

European
Cleaning
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Washroom
debate

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European Tissue
Symposium



ECJ: In terms of hygiene, why are paper towels a preferable option?

Berardi: I think that rather than providing my opinions on the subject, it is better to report directly the facts measured and the conclusion reached by two scientists from the School of Biosciences of the University of Westminster in London, Keith Redway and Shameem Fawdar. In its study: 'A comparative study of different hand drying methods: paper towel, warm air dryer, jet air dryer', based on the same methodology as used in the previous University of Westminster studies, it reached the following conclusions about the comparison between paper towels and warm air dryers:

In this study both types of paper towel (PT 1 and PT 3) tested reduced the mean numbers of all types of bacteria tested on the finger pads and the palms of subjects. The percentage mean reductions ranged from -44.6 to -91.5 per cent for finger pads and from -32.8 to -85.2 per cent for palms. Reductions were shown with all types of bacteria on all three growth media. The majority of these reductions were significant, suggesting that they were not due to chance alone but to the action of the towels.

The warm air dryer increased the mean numbers of all types of bacteria tested on the finger pads and the palms of subjects. The percentage mean increases ranged from +114.1 to +414 per cent for finger pads and from +230.4 to +478.8 per cent for palms.

Increases were shown with all types of bacteria on all three growth media. The majority of these increases were significant, some highly so, suggesting that they were not due to chance alone but to the action of the warm air dryer.

ECJ: What about the cost consideration, not just in purchasing the product itself but in maintenance, storage, replenishing by staff etc?

Berardi: It is fair to say that if the lowest possible cost is the only criteria adopted, warm air dryers can manifest some cost advantage, which of course varies depending on the cost of energy in a given country, how long the dryer is used for each cycle, how many sheets of paper are used in the comparison, etc.

As far as maintenance and replenishment are concerned, it has to be noted that cleaning staff are visiting the washroom regularly to clean down surfaces and refill both bathroom tissue and soap dispensers.

ECJ: Increasingly there is an environmental consideration for washroom purchasers. How does tissue rate in this regard?

Paper or electric?

A recent study commissioned by the European Tissue Symposium (ETS) and carried out by the University of Westminster in the UK sparked a new debate over the hygiene of paper towels versus electric hand dryers in away-from-home washrooms. *ECJ* speaks to experts representing the three aspects of this discussion - tissue, traditional warm air dryers, and the new technology in electric hand drying, the Dyson Airblade.

Berardi: In a couple of months we will have available a comprehensive study, to be completed by KCL (Finland): 'Life cycle assessment of hand drying options: comparison of paper hand towel, hot and cotton roll'.

It is too early to anticipate the results but the opinion of the experts is that very likely the determinant factor when comparing the different systems will be the smart utilisation of the different devices.

This variability in the usage rate is expected to be more relevant in terms of environmental impact than the specific technology used. Very likely for the same level of hands dryness the environmental impact of paper towels can even be lower than warm air dryers and textile towels.

In any case it has to be clear that the main purpose of washing and drying your hands is to clean them, then by using a warm air dryer to dry your hands you may actually be wasting environmental resource unnecessarily, because you don't achieve the hygienic result you are aiming for.

ECJ: Do you have any evidence from research about the preference of washroom users as to whether they would like to see towels or warm air dryers in the washroom?

Berardi: With hygiene top of mind, Europeans prefer to dry their hands with paper towels. A survey done by Intermetra in June 2008 among 2,000 citizens, male and female of all age ranges in four major European markets (Germany, France, UK and Sweden) demonstrates that for consumers the facilities of public washrooms are of high importance. Even when washing of hands is considered mandatory, 28 per cent of the users of public washrooms do not wish to dry their hands if they do not find a 'suitable' hand drying device.

When it comes to washing and drying hands 63 per cent, when offered the choice, will definitely put tissue hand towels first. Less than half this percentage (28 per cent) opts for hot air dryers and 10 per cent for textile rolls.

