

## Out-gassing Property of DAELIM PLAVIS

Out-gassing property is very important for Electric, Electronics, Semiconductor, and Aerospace industry.

It is the biggest factor to change the performance of a product in customers's factories.

For display panel field, there are much out-gassing in machinery or inside of product while manufacturing process. Out-gassing makes problems which are related with distinction and color of display panel.

Out-gassing property will be issued at aerospace material.

DAELIM PLAVIS has been tested Total Mass Loss (%TML) and passed by KRISS.

It means that PLAVIS can be used for aerospace in near future according to low out-gassing.

### 1. Total Mass Loss (TML %, ASTM E595-93)

PLAVIS does not degrade at high temperatures or give off volatiles or condensable.

In vacuum processing chambers for LCD and OLED or electronics, PLAVIS is one and only plastics that can replace ceramics and metals.

Under 125 °C vacuum test condition, PLAVIS meets the NASA specifications for total mass loss (% TML , <1%) in space vacuum environments for satellite application.

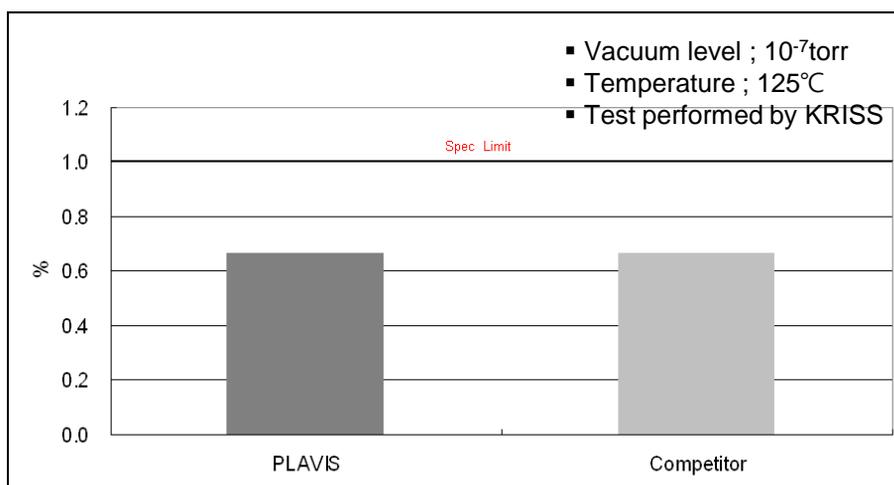


Figure 1. Total Mass Loss (% TML) of DAELIM PLAVIS

## 2. TDS (Thermal Desorption Spectrometer) Test Result.

TDS (Thermal Desorption Spectrometer) test is main for measuring of out-gassing Rate (Q: Torr · L/sec) By heating at vacuum conditions.

Q is out-gassing amount from material at specified conditions so we can compare out-gassing amount of two materials with Q. below are graphs which are measured relative out-gassing amount between PLAVIS and other material like a PBI and competitor PI(10-7Torr,150°C, 300°C)

