



RAUKANTEX ABS
Processing information

1.) **Materials for edgeband processing**

REHAU uses the thermoplastic materials PVC (Polyvinyl Chloride), ABS (Acrylonitrile-Butadiene-Styrene), PP (Polypropylene) and PMMA (Polymethylmethacrylate) in its extensive RAUKANTEX edgeband product range. Thermoplastic materials are polymer materials that can be melted and therefore thermoformed, processed and recycled.

2.) **ABS as an edgeband material**

ABS (Acrylonitrile-Butadiene-Styrene) is a widely-used thermoplastic material with excellent material and processing properties. The furniture industry has been using it since the 1980s. In particular the high impact strength and good mechanical and thermal properties make ABS a widely-used material in the furniture industry and also many other branches of industry. In many areas chlorine-free thermoplastics, such as ABS, are specified because of their disposal properties.

3.) **ABS material (Acrylonitrile-Butadiene-Styrene)**

ABS plastics are thermoplastics that, due to their chemical composition, belong to the high-impact polystyrene group. As a result of the specific combination of the individual monomers a high-impact, mechanically resistant, high-quality, cadmium and lead-free polymer material is created. In addition to this, the REHAU material formulation demonstrates improved heat resistance, ageing resistance, mechanical stability, chemical resistance and surface gloss compared to impact resistant polystyrene.

Areas of application

The spectrum of applications for the RAUKANTEX ABS is almost limitless: From the office to the bathroom and kitchen, exhibition stand construction and shop fitting, the living area through to commercial construction. The processing-friendly RAUKANTEX ABS formulation affords both smooth continuous processing and easy application to furniture panels with suitable radii. A large window of applications is also opened as a result of its good disposal properties compared to other materials.

RAUKANTEX ABS edgebands are coated on the reverse with a universal primer that guarantees adhesion of the edgeband to the substrate. This primer allows processing with all suitable hot melt adhesives.

Recycling

The RAUKANTEX ABS edgeband waste can be burned or placed in the domestic refuse without any problems. No by-products that are harmful to health are produced if it is burned in the correct way. Even wood based boards with ABS edgeband applied can be disposed of easily.

Characteristics/Properties

The properties of the RAUKANTEX ABS edgeband fulfil the requirements of the furniture industry. The ABS edgeband possesses the following properties:

- **Shore hardness D**

RAUKANTEX ABS edgebands achieve good results with a Shore hardness D of 70+/- 4 to EN ISO 868.

- **Heat resistance \ Vicat softening temperature**

With a value of approx. 95°C to ISO 306 / B50 RAUKANTEX ABS edgebands are especially suited for use in the furniture industry.

- **Abrasion resistance**

The surface of RAUKANTEX decorative edgeband in ABS is protected against scratches with a UV lacquer, whereby the decorative designs demonstrate excellent scratch and abrasion resistance.

In case of a strong contact pressure in connection with rubbing, slight staining from intensive or dark colour shades cannot be excluded for technical reasons.

- **Chemical resistance**

RAUKANTEX ABS edgebands are chemically resistant to all household cleaners to DIN 68861 Part 1 and fulfil stress group 1B.

- **Light fastness**

RAUKANTEX ABS edgebands are regularly tested in an accredited laboratory in line with EN ISO 4892-2 regarding light fastness. With a light fastness of > 6 on the blue scale these edgebands are ideally suited for interior application. An analysis of the colour deviation is then carried out along the lines of EN ISO 105-A02 using the grey scale.

- **Cleaning**

Special plastic cleaners are recommended for cleaning RAUKANTEX ABS edgebands. The use of substances containing solvents and alcohol is strongly advised against.

	PVC	ABS	PP	PMMA
Light fastness to EN ISO 4892-2	7	> 6	7-8	> 6
Shrinkage Edgeband 3 mm 1h at 90°C	≤ 1.7 %	≤ 1.7 %	≤ 0.2 %	≤ 1.0 %
Notched tensile impact strength (Uni-Edgeband) to ISO 8256	> 70 kJ/m ²	> 40 kJ/m ²	> 20 KJ/m ²	> 20 KJ/m ²
Vicat softening point to ISO 306, Method B50	>72°C	ca. 95°C	>100°C	>80°C
Hardness Shore D to EN ISO 868	79±4	70±4	75±4	80±3
Chemical resistance to DIN 68861-1	Very good - 1B	Good - 1B	Very good - 1B	Good - 1B*
Thermal conductivity to DIN 52612	0.16 W/km	0.18 W/km	0.41 W/km	0.18 W/km

* Limited resistance to solvents and alcohol based substances

Storage

RAUKANTEX ABS edgebands are resistant to ageing and can therefore be stored in an area protected from the weather at a room temperature > 18°C for an almost unlimited amount of time.

Quality/Tolerances

RAUKANTEX ABS edgebands are subjected to regular quality checks in order to guarantee the high quality of every production run. In addition to this we are constantly working to improve the raw material properties.

