

# Household Tumble Dryers

Ecodesign & Energy Labelling  
Compliance Assessment

Summary Report



# Household Tumble Dryers: Ecodesign and Energy Labelling Compliance Assessment

## Summary Report

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### **Sustainable Energy Authority of Ireland**

SEAI is Ireland's national energy authority investing in, and delivering, appropriate, effective and sustainable solutions to help Ireland's transition to a clean energy future. We work with the public, businesses, communities and the Government to achieve this, through expertise, funding, educational programmes, policy advice, research and the development of new technologies.

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## Introduction

This report gives an overview of the results of ecodesign and energy labelling market surveillance of household tumble dryers. Organised between 2020 and 2022 by the Sustainable Energy Authority of Ireland (SEAI), the work was conducted as part of ongoing national market surveillance activities relating to the Ecodesign Directive (2009/125/EC) and Energy Labelling Regulation (EU) 2017/1369.



The activity detailed in this report represents our contribution to a work package of the Horizon 2020 funded EEPLIANT3 Project<sup>1</sup>, and was undertaken in collaboration with a number of other European Market Surveillance Authorities (MSAs).

It identifies the levels of non-compliance encountered relating to household tumble dryer products that were available on the Irish and broader European market, and may facilitate a degree of comparison over time between this and other household tumble dryer market surveillance initiatives. This summary report gives an overview of the findings from product assessments carried out to date.

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<sup>1</sup> The information contained in this report is part of the EEPLIANT3 Concerted Action that has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 832558. The content represents the views of the author and it is his sole responsibility; it can in no way be taken to reflect the views of the European Climate, Infrastructure and Environment Executive Agency (CINEA), the European Commission or any other body of the European Union, who are not responsible for any use that may be made of the information it contains. Further information on the EEPLIANT3 Concerted Action can be found at <https://eepliant.eu/index.php/new-products/tumble-dryers>

## Relevant legislation

The regulations and standards in force at the time and used to verify compliance of the household tumble dryers were:

### Applicable regulations:

- Commission Regulation (EU) No. 932/2012 of 3 October 2012 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for household tumble dryers
- Commission Delegated Regulation (EU) No. 392/2012 of 1 March 2012 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of household tumble dryers

### Applicable standards:

- EN 61121:2013 Tumble dryers for household use — Methods for measuring the performance
- EN 60704-2-6:2012 Household and similar electrical appliances — Test code for the determination of airborne acoustical noise — Part 2-6: Particular requirements for tumble dryers

## Market screening and product selection

A longlist of household tumble dryers in scope of the regulations was compiled from several sources in order to provide, insofar as possible, a reasonable representation of products available on the Irish market. Sources included household tumble dryer product listings on electrical retailers' and manufacturers' websites offering products for sale on the Irish market.

A risk-based approach was taken to product selection, with a higher level of risk assigned to products with greatest market penetration, budget brands and new market entrants. Using this approach, 11 models were initially selected for assessment from eight different manufacturers/brands.

## **Assessment of compliance with formal (administrative) requirements**

Formal written requests for the provision of appropriate technical documentation were issued to eight manufacturers, relating to 11 household tumble dryer products. Technical documentation was received for all 11 products.

Upon initial assessment of the 11 responses received, the MSA concluded that only one complete technical documentation file indicating compliance with ecodesign and energy labelling requirements had been provided. Based on SEAI's experience gained through technical documentation assessments from previous product campaigns, this level of compliance at the initial point of technical documentation request is not uncommon.

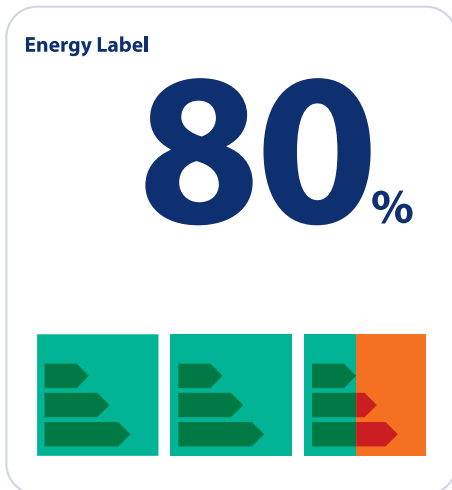
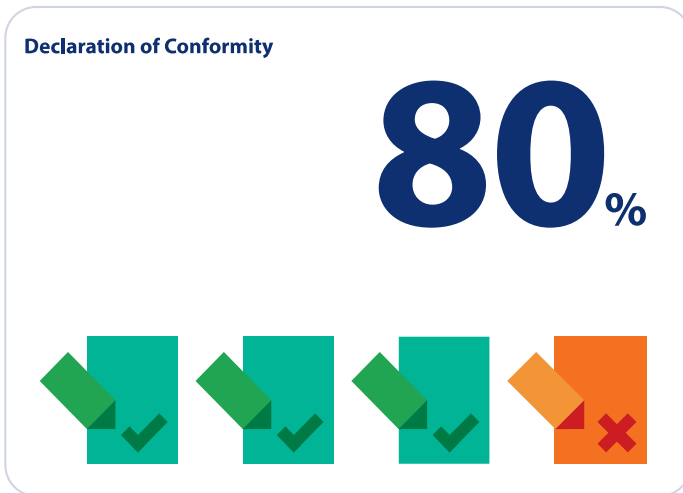
Following engagement with manufacturers, it was found that one tumble dryer product selected for assessment ceased being placed on the market by the manufacturer in 2018. It was therefore decided not to pursue assessment of this discontinued product. As a result, a total of 10 household tumble dryers were fully assessed during this campaign.

