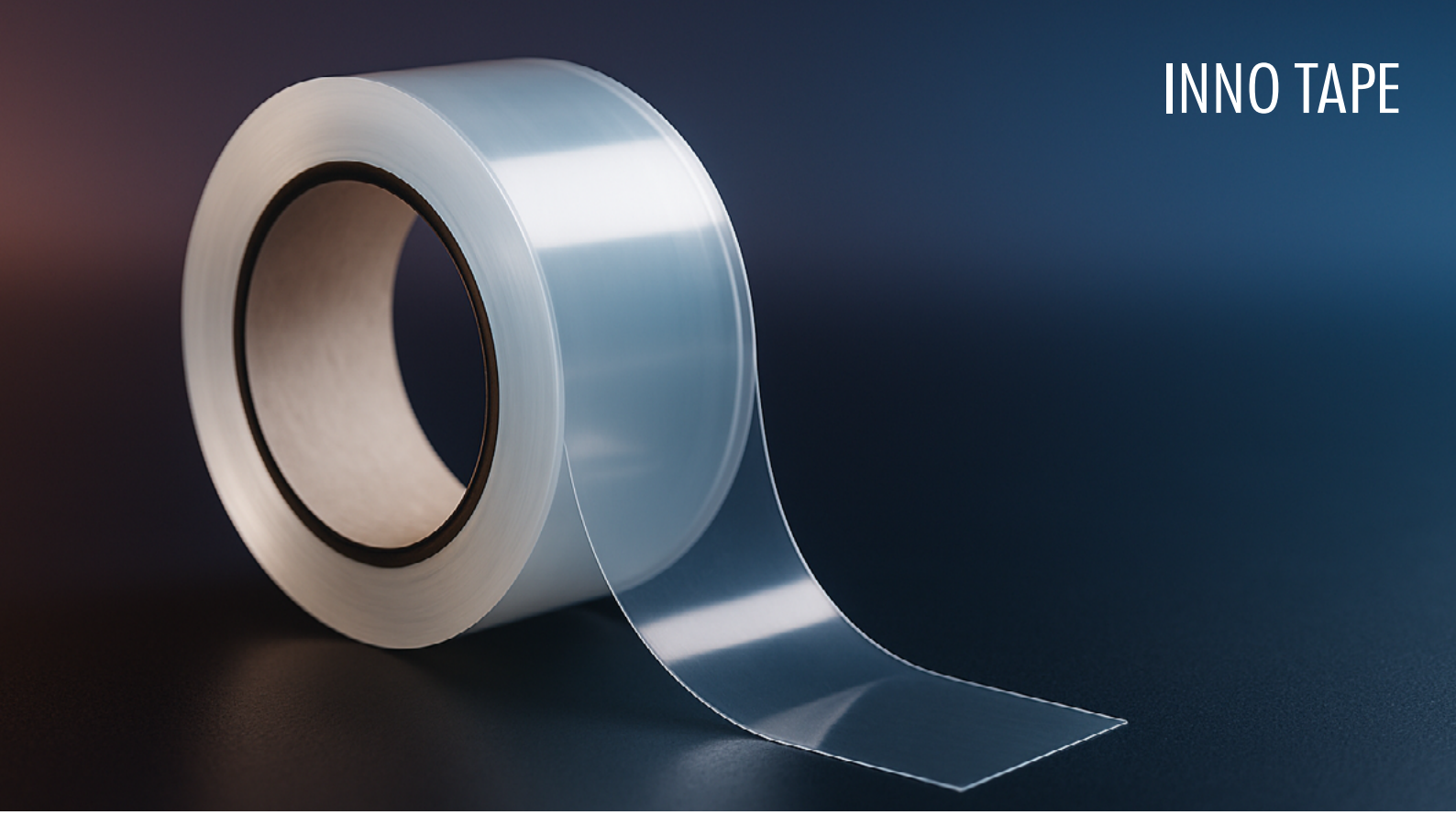

WHITEPAPER

CHOOSING THE RIGHT ADHESIVE TAPE

10 POINTS YOU SHOULD DEFINITELY CONSIDER

Adhesive tapes perform far more tasks in vehicle production than just sticking. They seal, fix, dampen, insulate and enable automated processes.

However, as the density of functions increases, the requirements for materials, adhesives and presentation become more complex.

This white paper shows you what is important when choosing the right adhesive tape for your application.