The production tolerances for edgebands are defined exactly and are checked throughout every production run.

a) Widths-Tolerance

Thickness	Width	ABS
≤ 1 mm	0 – 75 mm	± 0.5 mm
≥ 1 mm	0 – 17 mm	± 0.2 mm
	18 – 33 mm	± 0.3 mm
	34 – 45 mm	± 0.4 mm
	46 – 75 mm	± 0.5 mm
	> 75 mm	± 0.8 mm

b) Thicknesses-Tolerance

Thickness	ABS	Additional Embossed Tolerance
0.4 – 0.8 mm	± 0.05	N/A
0.9 – 1.6 mm	±0.10	- 0.05
1.7 – 2.7 mm	±0.15	- 0.10
2.8 – 5.0 mm	±0.15	- 0.15

c) Pre-tensioning

Thickness	Width (≤ 17 mm)	Width (≥ 18 mm)	Width (≥ 23 mm)	Width (≥ 33 mm)	Width (≥ 75 mm)
0.40 – 2.0 mm	0 – 0.2 mm	0 – 0.25 mm	0 – 0.3 mm	0 – 1.0 mm	0 – 2.0 mm
2.10 – 5.0 mm	0 – 0.15 mm	0 – 0.2 mm	0 – 0.3 mm	0 – 0.6 mm	0 – 1.5 mm

d) Parallelism

Width (≤ 33 mm)	Width (≥ 33 mm)	Width (≥ 45 mm)
max. 0.05 mm	max. 0.10 mm	max. 0.15 mm

* Tolerances valid as of 19-Aug-2021 and subject to change

4.) Processing

Manual processing

It is possible to process RAUKANTEX ABS edgeband manually using edge clamps.

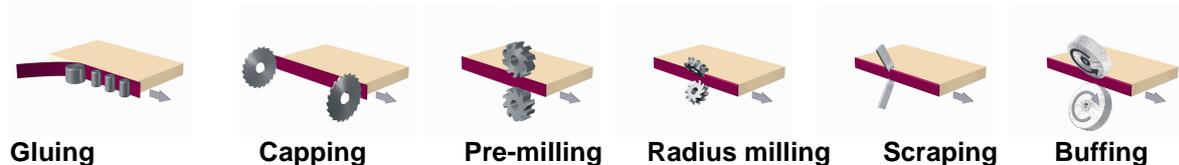
For this the application of a two-component dispersion adhesive is recommended, e.g. Rakolit 77 + WS 1 hardener has been tested from a technical applications point of view. Processing using wood PVA glue is not possible.

Special PVA adhesives, solvent-based adhesives and cartridge adhesives can be used for gluing by hand. Independent function tests should be carried out in order to determine the suitability of the technical application in each case.

Machine processing

RAUKANTEX ABS edgebands can be processed on all edgebanders (straight line processing) and BAZ (processing centres) using hot melt adhesive. The various processing steps such as gluing, capping, milling, scraping and also reworking with buffing wheels and hot air are possible without any problems.

Process steps of machine processing



To achieve a high-quality and durable edgeband application several important processing parameters have to be considered which depend on the components used (edgeband, glue and boards), the edgebander and the ambient temperature. In order to identify the ideal conditions it is recommended that trials are carried out and that the reference values specified by the relevant manufacturer are observed.

Adhesive

RAUKANTEX ABS edgebands can be processed with all commercially available hot melt adhesives (EVA, PA, PUR). These highly heat-stable adhesives together with the RAUKANTEX ABS edgebands guarantee a secure bond.

For products exposed to high ambient temperatures (e.g. containerised transportation) hot melt adhesives with a high softening temperature are recommended. Due to the high heat resistance of the ABS edgebands (approx. 95°C) material softening during general applications does not occur.

During adhesion ensure that the adhesive is applied consistently and that the glue spreading rollers do not extend too far into the line of the board.

The processing temperature of the adhesive varies depending on the type of adhesive. Be aware that the thermostats in melt containers are often inaccurate and the temperature of the applicator roller can vary by up to 30°C.

Processing temperature

To achieve the best possible results during edgeband application the boards and edgebands should be processed at a room temperature of >18°C otherwise the adhesive sets too quickly. Draughts should also be avoided for this reason.

Wood humidity

The optimum wood humidity of the board material is between 7 and 10%.

Processing feed

RAUKANTEX ABS edgebands are designed for the processing feeds of both small fabricators and those of industry. Depending on the type of machine speeds of 10 to 100 m/min are possible. With modern processing centres speeds of 30 m/min can be achieved depending on the part geometry.

Adhesive application

To achieve ideal processing the information provided by the adhesive manufacturer should be observed. The adhesive application should be calculated in such a way that small beads of adhesive are pressed out from the edges of the freshly glued edgebands and the voids between the substrate particles are filled.

