

**TECHNICAL CATALOGUE**

**VERIFY** THE QUALITY, PERFORMANCE AND  
COMPLIANCE OF YOUR **ADHESIVES**

**SGS**

**A COMPREHENSIVE RANGE  
OF TESTS DESIGNED  
TO EVALUATE THE QUALITY  
OF YOUR ADHESIVES**

Adhesive power, material strength, coating quality, printability, suitability for contact with foodstuffs, environmental impact, compliance with standards, etc. Whatever specifications you need verified, our experts will test the quality of your adhesives (self-adhesive identification tags, decorative labels, temporary protective adhesive film, etc.)

Our tests are carried out in accordance with your validation programme and compliance with the standards established by FINAT (Fédération Internationale des Fabricants et transformateurs d'Adhésifs et Thermocollants sur papiers et autres supports), as well as applicable international standards (ISO, EN, NF, DIN, ASTM).

# 1 ASSESS PERFORMANCE

## Adhesive strength - Peel tests

Peel tests at 90° and 180° let us determine the adhesive strength or the stripping force of self-adhesive products (FINAT FTM1).



Fig. 1: Peel test at 180°

Peel testing at 90° lets us assess the movement of different complexes (FINAT FTM2).

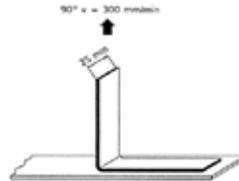


Fig. 2: Peel test at 90°

## Instant adhesion (Loop Tack)

The instant adhesion of adhesives can be determined according to FINAT standard FTM9 or standard NFEN 1719.

This allows for the comparison of application tack (instant adhesion) between different self-adhesive products. This characteristic is particularly important for manufacturers that employ an automated labelling process.

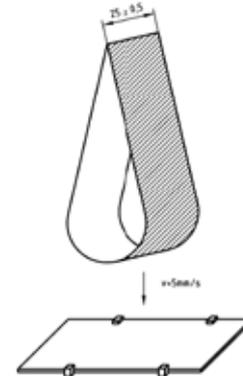


Fig. 3: A strip of adhesive tape in loop tack configuration

## 2 MEASURE STRENGTH

### Adhesive strength - Low speed release force

The FINAT FTM3 method determines the force required to separate the silicone-coated protective sheet from the front material.

- force required to separate the silicone-coated protective sheet from the adhesive front material
- release force of the silicone-coated protective sheet
- uniformity of the imprint



Fig.4 : Release of the silicon-coated protective sheet from the adhesive front material

### Separation force

The FINAT FTM10 method lets us determine the force required to separate an adhesive front strip from its anti-adhesive backing, or vice-versa, under specified test conditions (speed, angle, etc.).

### Shearing resistance and tensile strength - Stretch assessment

Testing for resistance to static shear (FINAT FTM8) or dynamic shear (FINAT FTM18) allows us to determine the maximum force required to remove a self-adhesive label from a given surface material.



The tensile testing machines in our mechanical laboratories determine the tensile strength and stretching to breaking point of adhesive tapes according to standards NF EN 14410, NF EN 1896 and NF EN 12028.



### Impact resistance

Impact resistance testing lets us determine the capacity of an adhesive tape to withstand impacts (NFEN 12030). It can occur that an adhesive tape capable of withstanding a pre-determined continuous load (according to breaking load, tear strength), may give way under impact.

### Stability

Labels can also be subjected to tests designed to determine the dimensional stability of complexes such as PVC, PP, PE and PS (FINAT FTM 14).

### 3 TEST DURABILITY

#### Colour fastness against artificial light

Standards NFEN 1244 and FINAT FTM6 describe methods of reproducing the effects of ageing, such as occur when materials are exposed to unfavourable climatic conditions.

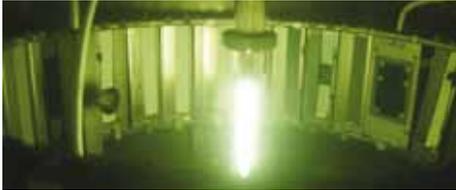


Fig.5: The UV light ageing laboratory has more than 30 ageing apparatuses



Fig.6: Measurements of gloss or specular reflection according to standard NFT30-064 (ISO2813)

#### Resistance to climatic factors

Testing methods FINAT FTM5, ISO 9142 and FINAT FTM13 allow us to assess the capacity of adhesive complexes to withstand extremes of temperature and thermal shocks.



Fig. 7: Over 100 hot/cold/humid climatic chambers with capacities of up to 30 m3

#### Resistance to chemicals

Chemical resistance is defined as the capacity of the self-adhesive material to maintain its physical and adhesive properties following exposure to different chemical substances.

Chemical resistance is evaluated according to the following standards:

- FINAT FTM16 – Chemical resistance:
- FINAT FTM17 – Chemical resistance:
- NFEN 12036 - Adhesive strips:  
Measures the penetration of solvents into adhesive masking tapes.

#### Dielectric strength

The test assesses the capacity of a self-adhesive tape to withstand electric potential difference, according to standard NF X41-044.

The self-adhesive tape is subjected to alternating electrical voltage at a steadily increasing rate until it becomes perforated.

#### Resistance to washing

The FINAT FTM26 method is performed to assess the ease with which a pressure-sensitive adhesive becomes detached from a surface material when submerged in a warm, alkaline solution.

