**Tecnolab del Lago Maggiore S.r.l.**
**ISTITUTO DI PROVE, MISURE E RICERCHE, ING. MICHELE SETARO**
Via dell'Industria, 20
28924 Verbania Fondotoce (VB) - Italia



**CLIENTE**
Customer

**ENNE ESSE SRL**

**COMMESSA**
Contract

**CO006609** - **19/03/2009**

**RAPPORTO DI PROVA**
Test Report

**RP007109**

**Thermal tests on caulking and thermal-reflective material**

**NORME DI RIFERIMENTO**
Applicable standards

**-**

| | | | |
|---|---|---|---|
| **23/03/2009** | ing. Daniele Crispino | ing. Daniele Crispino | ing. Michele Setaro |

Questo documento è firmato elettronicamente; le firme sono certificate da InfoCert S.p.a.
*This document is signed electronically; signatures are certified by InfoCert S.p.a.*

**Tecnolab del Lago Maggiore S.r.l.**
**ISTITUTO DI PROVE, MISURE E RICERCHE, ING. MICHELE SETARO**
Via dell'Industria, 20
28924 Verbania Fondotoce (VB) - Italia



## INDEX

**Tecnolab del Lago Maggiore S.r.l.**
**ISTITUTO DI PROVE, MISURE E RICERCHE, ING. MICHELE SETARO**
Via dell'Industria, 20
28924 Verbania Fondotoce (VB) - Italia



## 1. GENERAL REMARKS

### 1.1 Customer Data

Customer: **ENNE ESSE SRL**

### 1.2 Identification of equipment and/or subsystem under test (EUT)

| EUT nr. | Acceptance code | Manufacturer and model | Description |
|---|---|---|---|
| 1 | AC005309/1 | Teknofibra | Coating of caulking and thermal-reflective material Thickness 2 mm |
| 2 | AC005309/2 | Teknofibra | Coating of caulking and thermal-reflective material Thickness 4 mm |
| 3 | AC005309/3 | S.Glass | Coating of caulking and thermal-reflective material Thickness 2,5 mm |

### 1.3 Test sample

Test results shown in this Test Report only refer to the sample under test.

## 2. SCOPE

Scope of these tests is to determine the thermal characteristics of equipment under test to reference standard.

## 3. TECHNICAL COMPETENCE

Technicians qualified for the execution of the tests are at least dipl. engineers with at least three months of experience in Measurements and Testing.

## 4. PERFORMED TESTS

### 4.1 General

#### 4.1.1 Test site

Tests have been performed at Tecnolab del Lago Maggiore, Via dell'Industria 20, 28924 Verbania Fondotoce (VB).

**Tecnolab del Lago Maggiore S.r.l.**
**ISTITUTO DI PROVE, MISURE E RICERCHE, ING. MICHELE SETARO**
Via dell'Industria, 20
28924 Verbania Fondotoce (VB) - Italia



### 4.1.2 List of performed tests

| Test | Ref. Par. Report |
|---|---|
| Thermal insulation tests | par. 4.2 |

**Table 1 - List of performed tests**

### 4.2 Thermal insulation tests

**Test date:** 19 March 2009

**Environmental conditions:** T = 22,0 °C ; u.r. 23,8 %

**Acceptance code:** AC005309/1 ÷ AC005309/3

**Test level:**

The tests consists in to heat up a steel pipe to 650 ± 50 °C, and measure the transmitted temperature through the material under test, glued on the internal surface of a body for motorcycle. The pipe temperature ($T_H$) and the external surface of the body ($T_L$) are measured.

Distante between pipe and body: 8 mm

Thickness of fibreglass body: 3,97 mm

Start time: at the achievement of 500 °C on the steel pipe

Temperatures detection: after 2 minutes and after 5 minutes from start time

**Test set-up:** See Annex 1

***Results***

| *EUT* | *Time* | $T_H$ [℃] | $T_L$ [℃] |
|---|---|---|---|
| AC005309/1 | 2 min | 619 | 25,0 |
| | 5 min | 198 | 27,2 |

| *EUT* | *Time* | $T_H$ [℃] | $T_L$ [℃] |
|---|---|---|---|
| AC005309/2 | 2 min | 646 | 24,7 |
| | 5 min | 165 | 24,9 |

| *EUT* | *Time* | $T_H$ [℃] | $T_L$ [℃] |
|---|---|---|---|
| AC005309/3 | 2 min | 650 | 28,6 |
| | 5 min | 202 | 43,4 |

## 5. TEST INSTRUMENTATION

| Description | Measurement range | Manufacturer and model | Tecnolab Code |
|---|---|---|---|
| Thermocouple with multiple probes | -50 ÷ 950 ℃ | DIGITRON 3208.is | ST TER 015 |
| Contact thermocouple | -50 ÷ 150 ℃ | TESTO 110 | ST TER 002 |
| Digital gauge | 0 ÷ 150 mm | Mitutoyo CD-15DC | ST DIM 014 |

**Table 2 - Test instrumentation**

## 6. ANNEXES

Annex 1: Pictures of test set-up
Annex 2: Pictures of measurement points

**ANNEX 1 - RP007109 - PICTURES OF TEST SET-UP**

**Figure 1 - Test set-up (1)**

**Figure 2 - Test set-up (2)**

**ANNEX 2 - RP007109 - PICTURES OF MEASUREMENT POINTS**

**Figure 3 - Temperature measurement point on the pipe ($T_H$)**

**Figure 4 - Temperature measurement point of external surface of the body ($T_L$)**