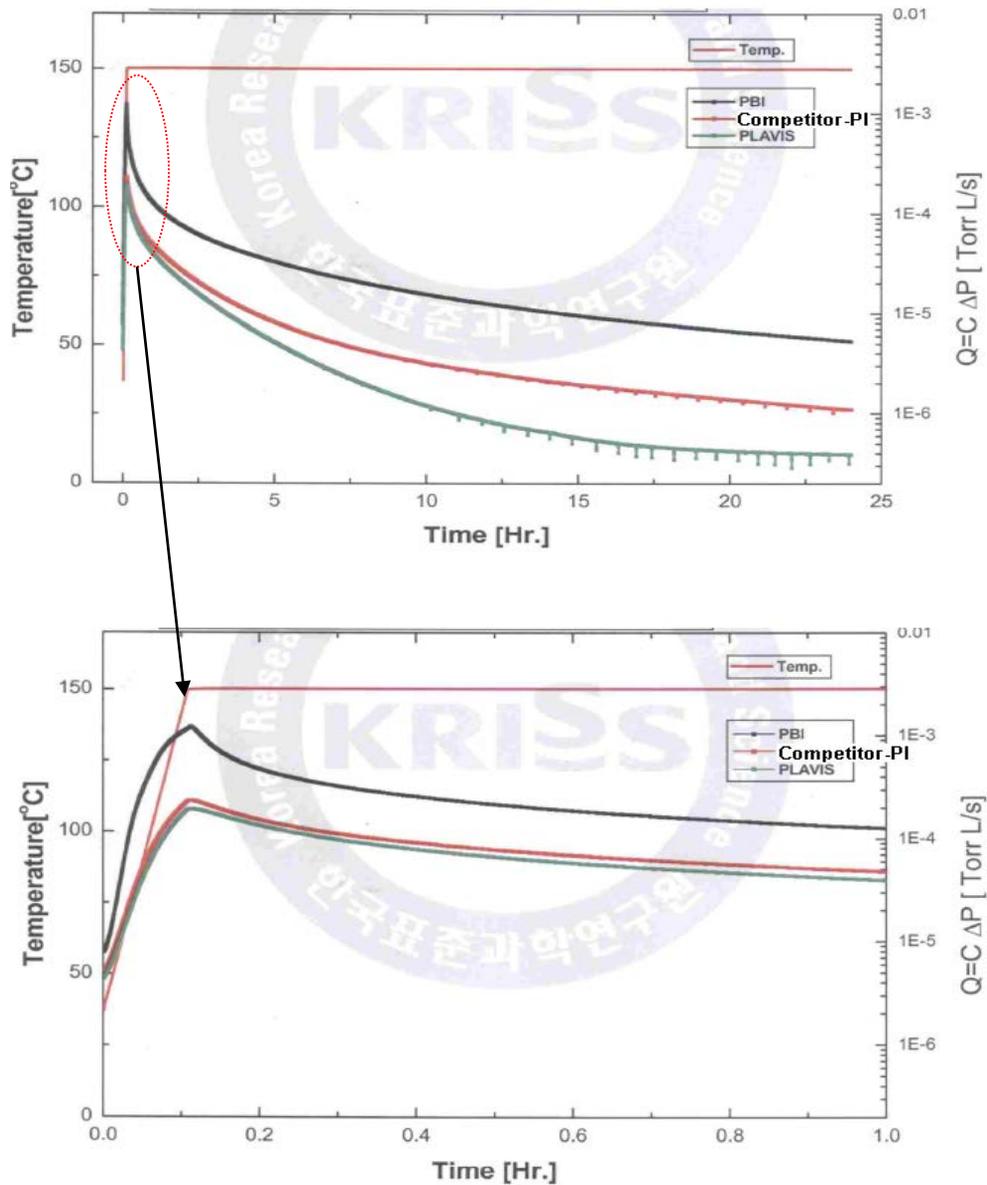


Figure 2. TDS test PBI, PLAVIS, and Competitor PI 150°C, 10-7Torr(KRISS)