## 4 EVALUATE INK ADHESION

### Adhesion of printed ink (basic or advanced test)

Printed ink adhesion is evaluated by using a spectrophotometer to measure colour before and after application of the adhesive tape to a frontal surface, according to standards FINAT FTM21 and FTM22.



Fig. 8: Application of the adhesive tape to a frontal surface

### Adhesion to a particular surface material

To determine the capacity of a pressure-sensitive adhesive to adhere to cylindrical surfaces, method FTM24 is required.

### Abrasion resistance

The FINAT FTM27 test lets us verify the abrasion resistance of UV light curable inks.

### Surface tension

Surface tension (wettability) is one of the properties used to evaluate surface characteristics related to printing or the adhesion of other coatings.

The surface tension of Corona-treated plastic films is measured on contact with drops of specific test solutions and is expressed in terms of dyn/cm.

The test is carried out according to FINAT FTM15.



Fig. 9: Application of the test solution to the test surface

For greater precision, a goniometer can be used to determine surface energy, according to the Owens, Wendt, Rable and Kable (OWRK) method. This also determines the dispersive and polar aspects of surface energy and measures contact angles with 3 different benchmark liquids.

## 5 EVALUATE PRODUCT PERCEPTION

### Sensory analysis - Odour

All ten judges on our panel are qualified and have daily practice assessing the intensity and character of the odour emitted by «adhesive» type products.

Testing is performed in a COFRAC accredited test room (accreditation n°1-1526 – Test scope available at [www.cofrac.fr](http://www.cofrac.fr)), equipped with 8 scoring cabins and compliant with standard ASTM D4339.

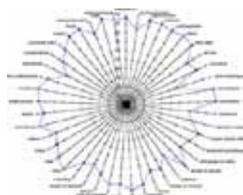


Fig.10: Molecular recognition diagram



Fig.11: Scoring by a judge

## 6 ASSESS COATING QUALITY

### Coating quality

To assess the quality of a surface coating, our experts verify:

- the quantity of silicone coating on the protective material
- the weight of dry adhesive coating on a self-adhesive front material, according to FINAT FTM12
- the quality of silicone-coated substrates according to FINAT FTM11, or of a silicone coating using an aqueous colour solution as defined by FINAT FTM25

This test examines silicone coverage and allows for the evaluation of residual adhesion and the quality of anti-adhesive backing surfaces according to adhesive properties.

## 7 VERIFY SUITABILITY FOR CONTACT WITH FOODSTUFFS

European Commission regulation n° 10/2011 describes the usage constraints for materials coming into contact with foodstuffs.

To evaluate suitability for contact with foodstuffs, SGS verifies the overall migration, specific migrations, as well as content of specific components.

## 8 DETERMINE THE ADHESIVE MASS OF A LABEL AND ITS SURFACE

SGS proposes verification of:

- The chemical properties of the adhesive and its surface
- The grammage of the adhesive coating and the homogeneity of the adhesive spread
- The distribution of molecular mass throughout adhesive coating
- The measurement of the adhesive remaining on the backing
- The detection of contaminants on the surface
- The surface energy

## 9 INTEGRATE ECODSIGN AND ENVIRONMENTAL CONCERNS

The life cycle analysis (LCA) conducted by SGS experts lets us evaluate the environmental impact of the labels throughout their life cycle (comparative testing, simulation of various design improvement scenarios, improvement plan, etc.)

- Environmental labelling is an initiative that arose out of the Grenelle Environment Forum, designed to make consumers informed and aware with regard to the environmental impact of

products (CO<sup>2</sup>, air pollution, toxicity, etc.). SGS can help you with its implementation.

- In order to determine the biodegradability of your products, SGS quantifies the rate of biodegradation, the quality of their compost in aqueous and terrestrial environments, and validates their compostability (EN 13432).
- The Reach Directive, which came into effect across the European Union in 2007, regulates the use of chemical substances. Against this background, SGS submits your products to the following ecotoxicological tests: aquatic toxicity, toxicity in terrestrial organisms, toxicity in other environmental media.

**WORLDWIDE REACH,  
LOCAL EXPERTISE**

In addition to laboratory testing and analysis services, SGS uses the technical expertise of its global network to offer appropriate complementary services throughout the life cycle of your products.

## AUDIT YOUR SUPPLIERS

Choosing the right supplier is an important step for a lasting and successful business relationship. Auditing your suppliers' plants will allow you to verify their capacity to respond to contractual obligations in terms of safety, quality, performance, quantity and lead time. SGS adapts audits according to your specific needs.

**SGS IS THE WORLD'S LEADING  
INSPECTION, VERIFICATION, TESTING  
AND CERTIFICATION COMPANY.**

**WE ARE RECOGNIZED AS THE GLOBAL  
BENCHMARK FOR QUALITY AND  
INTEGRITY. WITH MORE THAN 75,000  
EMPLOYEES, WE OPERATE A NETWORK  
OF MORE THAN 1,500 OFFICES AND  
LABORATORIES AROUND THE WORLD.**

## KEEP TRANSACTIONS UNDER YOUR CONTROL THROUGH INSPECTION

During inspections, our experts examine the properties of products and their technical and regulatory conformity (with regard to local and international regulations). This step lets you identify the goods, check their quality, reduce the risk of refusal of entry to a country, and detect any possible discrepancies between the order and the delivery.

In addition, the SGS brands protection programme helps you secure authorised supply channels and guarantee the authenticity of your products.

**FOR FURTHER INFORMATION,  
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WHEN YOU NEED TO BE SURE

**SGS**