ECJ: How have advances in product technology made paper a more viable and desirable option for public washrooms? What can

users expect in the future?

Berardi: One of the ongoing efforts in the best tissue companies around the world is in driving down the usage of fibres needed in our hand towels to effectively dry the hands.

Companies are constantly seeking more cost effective hand towels for their customers, not only to obtain a competitive edge over their peers but also to increase capacity in existing dispensers, reduce the amount of fibre needed to produce the towels (reduction at source = more sustainable) and also to finally reduce the amount of waste (reduction of waste = more sustainable product).

A positive side effect is that more towels can be packed into a case, increasing the storage and transport efficiency, to minimise both warehousing and transport costs (which can in part be transferred to the customers) and also having the additional environmental benefit of needing fewer trucks to deliver our products resulting in less congested roads and lower usage of fossil fuels.

Andrew Sweibel
Vice president,
international,
Bobrick Equip.



ECJ: In terms of hygiene, why are warm air dryers a preferable option?

Sweibel: The issue of hygiene as it relates to hand drying requires consideration on several levels, and the evidence does not appear conclusive that one method is clearly favourable. For example, both warm air dryers and paper towel dispensers both offer 'hands-free' operation, since many dryers and towel dispensers do not require the patron to touch the unit itself. On the other hand, both residual water from hand dryers and waste paper towels potentially harbour contaminants.

A study by the Mayo Clinic in 2000 found that four potential drying methods - paper towel, cloth roller towel, warm-

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forced-air dryer and 'spontaneous room air evaporation' — were all about equal in removing bacteria.

ECJ: What about the cost consideration, not just in purchasing the product itself but in maintenance by staff, lifetime costs?

Sweibel: The purchase price of hand dryers tends to be higher than most paper towel dispensers, but the negligible maintenance costs associated with dryers means their lifecycle cost including installation and maintenance over time is significantly lower than paper towels.

ECJ: Increasingly there is an environmental consideration for washroom purchasers. How do warm air dryers rate in this regard?

Sweibel: A study prepared by Environmental Resources Management in Oxford in August 2001 showed that the use of dryers results in a smaller environmental footprint than the use of paper towels, though this is based on a number of assumptions such as the use of two paper towels per dry and the use of the dryer for an average of 30 seconds per dry. The result showed that the carbon footprint of a warm air dryer over its lifetime is one third of a paper towel system under the same conditions.

ECJ: Do you have any evidence from research about the preference of washroom users as to whether they would like to see towels or warm air dryers in the washroom?

Sweibel: Our research shows that patrons enjoy using paper towels more. The main reason is that warm air hand dryers take longer than paper towels to dry hands. This was most recently confirmed by a 2009 study done by Keith Redway and Shameem Fawdar at the University of Westminster showing that the warm air dryer was considerably less efficient (ie, slower) than the five types of paper they tested. Another reason patrons prefer paper towels is the noise level generated by warm air hand dryers.

According to the consumer research company Mintel today only six per cent of public washrooms in the USA use warm air dryers.

ECJ: How have advances in product technology made warm air dryers a more viable and desirable option for public washrooms? What can users expect in the future?

Sweibel: The development of dryers with more powerful motors and/or unique air flow designs has resulted in a reduction in dry times. This is helping to address patrons' major objection to dryers. Likewise, advances in motor efficiency have made dryers availa-

ble that run on less electricity and are consequently more cost effective and eco-friendly.

Toby Saville

Head of microbiology, Dyson



ECJ: What makes the Dyson Airblade different from existing technology?

Saville: From the user's point of view a product that gets hands dry in a reasonable time frame is the top priority. From our research 15 secs is the average time people want to spend drying their hands. With the Airblade hands are dry in 10 seconds and we guarantee that the hands are absolutely dry, because walking away with wet hands is the worst thing you can do.

Most warm air dryers feature a basic electric motor, whereas the Airblade is constructed using a digital motor. The key advantage of this is that it achieves very high speeds and moves air extremely fast through the Hepa filter - 400 miles per hour or 37 litres per second. Air passing through the Airblade is also unheated, again different to most warm air dryers. The hands are dried by the sheet of air basically acting like a windscreen wiper on the hands to remove the water.

