# Informationen

## zur Zertifizierung des Schallabsorbtionsgrads nach DIN EN ISO 354

| | | |
|---|---|---|
| Stoff | • malaga | Farb.-Nr. 855. .. |
| Zertifikat-Nummer | **TI-15/1** | |
| Bestätigung | Die Firma erfal bestätigt, dass dieser Qualität das Zertifikat TI-15/1 zugrunde liegt. | |
| Datum | 30.03.2015 | |

Jörg Erler
Geschäftsführer

erfal steht für Qualität Made in Germany.
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Bei Fragen zur Pflege unserer Stoffe melden Sie sich bitte bei:

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info@erfal.de

ARAU ACUSTICA

TEST REPORT NUMBER: *TI-15/1*

# MEASUREMENT OF SOUND ABSORPTION BY IMPEDANCE TUBE:

**SAMPLE:** 100%PET

**TRADEMARK:** [redacted]

**MODEL:** [redacted]

**MANUFACTURER:** [redacted]

**PETITIONER:** [redacted]

**CURRENT REGULATION:** UNE-EN ISO 10534-2.

**TEST DATE:** March 25, 2015

**DATE ISSUE REPORT:** March 30, 2015

HIGINI ARAU PUCHADES

Doctor in Physics

Specializing in Acoustic

This report is concerned only to the samples tested and the time and conditions under which the measurements were made. The test item has been subjected to the tests required by the applicant, using the procedures specified by the rules used. The test results are summarized in the following pages.

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1.- PURPOSE OF THE REPORT:

In this report are collected the results of sound absorption measurements by impedance tube, made according to UNE-EN ISO 10534-2 to three different samples of the product: 100%PET.

These measurements were performed using the Transfer Function.

2.- PRODUCT STUDIED DESCRIPTION:

| | |
|---|---|
| **Product:** | 100% PET |
| **Trademark:** | [redacted] |
| **Model:** | [redacted] |
| **Manufacturer:** | [redacted] |
| **Distribution:** | [redacted] |
| **Description:** | *composition*:<br>100% PET, grey color.<br>Cylindrical samples of 3.5 cm diameter.<br>*The configuration is*:<br>100% PET, *grey color, 150 mm air chamber* |

3.- LABORATORY:

| | |
|---|---|
| **Name:** | ARAU ACÚSTICA |
| **Address:** | Travessera de Dalt 118, 3$^{er}$ 1$^{a}$ |
| | 08024 Barcelona |
| **Person in charge:** | Higini Arau |
| **Phone:** | +34 93 284 5016 |
| **Contact person** | Oriol Arau |
| **Email** | info@arauacustica.com |

4.- PETITIONER:

[redacted]

## 5.- DESCRIPTION OF TEST METHODOLOGY:

The test sample consists in three distinct processes:

*i)* *Experimental acquisition of the material response to the acoustic excitation.*

It is in this first step where samples are subjected to experimental study. By impedance tube (fig. 4.1) the values of the *transfer function H1* is obtained.

Impedance tube (diameter 3.5 cm) is metallic, and comprises:

The "*subject samples"* (where a specimen of the material to be studied, of 3.5 cm diameter and thickness depending on the product, is applied).

The connection of the two microphones (required to calculate the transfer function).

The speaker signal generator (at the opposite end of the sample).

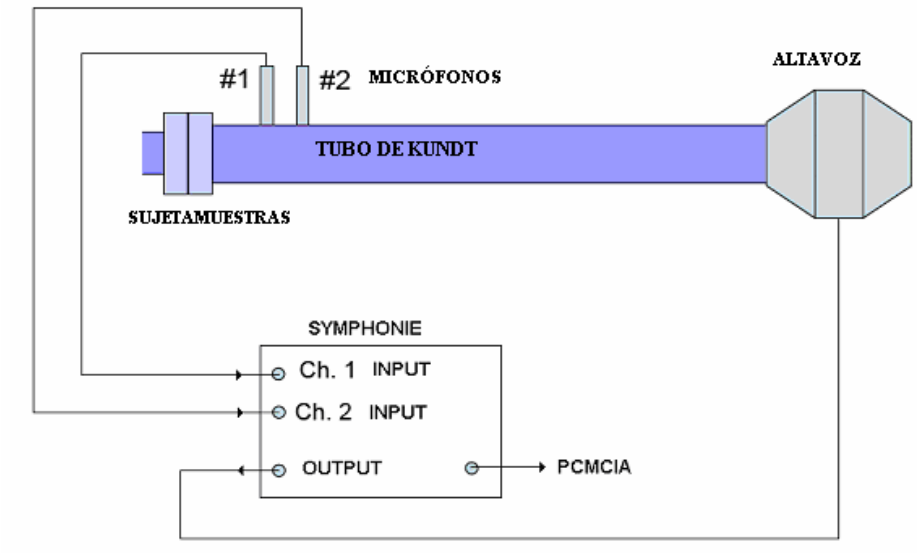


*Figure 4.1. Scheme of sound absorption measurement*

The study was performed on three different samples of material of the same dimensions and densities. This will allow us to average acoustic properties.