Ten points to help you make the right decisions right from the development phase – for stable processes, efficient assembly and reliable series production.

Who is this white paper intended for?

- Development engineers
- Project managers
- Purchasers
- Process and quality managers

CHOOSING THE RIGHT ADHESIVE TAPE

10 POINTS YOU SHOULD DEFINITELY CONSIDER

1. CONNECTION TYPE

Temporary, permanent or structural?

The basis for every selection is the type of bond. Should the bond be removable or permanent? This determines the adhesive technology used – and whether additional pre-treatment is necessary.

Checkpoints:

- Temporary bonding (e.g. protective films, masking)
- Permanent bonding (e.g. component assembly, sealing)
- Structural bonding (replacing mechanical connections)

2. SURFACES

Energy, structure, behaviour

Not every surface can be bonded equally well. Surface energy, structure and material behaviour are decisive factors.

Please note: With low-energy surfaces, a stable bond is often not possible without pre-treatment (plasma, primer).

Important aspects:

- High/low-energy materials (metal vs. PP/PE)
- Structure: smooth, rough, open-pored
- Thermal expansion: different materials = replace stresses)

3. TEMPERATURE RESISTANCE

Short and long term

Excessively high temperatures soften adhesives, while excessively low temperatures make them brittle. The decisive factor is how long the adhesive is exposed to a particular temperature.

Please note:

- Process temperature (assembly, painting)
- Operating temperature during driving
- Peak temperature in the engine compartment

Adhesive	max.
Synthetic rubber	40 °C
Natural rubber	60 °C
Acrylate	100 °C
Silicone	200 °C

Practical tip: A brief exposure to 180°C is not the same as continuous exposure to 120°C – always check the continuous load rating.

4. MATERIAL THICKNESS

As thick as necessary, as thin as possible

Thickness affects performance, but compensates for unevenness and dampens vibrations. Thin tapes are ideal for tight installation spaces.

Exemplary applications:

- 0.1 mm tape for display mounting
- 1 mm viscoelastic tape for decorative strip bonding

5. CHEMICAL INFLUENCES

Solvents, additives, plasticisers

Many plastics contain additives that affect adhesives. Contact with cleaning agents or solvents can also be critical.

Recommendations:

- Check compatibility with all process chemicals
- Perform test bonding under real conditions
- Document material approvals

6. APPLICATION OF FORCE

Shearing, pulling, peeling, splitting

Forces act in different directions and must be taken into account when selecting tape.

Attention: Incorrect alignment can reduce adhesion by up to 70%.

Typical loads:

Shear force | Tractive force | Peeling force | Splitting power

7. UV AND WEATHER RESISTANCE

Protection from sun and moisture

For outdoor applications, the combination of UV radiation and moisture is particularly stressful.

Please note:

- UV radiation can cause adhesives to age.
- Moisture penetrates the adhesive joint ➔ reduced adhesion.
- Use UV-stabilised materials or adhesion promoters.

Adhesive	Duration Resistance
Synthetic rubber	Weeks
Natural rubber	Months
Acrylate	Months to years
Silicone	Months to years

Substrate	Duration Stability
Paper	3 months
PE/PP	1–3 months
PVC	1 year
PET	1 year

8. ADDITIONAL FUNCTIONS

More than just sticking

Adhesive tapes can do more than just bond.

Optional features:

- Thermally or electrically conductive or insulating
- Sound or vibration damping
- Flame retardant or UL listed
- Colour coded for variant differentiation

9. SPECIFICATIONS AND STANDARDS

Safety first

OEM approvals, UL listings or RoHS compliance are often mandatory. Define the necessary specifications at an early stage.

Practical tip:

Early clarification saves time in the approval process and prevents subsequent material changes.

10. TIME FRAME AND LOGISTICS

From concept to series production

Delivery times, quantities and call-offs influence the choice of material.

Checkpoints:

- Required quantities and delivery intervals
- Packaging requirements (e.g. rolls, die-cut parts, trayware)
- Logistical processes (Kanban, EDI, traceability)

THE BEST ADHESIVE SOLUTION IS CREATED DURING THE PROCESS – NOT BY CHANCE

Choosing the right adhesive tape is not a material decision, but part of the overall development process. Understanding the application saves time, costs and risk. The earlier tape specialists are involved, the more stable the series will be.

ARE YOU PLANNING A NEW APPLICATION?

We support you in selection, sampling and series integration.

