

**MI-TECH™ RETRATECH** - Thermal shrinkage film tester

Standards : ISO 14616, DIN 53369 and NF T54-125

Designed for characterisation of shrinkage films, 'load' and 'retraction rate' (PE, PET, PVC, PP, etc.) according, ISO 14616, DIN 53369 & NF T54-125.

The RETRATECH is designed to control the parameters of shrinkage film retraction properties. It is also useful for film manufacturers to develop and test new products, or for users to adjust the parameters according to the received materials, and carry out an effective control on incoming goods.

Typical users – Petrochemical industries, Manufacturers and Users of shrinkage films.



**Principle**

Two samples are exposed to a thermal process. One sample is connected to a LVDT (displacement sensor) and the second sample to a Load cell.

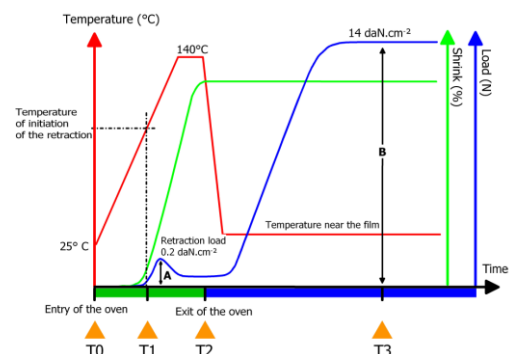
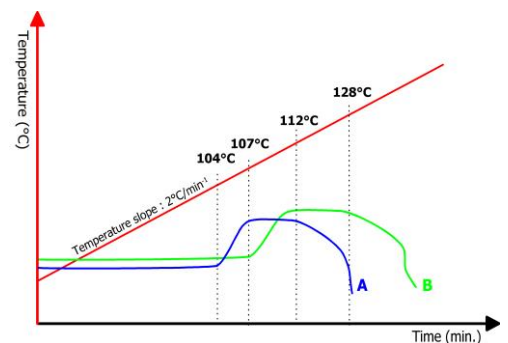
**Two test methods**

1. **“Thermal ramp”** Used as part of a preliminary study of a film. The oven lowered and the temperature is increasing at a preset rate. Allows to determine the temperature at which shrinkage begins and then the start and end of maximum shrinkage.
2. **“Simulation”** simulating the behaviour of the film in a shrinkage tunnel. The specimen is placed on a vertical support, one connected to a force transducer and the other to a displacement sensor. The furnace, controlled by a timer, is lowered over the specimens. Force, displacement and temperature are continuously displayed and recorded. The oven is then raised.

The dedicated software offers functions like setting the test parameters and displaying, storage and analysis of the test results, which are:

- ⊕ Shrinkage - force(N), rate(%) and temperature
- ⊕ Contraction - force(N)

**Example graphs**



■ Retraction area – shrinkage at high temperature  
 ■ Contraction area – shrinkage at ambient temperature

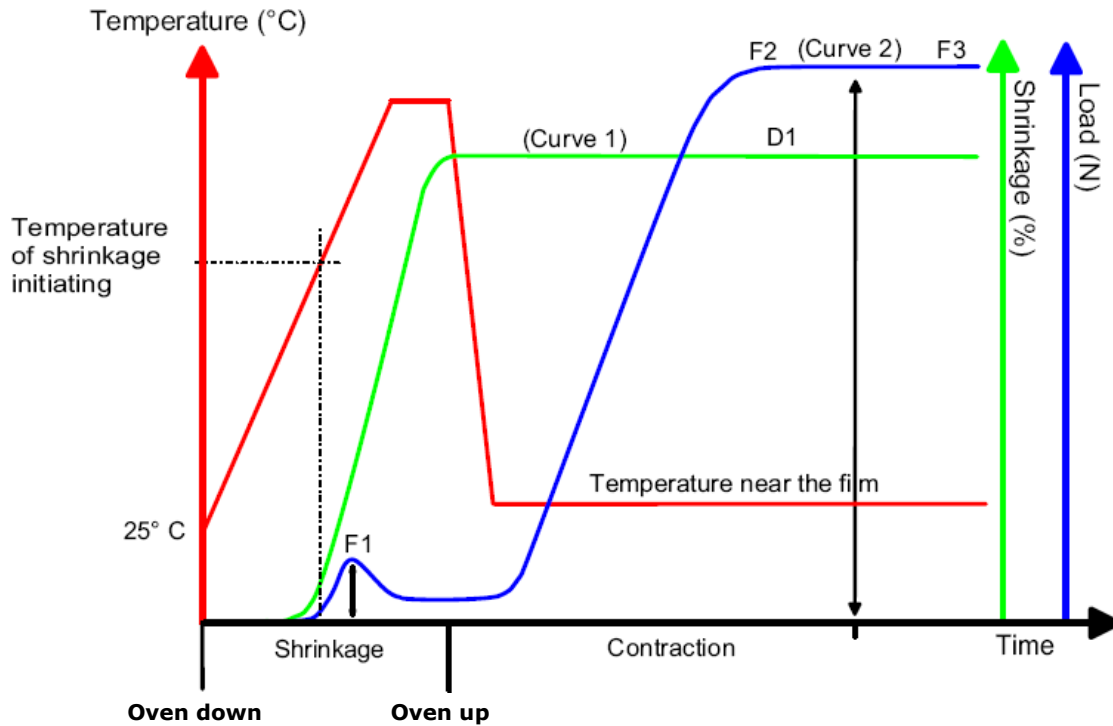
**The RETRATECH is used for:**

- ⊕ Research & Development
  - ⊕ Control on incoming goods
  - ⊕ Formulation optimization
- ⊕ Waste reduction
  - ⊕ Packing process optimization
  - ⊕ Total quality control

**Measured parameters**

- Shrinkage** – A displacement sensor (LVDT) allows determining of the shrinkage rate (curve 1)
- Load** – A load cell measures shrinkage and contraction forces (curve 2)

Load and shrinkage values are displayed in a graph, against time and temperature.



**Conforms to standards:**

**ISO 14616 , DIN 53369 and NF T54-125**

**Specifications**

Load measuring range	1 daN
Shrinkage measuring range	0 -90 mm (0 to 90%)
Temperature	Control range : ambient + 10 to 350°C Test range : ambient + 10 to 300°C
Specimen dimensions	100 x 15 mm
Software	- Compatibility Windows XP and later versions
Machine / PC	- Connection 2 x RS 232
Supply:	- Mains 230V/50 Hz - Pressurised air 5 Bar, dry air
Weight	30 kg.
Overall dimensions – W x D x H	50 x 40 x 60 cm