

## Sensors Packaging Test Report

### Purpose of Testing

The purpose of this test is to thoroughly evaluate the durability and resilience of foam packaging when used inside a cardboard box. The main objectives are:

#### Assessment of Foam and Adhesive Bond Strength:

- ▲ This involves testing how well the foam adheres to itself and to the substrate material (likely the cardboard box). It's crucial to ensure that the foam stays securely in place and does not detach or lose its protective properties during handling and transport.

#### Evaluation of Foam Durability:

- ▲ This focuses on testing the foam itself to see how well it withstands various stresses during transport. Key factors include its ability to maintain its shape without deforming excessively and its resistance to disintegration or breaking down under typical transport conditions.

### Scope of Testing

The testing includes two main evaluations:

#### Impact Resistance Test:

- ▲ **Objective:** To determine the foam's resistance to impact from a height of 1 meter.  
Previous Material: The older version of the foam made from PE material (composed of bonded foam parts) disintegrated upon impact.
- ▲ **Former Material:** The former foam was made from several pieces of PE material that were bonded together through a heating process.
- ▲ **Current Material:** The current foam is made from XPE material and is milled from a single piece.
- ▲ **Procedure:** During testing, ShockWatch impact sensors with a resistance threshold of 37 g were used. The sensors were placed inside the foam, and after conducting the impact tests, the foam's resistance to the impact and the integrity of the sensors were evaluated to ensure that the foam withstood the impact and that the sensors were not damaged.

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- ▲ **Results:** The ShockWatch sensors did not record any overload above 37g, indicating that the current XPE foam did not fail under the impact conditions.

### Climatic Condition Tests:

- ▲ **Objective:** To assess the foam's performance under varying climatic conditions.
- ▲ **Humidity Test:** Conducted at a relative humidity of 90%rH.
- ▲ **Temperature Range Test:** Conducted over a temperature range from -30°C to 60°C.
- ▲ **Results:** The foam maintained its structural integrity and did not show signs of disintegration or adhesive bond failure under these conditions.

### Evaluation of testing

Test	Target value	Validation
Impact resistance	>37g	<b>PASS</b>
Humidity	90%rH in range: -30°C/+60°C	<b>PASS</b>
Temperature	-30°C/+60°C	<b>PASS</b>

These tests confirm that the XPE milled foam used in the current packaging design provides enhanced durability and resistance to both physical impacts and extreme climatic conditions compared to the previous PE foam material. For further details, please contact our sales team at [sales@sylex.sk](mailto:sales@sylex.sk).

**ANNEX 1 - Pictures**



Figure 1 XPE foam with inserted sensors using ShockWatch 37g/75g

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*Figure 2 Testing foam and cardboard box in climatic chamber*

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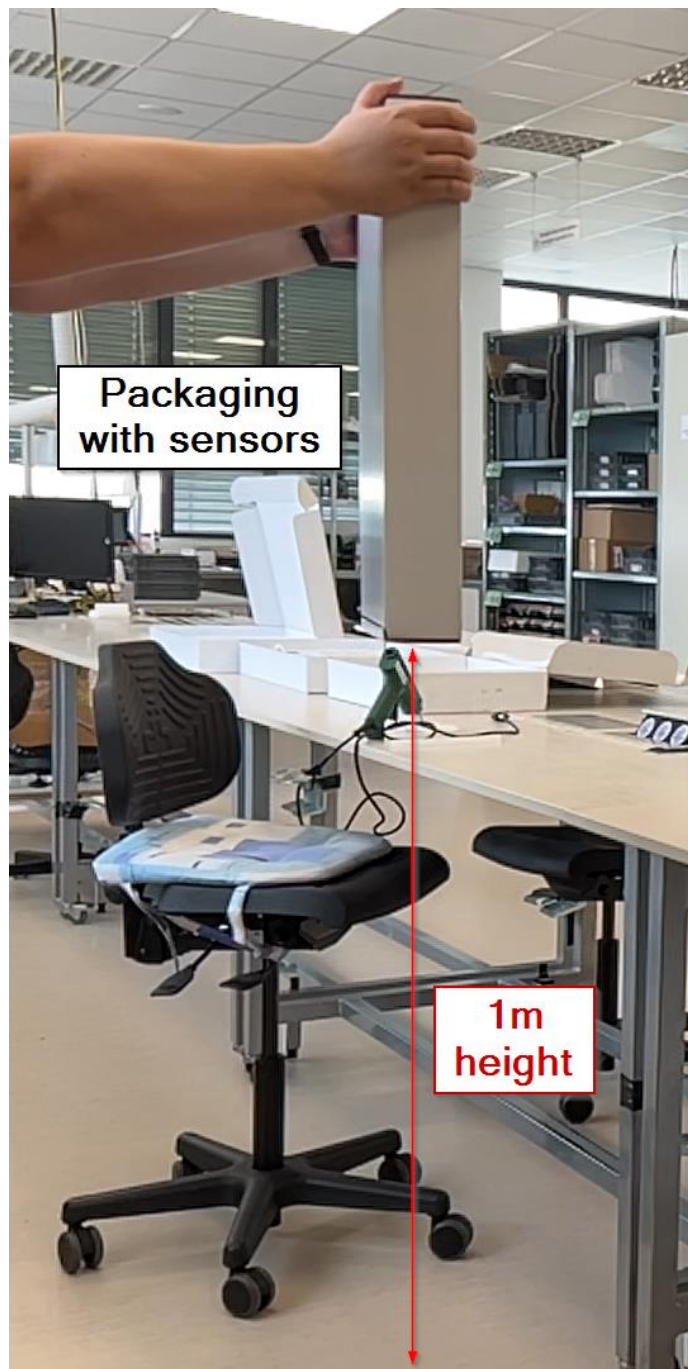


Figure 3 Impact test of packaging with sensors from a height of 1 meter

For more information contact our sales team at [sales@sylex.sk](mailto:sales@sylex.sk)

\* Specifications are subject to change without notice