The following provides a summary of the findings of the formal compliance assessments undertaken, with further explanation provided below. These findings relate to the initial assessment of compliance, based on the technical documentation provided. Where non-compliance was identified, this was addressed by manufacturers through engagement with SEAI during the formal compliance assessment phase.

# Summary of formal compliance assessments

10 assessments completed

Percentage shows compliance



The findings of the formal compliance assessments are summarised and described as follows:

**Declaration of Conformity** refers to non-compliant aspects of the Declaration of Conformity (DoC) encountered. These typically included missing references to the applicable regulation and test standards.

**Technical documentation** non-compliances included:

- absence of certain relevant documentation or specific aspects required
- incomplete product information or product information not set out in the required format
- technical documentation values not supporting the declared values
- no test conditions or measurement methodologies described

**Energy label** refers to non-compliances related to incorrect energy label format.

**Product fiche** refers to non-compliances related to incorrect fiche format, or the non-provision of the fiche information in manuals or brochures.

**% Non-compliant** refers to the percentage of instances where non-compliance with respect to the applicable regulations have been identified by the MSA. Actions carried out by the economic operator to rectify such formal non-compliances when identified by the MSA are referred to as 'corrective actions' by the MSA.

**% Compliant** refers to the percentage of instances where compliant documents were provided, usually after more than one request, and where no non-compliances were identified and no changes required by the economic operator.

The most common non-compliances encountered when assessing technical documentation were related to product test reports not received, energy labelling technical documentation not received and harmonised standards not referenced in received product DoC.



## Assessment of compliance with technical requirements (laboratory testing)

Laboratory testing can be undertaken by an MSA to verify whether a product meets the requirements of the relevant regulations. Typically, this involves testing one unit of the product and if this fails to meet the requirements of the regulations, another three units of the same product must be tested to verify non-compliance.

Three household tumble dryers were selected for verification testing in a laboratory, based on findings from the technical documentation checks (e.g., results for product testing deemed at risk of not meeting limit values, non-provision of requested information).

An appropriate laboratory was selected for testing through a procurement exercise coordinated as part of the EEPLIANT3 Project, and an individual unit of each of the three selected models was purchased from website suppliers. These units were shipped to the testing laboratory in accordance with a chain of custody procedure for testing, with purchase and shipping of the products undertaken between September and November 2021.

The following parameters were measured and reported upon by the laboratory:

- Weighted annual energy consumption ( $AE_c$ )
- Weighted energy consumption ( $E_t$ )
- Weighted condensation efficiency ( $C_t$ )
- Weighted programme time ( $T_t$ )
- Power consumption in off-mode ( $P_o$ )
- Power consumption in left-on mode ( $P_i$ )
- Duration of the left-on mode ( $T_i$ )
- Sound power level (LWA)

where:

**Weighted annual energy consumption ( $AE_c$ )** is described as the energy consumption of "X" kWh per year. This is based on 160 drying cycles of the standard cotton programme at full and partial load, and the consumption of the low-power modes.

**Weighted energy consumption ( $E_t$ )** is the measure of the energy a tumble dryer uses per cycle, based on expected frequency of full and partial load cycles.

**Weighted condensation efficiency ( $C_t$ )** is a measure of the condensation efficiency of a tumble dryer, considering the average condensation efficiency of the standard cotton programme at both full and partial load.

**Weighted programme time ( $T_t$ )** is a measure of programme time of a tumble dryer, considering the programme time of the standard cotton programme at full load ( $T_{dry}$ ) and the programme time of the standard cotton programme at partial load ( $T_{dry\frac{1}{2}}$ ).

**Power consumption in off-mode ( $P_o$ )** refers to the power consumption of a tumble dryer in a state where the appliance is switched off using appliance controls or switches accessible to and intended for operation by the end-user during normal use. This results in attaining the lowest power consumption that may persist for an indefinite time while the appliance is connected to a power source and used in accordance with the manufacturer's instructions.

**Power consumption in left-on mode ( $P_l$ )** refers to the power consumption of a tumble dryer in the lowest power consumption mode that may persist for an indefinite time after completion of the programme without any further intervention by the end user, besides unloading of the household tumble dryer.

**Duration of the left-on mode ( $T_l$ )** refers to the duration of the left-on mode for the standard cotton programme at full load, in minutes and rounded to the nearest minute.

**Sound power level ( $L_{WA}$ )** refers to the weighted average value of sound during the drying phase for the standard cotton programme at full load, expressed in dB and rounded to the nearest integer.

