

UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF PENNSYLVANIA

RONALD A. BLOUCH JR.,
Plaintiff,

v. Civil Action No. _____

NSF INTERNATIONAL, et al.,
Defendants.

MEMORANDUM IN SUPPORT OF COMPLAINT

DOCUMENTING DYSON LTD. CONDUCT

Submitted in Support of Blouch v. NSF International et al.

June 2026

I. INTRODUCTION AND PURPOSE

This memorandum documents the conduct of Dyson Ltd. as it relates to NSF International's certification of Dyson products under NSF Protocol P335, titled "Hygienic Commercial Hand Dryers." Dyson is the only hand dryer manufacturer currently holding NSF P335 certification. Independent testing documented in this action establishes that

currently manufactured and installed Dyson dispersal-type products achieve 0% compliance with NSF P335's mandatory drying performance requirements at manufacturer-specified times.

This memorandum serves four purposes: (1) to establish that Dyson possessed documented knowledge of NSF P335 requirements and the relationship between residual moisture and bacterial transmission; (2) to document that a Dyson employee served on the NSF P335 Protocol Development Panel and that a proprietary Dyson test method was incorporated as a normative reference in the protocol; (3) to document Dyson's use of a proprietary test method to generate performance claims; and (4) to preserve a complete evidentiary record for potential future proceedings.

II. DYSON'S DOCUMENTED KNOWLEDGE

A. Citations to Patrick et al. Research

Dyson's marketing materials cite Patrick et al. (Epidemiol. Infect. 1997) three times across multiple documents. Patrick's research established that residual moisture determines the level of touch-contact-associated bacterial transfer, with wet hands transferring up to 1,000 times more bacteria than dry hands.

Independent testing in this action establishes that Dyson products leave hands with mean residual moisture of 2.83g at manufacturer-specified drying times, compared to the 0.1g threshold that defines "dry" under NSF P335. Dyson cites the research establishing the harm caused by wet hands while marketing products that leave hands wet.

B. The NSF P335 0.1g Standard

Dyson explicitly references the NSF P335 0.1g residual moisture standard in its marketing materials. Dyson footnotes state: "Dry time determined using Dyson test method 769 based on NSF P335 using a measurement of 0.1g residual moisture."

This footnote establishes two facts: Dyson knows the 0.1g specification, and Dyson uses a proprietary method "based on" NSF P335 rather than NSF P335 itself. The phrase "based on" indicates deviation from the actual protocol in undisclosed ways.

C. High-Velocity Water Dispersal

Dyson's marketing materials state that its products deliver air at velocities of 400-640 km/h (approximately 420-430 mph). NSF P335 requires that liquid containment be monitored during testing, and prescribes containment, drainage and six-log disinfection for machines that collect the removed water. It prescribes nothing for machines that discharge it into the room. Containment shall be monitored during all testing. Dyson's marketing admits water dispersal at velocities that preclude containment, while NSF certified Dyson products under a protocol requiring containment monitoring.

III. DYSON'S PARTICIPATION IN PROTOCOL DEVELOPMENT

A. The Protocol Development Panel

NSF P335 lists the Protocol Development Panel members on page iii. The panel included: Dr. John Conway (University of Oklahoma Health Sciences Center); Mr. Robert Donofrio

(NSF International); Mr. Anthony Gagliardi (Forsyth County Health Department); Dr. Jerome Nriagu (University of Michigan); and Mr. Toby Saville, Microbiologist, Dyson Limited.

In Case 3:12-cv-30211 (Excel Dryer v. Dyson), Document 26, Toby Saville submitted a sworn affidavit confirming: (1) he is a Dyson microbiologist; (2) he served on the NSF P335 Protocol Development Panel; (3) he continues to serve on that panel; and (4) NSF P335 defines "dry hands" as 0.1g residual moisture.

B. Incorporation of Dyson Test Method

NSF P335 Section 2 (Normative References) lists "Dyson Test Method DTM 553, Evaluation of Hand Dryer Drying Times" as a normative reference. A normative reference is incorporated into the standard itself. A proprietary Dyson test method became part of the protocol under which Dyson products are certified.

IV. THE MIT LIFECYCLE ASSESSMENT

In September 2011, the Massachusetts Institute of Technology Materials Systems Laboratory published "Life Cycle Assessment of Hand Drying Systems," commissioned by Dyson, Inc. The study concluded that Dyson Airblade was environmentally superior to Excel's XLERATOR.

A. Testing Source

Page 16 of the MIT study states: "NSF protocol measurements were performed by Dyson." Dyson conducted the testing of both its own products and its competitor's XLERATOR. The

20-second dry time attributed to XLERATOR came from "personal communication with Dyson, Ltd." (footnote 27, page 30).