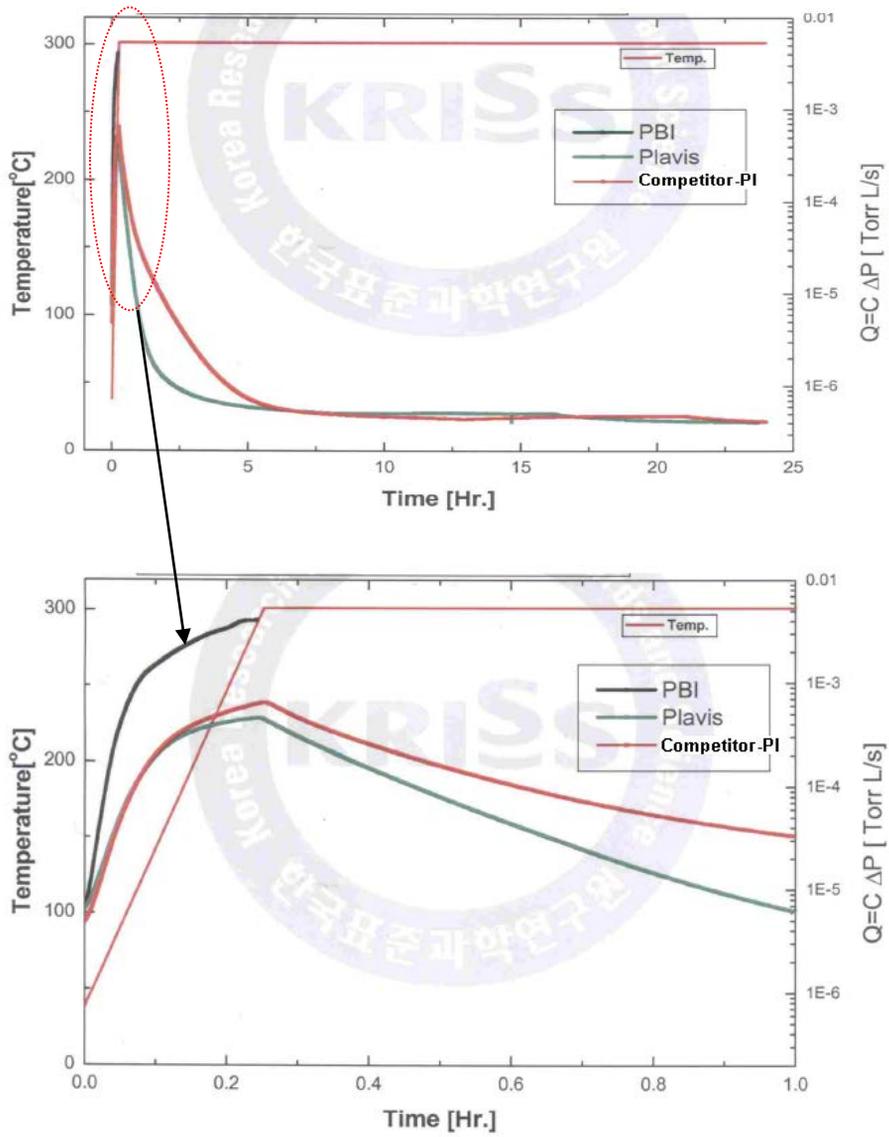


Figure 3. TDS test PBI, PLAVIS, and Competitor PI 300°C , 10-7Torr(KRISS)

As you can check from Figure1, 2, low-gassing amount of PLAVIS is more less than PI at 10<sup>-7</sup>Torr and 150°C and 300°C.

Especially , as you can see Figure 3, PBI could be tested at 300°C and high vacuum conditions because of swelling and high out-gassing at high temperature and vacuum condition.

However, PLAVIS does not change at all with surface and show the lowest out-gassing amount compared other materials after test.

Thus, PLAVIS is the best material to be used in Electrics& Electronics, Semiconductor, FPD, and Aerospace field which are required low-gassing property at high temperature and vacuum condition.

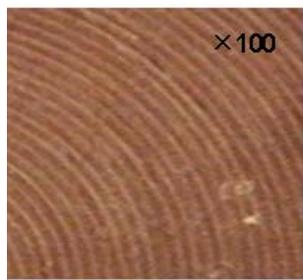
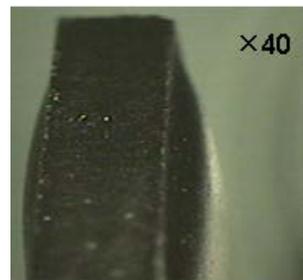
	PLAVIS	Competitor PI	PBI
<b>Before Testing</b>			
<b>After Testing</b>			

Figure 4. Surface change of before and after TDS Test.(300°C, 10<sup>-7</sup>Torr).