Your contact

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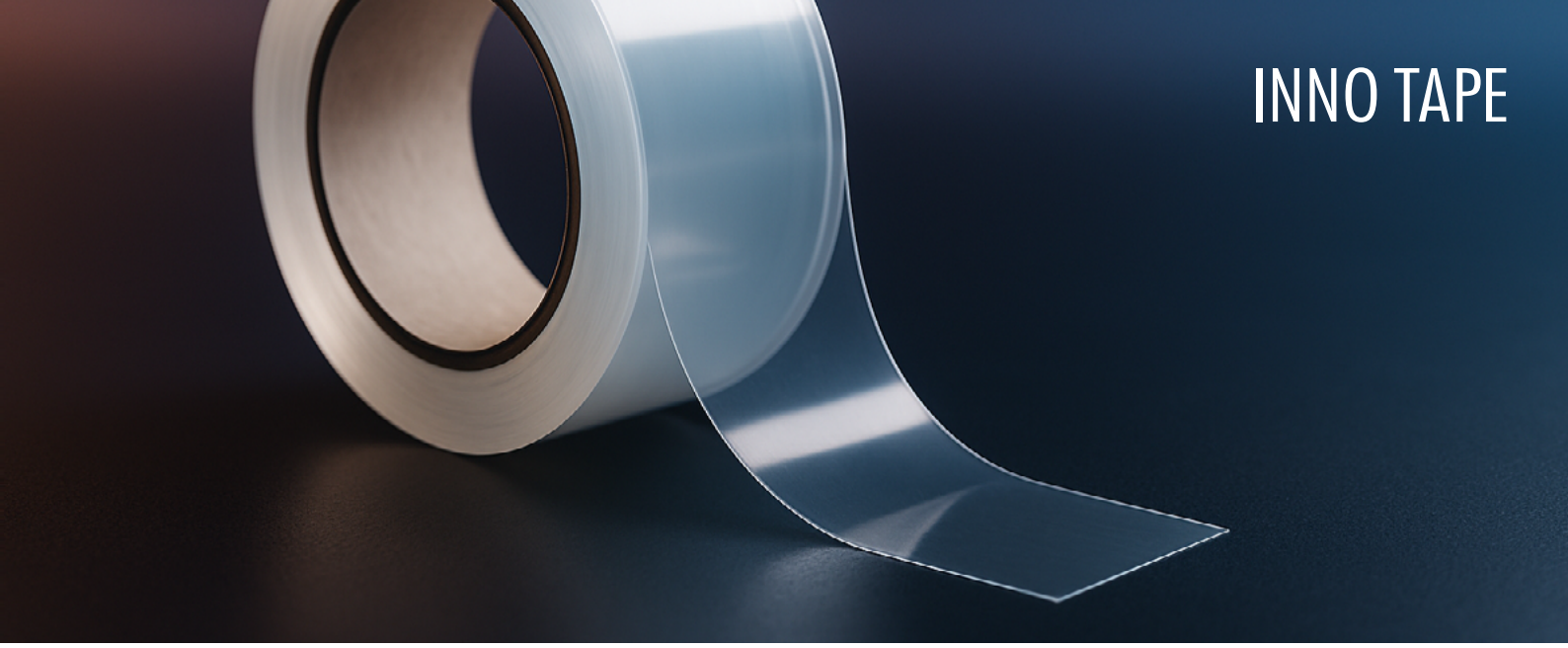
TO THE CHECKLIST ▸



CHECKLIST

CHOOSING THE RIGHT ADHESIVE TAPE

THE 10 MOST IMPORTANT POINTS

NO.	CRITERION	QUESTIONS ABOUT USE	DONE
1	Connection type	Should the bonding be removable, permanent or structural?	☐
2	Surfaces	What materials? Smooth/rough? Plasma/primer required?	☐
3	Temperature	What are the process and operating temperatures?	☐
4	Material thickness	What thickness is required (installation space, damping)?	☐
5	Application of force	What forces are at work (shear, tension, peel, split)?	☐
6	Chemical influences	Contact with solvents, additives, cleaners?	☐
7	UV/weathering	Outdoor use? UV/moisture exposure?	☐
8	Additional functions	Conductivity, insulation, colour, attenuation?	☐
9	Specifications	OEM/UL/RoHS requirements in place?	☐
10	Time frame	Are quantities, delivery intervals and logistics specifications clear?	☐