Source: Case 3:12-cv-30211-MAP, Documents 6-1 (MIT LCA)

B. The October 17, 2012 Joint Letter

The authors of both competing lifecycle assessments—Jon Dettling (Quantis, Excel's LCA) and Jeremy Gregory and Randolph Kirchain (MIT, Dyson's LCA)—wrote a joint letter to William Gagnon, Excel's VP/COO. The letter made four admissions:

1. "Dyson has also conducted internal hand dryer tests using the NSF standard and provided MSL with the data for use in the LCA study."
2. "The estimated dry times for the Dyson Airblade from SGS and Dyson tests are essentially the same..."
3. "...whereas the estimated dry times for the XLERATOR were significantly different in the SGS and Dyson tests (the Dyson test result was nearly 50% higher than the SGS result)."
4. "We cannot explain these differences since we did not observe the testing by either entity."

The letter concluded: "Drawing a statistically robust conclusion regarding a superior environmental performance in the high speed dryer category is not possible... when reported dry times are used in the analysis (12 seconds for each of these two units, which

is consistent with the SGS measurements)... the Airblade and the XLERATOR are statistically indistinguishable."

Source: Case 3:12-cv-30211-MAP, Document 6-6

The signatories to this letter did not remain neutral analysts. Jon Dettling, who authored Excel's competing Quantis assessment, and Jeremy Gregory, a co-author of the MIT assessment Dyson commissioned, both later served on the UL PCR Review Panel that approved the environmental standard for hand dryers—Dettling as its chair. The analysts who, in this litigation, could not distinguish the competing products' environmental performance subsequently sat on the panel that set the rules under which such products are certified. The same limited set of individuals recurs across the testing, the litigation, and the standard-setting documented throughout this action.

The letter also fixes what SGS measured, and when. In 2012 two expert life-cycle authors, writing to the party that commissioned one of the assessments, recorded that the SGS and Dyson drying-time results for the XLERATOR differed by nearly fifty percent, that neither author could explain the difference, and that at the reported dry times — twelve seconds, the figure consistent with the SGS measurements — the two products were statistically indistinguishable. Twelve seconds is the number SGS measured. Four years later UL certified the same product at 8.355 seconds, attributing the testing to SGS, and eleven years later Smart EPD certified it at eight seconds under UL's rule. Plaintiff's 462 field trials place the same product between seventy and ninety seconds. The divergence the joint letter could not explain in 2012 was never resolved. It was certified. currently manufactured

and installed Dyson dispersal-type products achieve 0% compliance with NSF P335's mandatory drying performance requirements at manufacturer-specified times.

V. METHOD 769

Dyson marketing materials reference "Dyson test method 769 based on NSF P335."

Method 769 is proprietary, not publicly available, not peer-reviewed, and not subject to independent validation. The method has not been located in over 1,000 pages of Dyson litigation documents from Case 3:12-cv-30211.

Dyson displays NSF P335 certification marks prominently while footnoting that drying time claims derive from Method 769 rather than NSF P335 testing. The substance of Method 769's deviations from NSF P335 methodology remains undisclosed.

VI. LABORATORY TESTING CONDITIONS

Dyson cites testing by AIRMID as independent validation. AIRMID documentation indicates: "Each experiment was carried out three times" (n=3 per condition). NSF P335 Section 6.3 requires testing to be "replicated a minimum of 20 times" (n=20).

Saville's affidavit does not identify the specific Dyson model(s) tested. Based on the testing dates (2009–2011), the units tested were AB01, AB03, or early Mk2 models — insert-dispersal dryers featuring dual opposing air blades in a vertical slot that dry hands in approximately 10–12 seconds, a fundamentally different drying architecture from the downdraft-dispersal products that replaced them and now carry the same certification. If Saville tested insert-dispersal units, the results reflect the performance of a discontinued

architecture bearing no resemblance to the downdraft-dispersal products currently sold under the same certification.

AIRMID testing was conducted in a "controlled environment" with new units under laboratory conditions. Products are marketed for public restrooms with repeated use, ambient contamination, biofilm accumulation, and uncontrolled conditions. Independent testing in this action—conducted in 127 functioning public restrooms under actual use conditions—produced results that do not replicate AIRMID's laboratory findings.

VII. INDEPENDENT TESTING RESULTS

Independent testing conducted for this action produced the following results for currently manufactured NSF P335-certified Dyson dispersal-type products:

- 462 drying trials conducted across three manufacturers
- 0% compliance with 0.1g threshold at manufacturer-specified drying times
- Mean residual moisture: 2.83g (2,830% above 0.1g specification)
- 136 consecutive microbial amplification tests, 100% showing amplification versus ambient air, within a corpus of 931 individual tests at 226 stores across 169 hand dryers and 94 paper-towel dispensers
- Median bacterial amplification: 50-110× compared to ambient restroom air
- 70-90 seconds required to approach 0.1g threshold versus 10-14 seconds claimed
- HEPA-filtered (Dyson) and non-HEPA dryers showed no significant difference in contamination ($p = 0.803$)

Complete methodology and data are documented in the research studies filed as exhibits to the Complaint, with 1.3 TB of supporting documentation archived with registered DOIs through Zenodo and Harvard Dataverse.