The amount of adhesive in each case depends on the type of board, the substrate density, the edgeband material, the processing feed and the type of adhesive.

Milling

If possible use a 3 to 6 tooth milling tool with a diameter of 70 mm and 12,000 to 18,000 RPM counter to board travel (up-cutting). Inappropriate speeds or blunt tools can damage the edgebands. If a smear effect occurs the speed of the milling tool or the number of teeth should be reduced. The quality of the milled surface (e.g. chatter marks) can be improved by adjusting the feed, speed and number of blades.

Scraping

The ABS material tends to become slightly lighter after scraping, therefore the chip produced by the scraper should be a maximum of 0.1-0.15 mm. To obtain a high-quality surface after scraping, aim for a milling finish with as few chatter marks as possible.

Buffing

RAUKANTEX ABS edgebands can be buffed to generate a high quality edge radius. Colour deviation (stress whitening) caused during scraping of the edge radius can be eliminated to achieve a consistent finish by using a down-cutting buffing wheel set-up i.e. the wheels rotate with the travel of the board. Additionally, if release and cleaning agents are used during board processing, the buffing wheels will remove any unwanted glue residue.

Processing properties		PVC	ABS	PP	PMMA
Capping		Good	Good	Good	Good
Milling direction	Straight line processing	Up-cutting	Up-cutting	Up-cutting	Up-cutting
	BAZ	Down-cutting/Up-cutting	Down-cutting/Up-cutting	Up-cutting	Down-cutting/Up-cutting
Pre-milling		Good	Good	Good	Good
Radius milling		Good	Good	Good	Good
Contour milling		Good	Good	Good	Good
Scraping		Very good	Good	Good	Good
Buffing		Very good	Good	Good	Good
Down-cutting		Standard market hotmelts	Standard market hotmelts	Standard market hotmelts	Standard market hotmelts
Polishability		Good	Good	Average	Very good
Stress whitening tendency		Low	Average	Low	Low
Processing centre capability		Very good	Good	Very good	Superior

Problem		Diagnosis of the problem
1	<p>The edgeband can easily be removed by hand.</p> <p>The hot melt adhesive remains on the chipboard (straight line) or on the edgeband (processing centre).</p> <p>It is possible to see the marking made by the adhesive application roller.</p>	<ul style="list-style-type: none"> ▪ Adhesive application not sufficient ▪ Room or edgeband temperature too low ▪ Draughty environment ▪ Hot melt adhesive temperature too low ▪ Processing feed too low ▪ Contact pressure of the pressure roller too low
2	<p>The edgeband can easily be removed by hand.</p> <p>Hot melt adhesive remains on the chipboard (straight line).</p> <p>The hot melt adhesive surface is completely smooth.</p>	<ul style="list-style-type: none"> ▪ Board and/or edgeband is too cold. ▪ Check hot melt adhesive type ▪ Check primer application
3a	<p>Glue joint is not sealed (straight line)</p>	<ul style="list-style-type: none"> ▪ Adhesive too cold ▪ Adhesive application too low ▪ Contact pressure too low ▪ Edgebands have incorrect pre-tensioning ▪ Scoring saw alignment is incorrect ▪ Contact between the adhesive application roller and board ▪ Debris not removed from board cross-section
3b	<p>Glue joint is not sealed (processing centre)</p>	<ul style="list-style-type: none"> ▪ Contact pressure too low ▪ Curvature of the edgeband too high → <i>Application of external heat</i> ▪ Check hot melt adhesive type (insufficient heat adhesion) ▪ Edgeband pre-tensioning is incorrect

		<ul style="list-style-type: none"> ▪ Adhesive does not set in good time → <i>Reduce the adhesive temperature</i>
4	The glued edgeband does not show sufficient adhesion at the start	<ul style="list-style-type: none"> ▪ Adhesive application roller is not positioned correctly ▪ Increase the amount of adhesive
5	Milling lines are visible	<ul style="list-style-type: none"> ▪ Feed too high ▪ Number of blades too low ▪ Speed too low → <i>Rework with scraper and polishing station</i>
6	Edgeband splits during the milling process	<ul style="list-style-type: none"> ▪ Edgeband vibrates during the milling process ▪ Adhesion insufficient ▪ Edgeband projection too large → <i>Check adhesion parameters</i> → <i>Check adhesive type</i>
7	Stress whitening of the edgeband in the milled area, principally after scraping	<ul style="list-style-type: none"> ▪ Chip of the scraper too thick ▪ Scraper set up incorrectly → <i>Blunting of the scrapers edge</i> → <i>Rework with buffing station</i>
8	Stress whitening occurs during processing centre processing	<ul style="list-style-type: none"> ▪ Micro-cracks occur in the radius area due to processing temperature being too cold → <i>Application of external heat in the radius area</i> → <i>Use of larger radiuses or thinner edgebands</i>

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