Elasticity, consistency and stickiness of different hair styling gel from the same manufacturer.

EQUIPEMENT

TX-700 + Spherical probe 20 mm + Software (optional)

A small cup was also used in order to normalize the amount of styling gel between the different samples.

Compression speed: 1mm/s
Compression distance: 8mm
Relaxation time: 10 sec
Traction speed: 1mm/s
Traction distance: + 20mm
Detection level: 0.1N

USE

Compression-relaxation-traction test also known as CRT test is used to determine the elasticity, the consistency and the stickiness of soft sample. Knowing theses parameters, it becomes possible to determine the firmness, the cohesion and the threading nature of the products.

METHOD

For this test, 4 samples of different hair gel from the same manufacturer are tested: a wet effect one, an extra strong one, a concrete one and a hard one. Hair gel is put in a cup and, with the use of the TX-700; the spherical probe can characterize the product. The three-step process is conduct with an 8 mm compression step at 1 mm/s which characterize the consistency. Next, there is a 10 sec relaxation step characterizing the elasticity. The final traction test which characterizes the stickiness takes place at speed of 1mm/s.
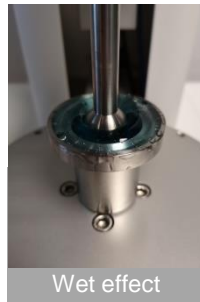
10cm before breaking point

The blue one (wet effect) shows a threading nature when the red one (extra strong) is much more "brittle". The TX-700 is also capable to characterize this sort of comportment.
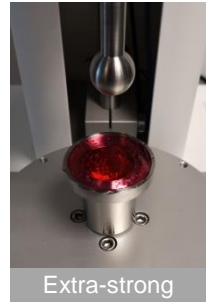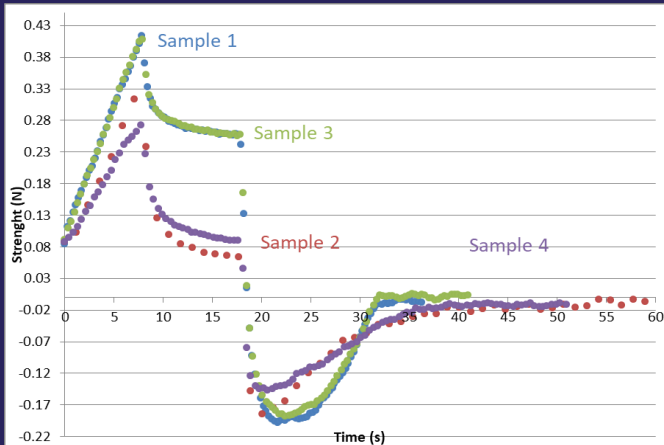

Just before breaking point

Wet effect

Concrete

Extra-strong

RESULTS

This CRT test allows us to characterize various parameters in a lot of products. Doing that, we are able to compare products from the same manufacturer.

The maximal strength (F_{max}) can be correlated to the consistency of the product. The minimal strength (F_{min}) can be linked to the stickiness.

The percentage of relaxation, which is inversely proportional to the product elasticity, is also determined by the device.

In this test, two gels (blue curve and green curve) from different brands linked to the same manufacturer present very close parameters. Using those data, we can determine that those gels have very close formulation.

Thanks to the TX-700, the characterization of various cosmetic products such as hair gel becomes very precise and intuitive.

	F_{max}	F_{min}	Relaxation
Sample 1	0.41N	-0.20N	39.0%
Sample 2	0.31N	-0.19N	81.3%
Sample 3	0.41N	-0.19N	39.2%
Sample 4	0.27N	-0.15N	69.2%