## Results

Of the three models tested, two products achieved compliance with all tested parameters. The third product did not complete the test series because the door opened during one of the test runs, and the test was therefore deemed to be invalid. The testing standard EN 61121 does allow for an instance where a product does not complete a test run, for example, due to the door opening mid cycle. However, as the tested unit had already returned a fail result on a previous test run of the final moisture content parameter, the test series was to be deemed invalid for this product.

Following extensive discussion with the EEPLIANT3 work package coordinator, the laboratory and European Commission project representatives regarding the most appropriate way to proceed, it was decided to retest an additional single unit of this tumble dryer product. This course of action was chosen because it is not appropriate or legally sound to conclude that a product has failed initial testing on the basis of an invalid test result. An additional unit of this tumble dryer product was procured and shipped to the laboratory in March 2022. The result of the testing of this second unit indicated compliance. According to the verification procedure outlined in the applicable legislation, based on the result of the single tests carried out on this product no further testing was required to be undertaken.

The results of product testing for the three selected products are shown in tables 1-3 below. The first set of test results for the third product are not shown as this test did not return results for several parameters.

Product 1	Parameter limit	Declared value	Measured value	Test result
Final moisture content	0% +/- 3%	0%	0.33%	Pass
Weighted annual energy consumption (AEC)	+6% of declared value	636	630	Pass
Weighted energy consumption (E <sub>t</sub> )	+6% of declared value	3.95	3.91	Pass
Weighted programme time (T <sub>t</sub> )	+6% of declared value	118	124	Pass
Power consumption in off-mode (P <sub>o</sub> )	1.00 W	0.4	0.38	Pass
Power consumption in left-on mode (P <sub>i</sub> )	1.00 W	0.75	0.55	Pass
Duration of the left-on mode (T <sub>i</sub> )	+6% of declared value	n/a	n/a	Pass
Sound Power Level (L <sub>WA</sub> )	≤ declared value	67	65	Pass

**Table 1:** Initial testing results for the first product tested

Product 2	Parameter limit	Declared value	Measured value	Test result
Final moisture content	0% +/- 3%	0%	1	Pass
Weighted annual energy consumption (AEC)	+6% of declared value	511	506	Pass
Weighted energy consumption (E <sub>t</sub> )	+6% of declared value	3.16	3.14	Pass
Weighted programme time (T <sub>t</sub> )	+6% of declared value	86	89	Pass
Power consumption in off-mode (P <sub>o</sub> )	1.00 W	0.5	0.06	Pass
Power consumption in left-on mode (P <sub>i</sub> )	1.00 W	0.5	0.64	Pass
Duration of the left-on mode (T <sub>i</sub> )	+6% of declared value	n/a	n/a	Pass
Sound Power Level (L <sub>WA</sub> )	≤ declared value	66	62	Pass

Table 2: Initial testing results for the second product tested

Product 3 (Second test)	Parameter limit	Declared value	Measured value	Test result
Final moisture content	0% +/- 3%	0%	1.2%	Pass
Weighted annual energy consumption (AEC)	+6% of declared value	519	516	Pass
Weighted energy consumption (E <sub>t</sub> )	+6% of declared value	3.22	3.2	Pass
Weighted programme time (T <sub>t</sub> )	+6% of declared value	104	105	Pass
Power consumption in off-mode (P <sub>o</sub> )	1.00 W	0.49	0.4	Pass
Power consumption in left-on mode (P <sub>i</sub> )	1.00 W	0.46	0.4	Pass
Duration of the left-on mode (T <sub>i</sub> )	+6% of declared value	N/a	10	Pass
Sound Power Level (L <sub>WA</sub> )	≤ declared value	69	62	Pass

Table 3: Initial testing results for the third product tested

As all three tested products were deemed compliant for the parameters tested during the initial round of product testing, triplicate testing of these products was not required.

## Summary

Of the 10 products for which technical documentation assessments were undertaken, formal non-compliances were identified in nine cases. The main source of formal non-compliance was in the provision of relevant technical documentation (occurring in eight of 10 cases), where some aspects of technical documentation related to energy labelling and product test reports were not received, as well as non-compliant Declaration of Conformity.

Where formal non-compliances were identified, they have been voluntarily rectified by the economic operators without the need for formal enforcement measures. Following engagement with the manufacturers and market controls being applied, all nine products were deemed to have been brought into compliance and the cases closed.

All three products subjected to laboratory testing were found to be compliant. The issue related to the product door opening during product testing has been investigated and brought to a conclusion. The findings and conclusions arising from EEPLIANT3 product testing are to be fed into the proposal for a new ecodesign and energy labelling draft regulation for tumble dryers, which is currently under discussion between the European Commission, Member States and other stakeholders.

Further market surveillance activity related to this product category is planned to commence with the coming into force of these new regulations. The focus of this activity will be on those manufacturers and brands where non-compliances have previously been identified, along with manufacturers of household tumble dryers not previously engaged with by SEAI.



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