



Universitat de Girona

Departament d'Enginyeria
Industrial

This report is developed after carrying out the corresponding trials established in the scientific collaboration agreement of mechanic-fluid behavior of rectangular airflow ducts.

TECHNICAL REPORT

REQUESTER

Mr. Francesc Bolló. Technical Director
POLIURETANOS S.A.
C/ Matamala s/n
17244 Cassà de la Selva (Girona)

Universitat de Girona
Departament d'Enginyeria
Industrial

TRIAL OBJECTIVE

Determining PIR-ALU airflow duct panel total roughness.

SAMPLE CHARACTERISTICS

Air conditioning flow panels manufactured with PIR-ALU 45 material, and made up with a polyisocyanurate nucleus layered in both sides by embossed aluminum. The panel thickness is of 20mm

Trial has been done in five different material samples.

TRIAL METHOD

Five different tube sheets were tried out in different points of the sample in order to determine the total roughness of each one. In order to do so, an electronic microscope and image analyses software was used.

RESULTS

The results are shown in the following chart:

Number of pixels of roughness				
Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
416	385	396	410	475
400	357	350	478	394
372	337	382	419	439

Working at 200X scale implies a 0.000615 mm resolution per pixel, which translates into material average roughness of:

$$K = 0.25 \text{ mm.}$$



Universitat de Girona

Departament d'Enginyeria
Industrial

O.K.
Area Manager

Joaquín Velayos Solé.
Fluid Mechanics Lecturer

Trial date: Girona. July 24, 1998.

Fluids Laboratory Manager



Universitat de Girona
Departament d'Enginyeria
Industrial

Josep R. González Castro.
Fluid Mechanics Associated Teacher

This document has two sealed pages.