ECJ: In terms of hygiene, why is the Dyson Airblade a preferable option?

Saville: The air from the Airblade is clean because it is Hepa filtered, so we dispute the claim in the recent ETS study that it actually contains more bacteria. The dryer has absolutely no negative effect on air quality.

And the study quotes an increase in bacteria on the hands after washing - what it does not point out is that this is a normal result of hand washing and that the bacteria are not necessarily harmful ones. We are all covered in bacteria but that does not mean we are in danger. The ETS study gave no explanation of that and in that respect was misleading.

We take this aspect of the Airblade very seriously and have worked with many research associations to prove our hygiene credentials.

ECJ: What about the cost consideration, not just in purchasing the product itself but in maintenance by staff, lifetime costs, etc?

Saville: For the past 20 years warm air dryers have been popular because the costs are so much lower than paper towels. Facilities

managers can just put them on the wall and forget about them.

In terms of energy consumption the Airblade uses even less electricity than a conventional dryer. It has a 1,600 watt motor whereas 2,400 watt is more typical. Take into account that the Airblade is being used for much shorter periods of time and it's clear that the operating costs are extremely low.

Low maintenance and simple cleaning are other clear advantages. Paper always requires more maintenance because dispensers require regular refilling and in high traffic areas this can be a number of times every day. In washrooms where the Airblade has been installed there are usually full-time operatives on duty who can add its simple cleaning to their list of tasks.

ECJ: Increasingly there is an environmental consideration for washroom purchasers. How does the Airblade rate in this regard?

Saville: Paper towels will always be a burden on the environment because of the processes involved in making them - even taking into account the fact that many producers now have their own forests. Used paper towels also cannot be recycled so have to be disposed of as waste.

In developing the Airblade we have created a dryer that requires very little electricity and because it dries the hands so quickly power consumption is even lower than conventional warm air dryers.

ECJ: Do you have any evidence from research about the preference of washroom users as to whether they would like to see towels or electric dryers in the washroom?

Saville: As yet we have compiled no official statistics because the Airblade is still a fairly new product on the market and not enough people have used it. The feedback we are getting, however, tells us that washroom visitors love using it and it has created a real buzz in the market, which speaks for itself.

For example Andrew Wallace, facilities business manager at the London Eye, the most popular paid-for visitor attraction in the UK said after installing 14 Airblades:

"The response from people using them was immediate and positive. They met everyone's expectations and work very well."

ECJ: How have advances in product technology made electric dryers a more viable and desirable option for public washrooms? What can users expect in the future?

Saville: Electric hand dryers have traditionally been criticised by washroom users for being too slow and for not drying hands properly. With the Airblade Dyson has developed a completely new technology which must be differentiated from warm air dryers. The key to its effectiveness is the velocity of air moving through the dryer and the way in which the water is stripped off the hands. The Hepa filter means clean air is blown out into the washroom.

Quelle est la formule la plus hygiénique dans une toilette publique, le sèche-mains électrique ou l'essuie-mains en papier? Le débat est si on ne peut plus ancien, et l'European Toilet Symposium a récemment publié les résultats de recherches indépendantes sur la question. ECJ se penche sur les deux côtés du débat.

Was ist die wirksamste Hygiene im Waschraum - Wärmeluft-Handtrockner oder Papiertücher? Das ist ein altes Argument, und das Europäische Toilet-Symposium hat vor kurzem einige unabhängige Forschungen über diese Thema veröffentlicht. ECJ untersucht beide Seiten dieser Debatte. Quel è il sistema più igienico nelle

sale da toilette: gli asciugamani ad aria calda oppure gli asciugamani in carta? E' un argomento che fa discutere da molto tempo e European Toilet Symposium ha recentemente pubblicato alcuni ricerche indipendenti al riguardo. ECJ esamina entrambi i punti di vista del dibattito.