



ANALYSIS REPORT

General information

Date: February 3, 2018

Analysis number: Q-120118F269
Client: Thermovac
Analysis period: 12-01-2018/29-01-2018
Test Description: Accelerated Photodegradation

I.- Sample Description:



Transformer: Thermovac

Water Cups in PP

SMC 100P – with Plife 1%

II.- Objective:

Accelerated Degradation based on temperature of the structure and determination of its shelf life time. According to; “Tensile Test” ASTM D3826, “Standard Practice for Exposure of Photodegradable Plastics” ASTM D5208.

III.- Laboratory equipment:

- a) Universal Testing Machine.
- b) QUV accelerated weathering tester. Cycle: Continues of UV at 50°C and 0.89 W/m²

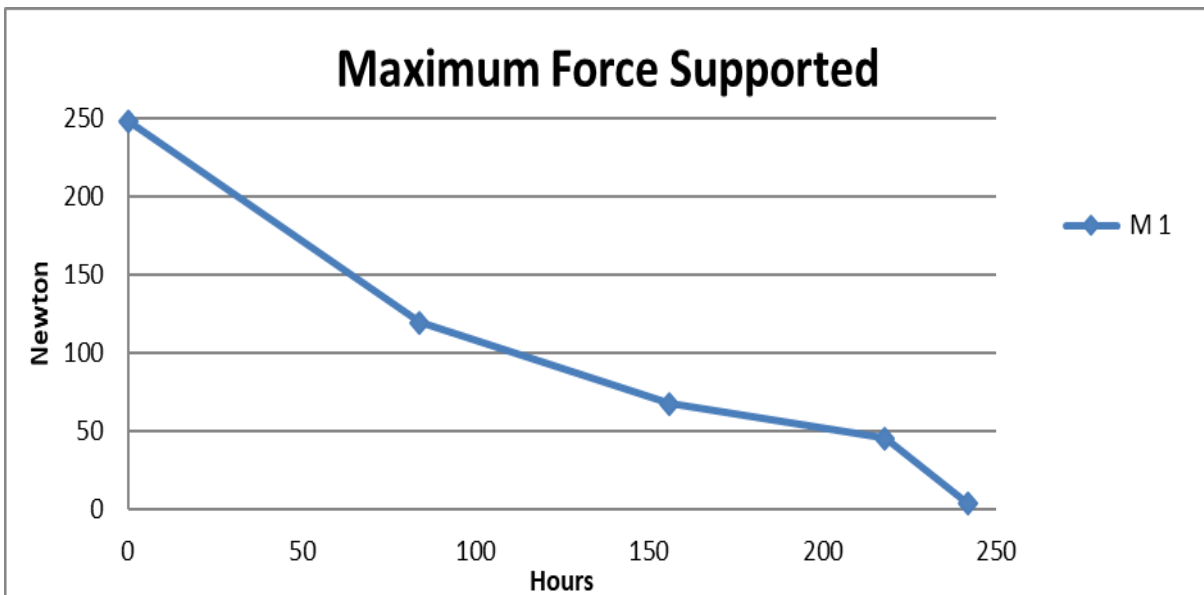


IV.- Results:

In the following table are shown the values obtained during the evaluation of the force for each specific sample. Importantly, these results are specifically for these samples.

MECHANICAL PROPERTIES

	Maximum Force Supported (Newton)
Hours in the oven	M1.
0	248.34
84	119.53
156	67.67
218	45.72
242	3.82





V.- Conclusions:

M1. With 1% additive

After exposing the sample to the accelerated aging process, the change in mechanical and physical properties were also clearly observed.

It is considered that the period of useful life ends by losing more than 50% of the initial force, that took place after 4 days of exposure. Therefore, it is determined that **a shelf life of Sample is 10 months under 30°C warehouse environment.**

Based on ASTM D5510-94 is considered that the sample has reached its accelerated degradation, when it support less than 5% of force, that happened after 10 days of study, therefore we concluded that this sample has a **degradation time of 25 months (2 years with 1 month).**

Please be advised that 1 day of study shall be converted into 2.5 months under 30°C environment. The conversion rate is calculated based on Arrhenius Activation Energy. Please be also advised that the determination of shelf life time as 50% retained property is based on our long term experiences we have been conducting a degradation test for a number of customers throughout the worldwide region.


Ing. Rocío Ramírez Briseño
Responsable de Laboratorio



ANNEX IMAGE



Illustration 1. Laboratory equipment



Illustration 2. Sample with 1% of additive after 218 hours



Illustration 3. Sample with 1% of additive after 242 hours