The figures above rest on 931 individual tests conducted at 226 stores across five states and the District of Columbia, across 1,076 culture dishes from which approximately 50,000 bacterial and fungal colonies were hand counted. Every result is public, replicable, and open for inspection and debate. Every counting decision is documented and every error found and corrected is disclosed in the record. currently manufactured and installed Dyson dispersal-type products achieve 0% compliance with NSF P335's mandatory drying performance requirements at manufacturer-specified times.

VIII. RELEVANCE TO NSF'S LIABILITY

The conduct documented in this memorandum is relevant to NSF's liability for the following reasons:

- NSF placed a manufacturer employee on the panel that wrote the certification protocol
- NSF incorporated a proprietary manufacturer test method as a normative reference
- NSF certified products achieving 0% compliance with mandatory 95% compliance requirements
- NSF continues to list these products as certified under a protocol titled "Hygienic Commercial Hand Dryers"

- NSF P335 was written in 2007 when, pending discovery, Plaintiff believes the only Dyson product was an insert-dispersal Airblade (AB01/AB03) — a dryer in which hands enter a vertical slot and dual opposing air blades strip water simultaneously from all four hand surfaces. No Dyson product has ever had an internal drainage tank. P335's mandatory water containment and disinfection specifications describe not Dyson's architecture but its competitor: the Mitsubishi Jet Towel, the only insert-capture dryer, which retains stripped water in an 800ml removable drain tank. When Dyson transitioned to downdraft-dispersal designs that spray stripped water into the room, P335's containment framework was inapplicable to both old and new certified products — yet the certification was never withdrawn, amended, or retested

IX. PRESERVATION FOR FUTURE PROCEEDINGS

X. THE PROTOCOL DESCRIBES A COMPETITOR'S MACHINE

P335 was written in 2007 around the insert architecture. No Dyson product has ever had an internal drainage tank. The protocol's mandatory water containment and disinfection specifications describe not Dyson's architecture but its competitor's: the Mitsubishi Jet Towel, the insert-capture dryer that retains stripped water in an 800 ml removable drain tank. The machine that collects the water carries collection, containment, drainage, disinfection and maintenance obligations. The machine that discharges the same water into the room carries none. currently manufactured and installed Dyson dispersal-type

products achieve 0% compliance with NSF P335's mandatory drying performance requirements at manufacturer-specified times.

When Dyson transitioned to downdraft-dispersal designs that spray stripped water into the room, the containment framework was inapplicable to both the old and the new certified products, and the certification was never withdrawn, amended, or retested. Annex A.2 of the protocol provides that no change in design, construction or materials may be made without NSF's prior approval. The architectural change was a change in design within that provision. currently manufactured and installed Dyson dispersal-type products achieve 0% compliance with NSF P335's mandatory drying performance requirements at manufacturer-specified times.

What the protocol certifies is an event. P335 describes a single operating cycle: hands, wet, dried to a stated endpoint within a stated time, in the room where the machine is installed. That cycle requires nine elements — a dryer, electricity, a wall, a floor, air, hands, water, time and dryness. Remove any one and the declared cycle fails. P335 prescribes a test for three of them: the dryness of the hands, within a time. The Dyson downdraft products certified under it fail all three. currently manufactured and installed Dyson dispersal-type products achieve 0% compliance with NSF P335's mandatory drying performance requirements at manufacturer-specified times.

This memorandum creates a permanent record of Dyson's conduct as documented through Dyson's own marketing materials, court filings, and protocol development records. While Dyson is not named as a defendant in this action, this record is preserved

for potential future proceedings including: amendment to add Dyson as defendant;
separate actions against Dyson; class actions; and regulatory referrals.

Respectfully submitted,

Ronald A. Blouch Jr.

Plaintiff

Date: _____

APPENDIX: KEY DOCUMENTARY SOURCES

- NSF Protocol P335: Hygienic Commercial Hand Dryers (April 2007)
- Toby Saville Affidavit, Case 3:12-cv-30211, Document 26
- MIT Lifecycle Assessment, Case 3:12-cv-30211, Document 6-1
- Joint Letter (Dettling/Gregory/Kirchain), Case 3:12-cv-30211, Document 6-6
- Dyson marketing materials documenting Method 769 references and Patrick citations
- Research studies (Papers 1-11) with DOIs registered through Zenodo and Harvard Dataverse