms that "unless paper towel waste is regularly cleaned, it can be a lasting source of bacteriological infection" (63).

Furthermore, researchers find that "on no occasion" is there any "evidence for the actual growth of bacteria or fungi" inside a dryer (Saatar 3). As a result of the dry atmosphere caused by constant heating, bacteria counts are often two to four times *lower* inside the dryer than on other surfaces in the washroom, such as sinks, door knobs and soap dispensers (Saatar 7).

Over the last 40 years numerous scientific researches have valued the hygienic safety of warm air as a drying medium. These studies were conducted with careful methodology, at major academic or medical institutions. Their findings are summarized below.

- **1953** - Dr. Paul E. Walker, Dir. Of Medical Services, **Public Health Service Hospital**, Seattle, Washington, USA. "Conclusions:
1) Bacteriological studies of 304 cultures, taken from groups of surgical personnel after use of a standard scrub technique, showed a probably significant reduction of cross contamination of the hands when a mechanical air dryer was used.
2) The mechanical air drying technique is less expensive than the towel-drying technique"
- **1968** - Hygienic-bacteriological researches about the use of hot air drying, by Dr. E. Kanz and Ursula Kaute from the **Institute for Hygienic-bacteriological Research** - Fraunhofer Society results: "Based on this thorough investigation, no hygienic objections against the use of hot air hand dryers were found. On the contrary, results confirmed a much lower risk level than use of alternative methods". This study confirms study by Lerche, 1954.
- **1975** - The **German Health Administration** confirms that, considering the hygienic standpoint, there is no difference between the four most popular systems in the market (Electric Warm Air Hand-Dryer, Textile Towel Rolls, Paper Towel Rolls and Single paper Towels).
- **1977** - **The Workshop Guidelines of the German Ministry of Labour** confirms that electric warm air hand dryers are suitable hygienic appliances to dry the hands.
- **1986** - Drs. J. A. Matthews and S. W. B. Newsom, **Papworth Hospital**, Cambridge. Study funded by UK Department of Health and Social Security. "Hot air hand dryers appear safe from a bacteriological standpoint."

- **1989** - P. D. Meers and K. Y. Leong, **National University Hospital**, Singapore: "our experiment leads us to agree with Matthews and Newsom (1987) that there is no bacteriological reason to exclude them (hot air hand dryers) from clinical areas."
- **1990** - Ansari/Sattar/Sprinthorpe, Department of Microbiology and Immunology, Faculty of Medicine, **Ottawa University**, Canada: "Electric air-drying of washed finger pads resulted in the greatest reduction in virus and bacterial levels irrespective of the washing agent used."
- **1990** - Mr. Stephen Dorrell, MP, for **Ministry of Health**, in a House of Commons statement: "The Department of Health has supported research at Papworth into airborne bacteria from hand drying with hot air hand dryers compared with paper towels. The results showed that hot air hand dryers produced no more aerosol and sometimes significant fewer aerosoled bacteria than paper towels. These results have been confirmed by studies in Singapore."
- **1993** - **The German Federal Environment Administration** comes to the following conclusion in its information Bulletin 26/93: electrical warm-air hand dryers, and dispensers for towels using recycled paper or cloth are equally good systems for drying hands from the standpoint of hygiene and economy. Cellulose Paper Towels are considered to be ecologically less advantageous. Paper towels can be made from recycled materials but cannot be recycled.
- **1995** - According to test results of the **Fresenius-Institute**: "the level of microbes in the air exiting the dryer nozzle is lower than in the air entering into the dryer" (i.e., warm air hand dryers kill a part of the microbes in the air.)
- **1996** - Campden & Chorleywood **Food Research Association** tested hand dryers and conclude "warm air hand dryers improve the washroom environment by reducing the level of airborne microbes and when these or paper towels are used correctly, can achieve similar levels of hand hygiene".
- **1998** - Dr. Tom Miller and colleagues from the **Auckland School of Medicine** in New Zealand. New research shows that the drying of hands is a critical factor in preventing the transmission of bacteria and illnesses. Dr. Miller and his colleagues developed a hand drying method that reduces such transmissions up to 99%. The method involves drying hands with a clean cloth towel for 10 seconds, followed by 10 seconds under a warm air dryer. "The introduction of this concept into hand hygiene practices will undoubtedly lead to improved hand care in a number of clinical and public health settings".
- **2000** - Dr. Franklin R. Cockerill III and his colleagues at the **Mayo Clinic** in Rochester, Minnesota, report their results in the journal Mayo Clinic Proceedings (75:705 - 708). In a study of 100 people who volunteered to have their hands contaminated with bacteria, researchers found that hand washing got rid of the same amount of germs regardless of drying style. The subjects dried off with either cloth towels from a roll dispenser, paper towels from a stack on the sink, a mechanical hand dryer, or old-fashion air drying. Drying preference, researchers say, matters little.

Warm air dryers prove to be the leader in efficient and hygienic methods of drying. In addition, they are the most cost efficient and environmentally sound drying technique. Whether Excel Dryers are installed in schools, restaurants, shopping centers, hospitals, service stations, stadiums, movie theaters, correctional facilities, factories, hotels, health clubs, etc., each individual who uses our product is guaranteed safety and satisfaction. Our company will also be pleased to provide its clientele with copies of studies cited. We are confident that you will agree that warm air dryers are clearly the best alternative in drying.

Bibliography

- Ansari, Shamin A., et al. "Comparison of cloth, paper and warm air drying in eliminating viruses and bacteria from washed hands"
American Journal of Infection Control 19 (1991) 243 - 249
- Meers P.D. and K.Y. Leong, "Letters to the Editor: Hot air hand dryers"
Journal of Hospital Infection 14 (1989) 169-181
- Poore, David P. "Microbial aerosol production by various hand drying techniques."
Biosafe Investigation Unit, Quality Service and Scientific Resource Division: Centre for Applied Microbiology and Research (1995) 2-8
- Redway, K. et al. "Hand drying a study of bacterial types associates with different hand drying methods and with hot air dryers. An unpublished report from the Applied Ecology Research Group, University of Westminster, London, England for a study sponsored by the Association of the Makers of Soft Tissue Papers (March 1994) 1-15.
- Saatar, Syed A., Ph.D "Bacteria on Washed and Dried Hands: A Critical Review of Two Unpublished Reports from the University of Westminster."
 University of Ottawa (1994) 3-21
- "The Drier Argument" European Cleaning (September 1994) 63