These samples are extracted from the part of the product given to us by a "*short samples"* of the same dimensions as the impedance tube.

Samples are introduced one to one in to experimental acquisition system. White Noise signal is generated, and the system captures the response of the material to sound signal.

*ii)* *Processing the response data obtained in the above process.*

This computer processing allow us to treat the information we have gained from the *transfer function H1*, with the intention of obtaining the absorption coefficients / reflection, acoustic impedance and other material parameters.

*iii)* *Processing of the results coming from the previous mathematical treatment.*

With this calculation we obtain, numerically and graphically, material absorption frequency bands (octave and octave-thirds).

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# COEFFICIENT OF ACOUSTIC ABSORPTION BY UNE-EN ISO 10534-2

Acoustic absorption measurements by impedance tube

**PETITIONER:** [redacted] **DATE OF TEST:** 25/03/15

**IDENTIFICATION SAMPLE:**

*ECOPLANET FR PEARL T-1165/10*

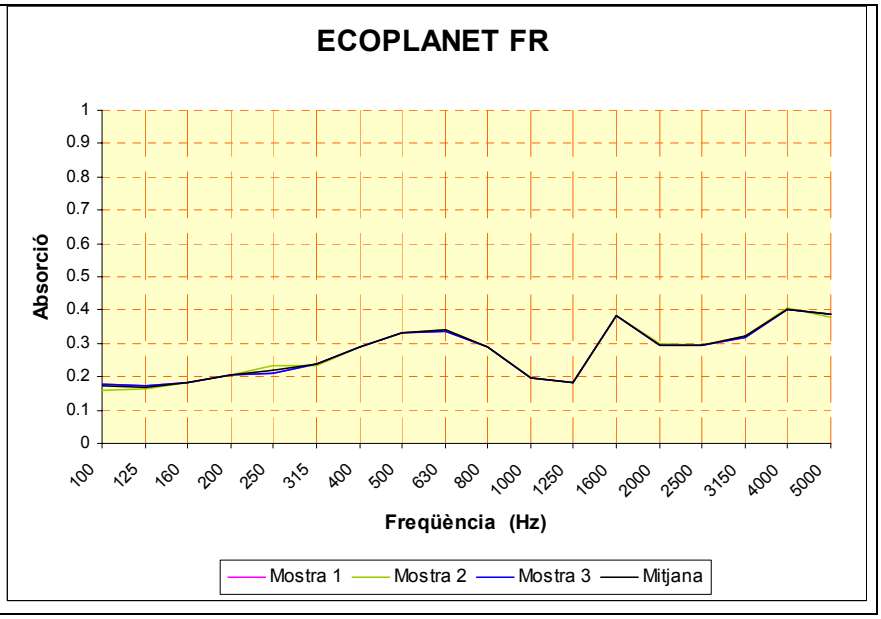
DIMENSIONS: cylinder of base of 3.5 cm of diameter.

CHARACTERISTICS: 100%PET in *grey color*.

*100%PET* in grey color, *15*0 mm air chamber.

| *TEMPERATURE (ºC)* | **21.5** | *ATMOSPHERIC PRESSURE (mbar)* | **1015** |
|---|---|---|---|

| FREQUENCY | ABSORPTION |
|---|---|
| **100** | **0.16** |
| **125** | **0.17** |
| **160** | **0.19** |
| **200** | **0.21** |
| **250** | **0.23** |
| **315** | **0.24** |
| **400** | **0.29** |
| **500** | **0.33** |
| **630** | **0.34** |
| **800** | **0.29** |
| **1000** | **0.20** |
| **1250** | **0.18** |
| **1600** | **0.38** |
| **2000** | **0.30** |
| **2500** | **0.30** |
| **3150** | **0.32** |
| **4000** | **0.40** |
| **5000** | **0.39** |




| FREQUENCY | ABSORPTION |
|---|---|
| **125** | **0.17** |
| **250** | **0.23** |
| **500** | **0.32** |
| **1000** | **0.22** |
| **2000** | **0.33** |
| **4000** | **0.37** |

Tests realized with impedance tube in the laboratory "ARAU ACÚSTICA".
According to the parameters of the rule UNE-EN ISO 10534-2.

**$\alpha_w = 0.30$**
**NCR = 0.28**

**TEST REPORT NUMBER:** TI-15/1 **LABORATORY:** ARAU ACÚSTICA

**REPORT DATE:** 30/03/15 **PERSON IN CHARGE :** HIGINI ARAU