How do I find the right label adhesive?

The adhesive can't be just any adhesive as each application, each surface to which the labels are affixed, and any external influence on the adhesive labels play a role in the selection of the right adhesive. A variety of different adhesives are therefore available so that you can find the optimal label for every situation.

Selecting the best label adhesive requires that you consider a large number of factors. Among other things, the surface finish, the stresses caused by external influences, and the final bonding of the label must be carefully taken into account.

Factors influencing the adhesion of the adhesive:

surface	stresses	bonding
roughness	solvents	time
contour	moisture	temperature
surface tension	UV-radiation	contact pressure
	aging	contamination
	temperature	

Other things, of course, determine whether or not the label will be permanently affixed or removable from the surface. Therefore, we would like to give you a brief introduction to the topic of affixing labels. The performance of the adhesive depends to a large extent on the surface where the contact will be made. In order to optimize the bonding of the adhesive to the surface, the following principles must be regarded:

- The surface must be dry and completely clean.
- Intense pressure increases the flow and the contact of the adhesive on the surface.
- Curing time, temperature, and pressure increase the surface contact and degree of bonding.

Bonding or adhesion refers to the attraction of two surfaces between the same or different substances. The strength of this attraction is partly determined by the surface energy of the subsurface. The attraction increases with a higher surface energy, whereas it decreases with a lower surface energy. A greater attraction therefore results in better contact between the adhesive and surface. Imagine a car that hasn't been waxed for a long time. If water gets on the surface, large water puddles form quickly since the unwaxed surface of the car has a high surface energy and the water can spread out freely across the surface. In comparison, water rolls off a freshly waxed car because the surface energy is low and the water doesn't adhere well to the surface.

Table of surface energy for different materials:

High Surface Energy:	mN/m	Low Surface Energy:	mN/m
Aluminium (Al)	840	PE	31
Lead (Pb)	450	PP	29
Polyester	41	Silicon	24
Polyvinyl chloride (PVC)	39	Teflon	18

Below is a brief explanation of some if the most important types of adhesives offered in our adhesive materials.

Rubber-based adhesives

Used for most labels and stickers where no specific requirement is given. These permanent adhesives designed for universal use inside have good adhesion to most surfaces and are temperature-resistant in practice. The aging and fade resistance is not as good as with acrylates.

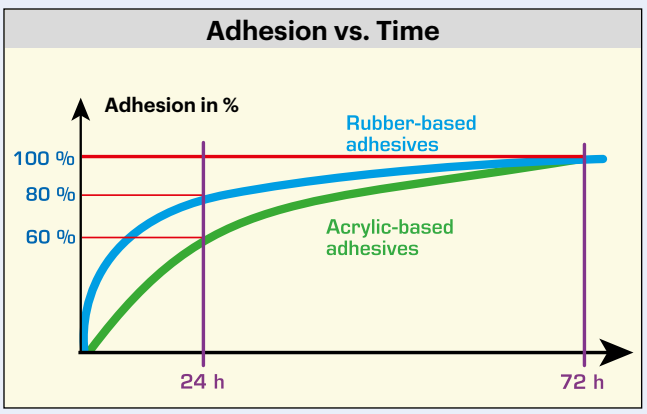
Acrylic-based adhesives

In conjunction with the films, we frequently offer acrylic adhesives which have a high resistance to aging, plasticizers, chemicals, very high temperatures, UV radiation, extreme weather conditions, and mechanical, physical, or other substantial affects. Adhesion to very rough or very smooth and high- or low-energy surfaces is also guaranteed. These high-performance labels are used, for example, in the electronics, automotive, and chemical industries as well as in laboratory, research, and medical technology.

Removable adhesives

Some applications only require temporary identification. In this case, it is important that the labels can be removed after use without leaving any residue. No matter whether in the laboratory, in shipping, as part of quality assurance, or in the area of service and repair, removable adhesives allow products, packaging, components, and devices to be labeled temporarily, simplifying overview and control during testing and production processes. High-quality products and gifts which may not show any adhesive residue can also be easily labeled using removable labels. Here, the inner strength of the adhesive is higher than the adhesion to the surface. Removable adhesives are available as rubber-based or acrylic-based adhesives.

True for all types of adhesives is that each adhesive needs a certain amount of time to develop its full adhesion. The final adhesion is generally achieved after 72 hours.



CCL Design Stuttgart GmbH
Carl-Benz-Strasse 4 • D-71154 Nufringen • Phone.: +49 7032 9561 - 0 • eMail: STUinfo@cclind.com • www.ccl-design-stuttgart.com