INNO TAPE

WHITEPAPER

PREVENTING ADHESIVE TAPE FAILURE

HOW TO AVOID FOUR COMMON MISTAKES AND MAKE YOUR BONDING PROCESS RELIABLE

When adhesive tape does not stick, it is rarely the fault of the tape itself.
Adhesive tapes are high-performance products – but even the best tape can fail if the application, material or process are not compatible.

Whether in interior, exterior or electronics manufacturing: failure leads to rework, scrap and high costs.

In this white paper, you will learn which four errors occur most frequently in practice and how you can avoid them. With clear checkpoints, examples and recommendations from converter practice.

Who is this white paper intended for?

- Development & Process Engineers
- Quality Assurance
- Technical Purchasers
- Project Managers

PREVENTING ADHESIVE TAPE FAILURE

HOW TO AVOID FOUR COMMON MISTAKES AND MAKE YOUR BONDING PROCESS RELIABLE

1. INCORRECT CHOICE OF MATERIAL

The tape does not adhere to the surface

The most common cause: the adhesive tape used is not suitable for the substrate. The fault rarely lies with the adhesive itself, but rather with the combination of tape, substrate and process.

Practical tip:

A substrate analysis prior to material selection prevents costly trial and error. Even small differences – e.g. between PP and PE – can determine adhesion or detachment.

Please note:

- Which substrates are to be bonded (metal, plastic, paint, glass)?
- What is the surface texture – smooth, rough, open-pored?
- How high is the surface energy – is pre-treatment required (plasma, primer)?
- How will the tape be handled in the further process (e.g. heat, cleaning, pressure)?

2. INCORRECT PRESENTATION OF THE MOULDED PART

Process and moulded part do not match

Even if the material is suitable, bonding may fail if the moulded part contour and the assembly process are not coordinated. For example, a perfectly adhering tape may deform during automated removal if the liner adheres too strongly or the web position is incorrect.

Practical tip:

Always consider the moulded part, liner and component together – a customised design can shorten process times and improve durability.

Common planning mistakes:

- Contour not precisely adapted to component geometry
- Material thickness unsuitable for installation space or damping requirements
- Lack of positioning aids or grip tabs
- Presentation not suitable for automation

3. LACK OF INFORMATION ABOUT EXTERNAL INFLUENCES

The invisible is overlooked

Heat, cold, humidity, movement: every adhesive bond is exposed to environmental influences. If this information is missing from the specification, the tape is often tested under the wrong conditions – and later fails in series production.

Practical tip:

The more precisely the conditions of use are known, the more precisely the material can be tailored – also with regard to adhesive technology and liner structure.

Clarify before starting the project:

- What movements or forces (shear, tension, peel, split) are at work?
- What temperature ranges occur during the process and operation?
- How long must the connection last (test duration = service life)?
- Does it come into contact with dust, water or chemicals?

4. MISSING OR UNREALISTIC TEST RUNS

Theory instead of practice

A data sheet is no substitute for practical testing. Even the most powerful adhesive tape can fail if it is not tested under real conditions.

Recommendation:

Conduct tests under production conditions – with original components, real temperatures and actual process times. This allows you to identify weak points before they occur in the field.

Avoid these mistakes:

- Tests not performed with original parts
- Unrealistic temperature or time frames
- Lack of documentation of environmental conditions
- No repeat tests

Attention:

A single successful pattern does not constitute approval. Stability only becomes apparent in repeat tests.

PREVENTION RATHER THAN COMPLAINT

Adhesive tape failure is rarely caused by a single problem, but rather by the interaction of many small factors. By considering the material, moulded part and process together at an early stage, errors can be avoided before they occur.

Trust in experience and process understanding

We accompany projects from the initial idea to series production:

- Selection of the appropriate adhesive tape
- Development of optimised moulded parts
- Support with sampling and testing

Your contact

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