

## Durability Test Data of Brother's TZe laminated labels



*P-touch* LABELS  
**TESTED**  
TO THE EXTREME ✓

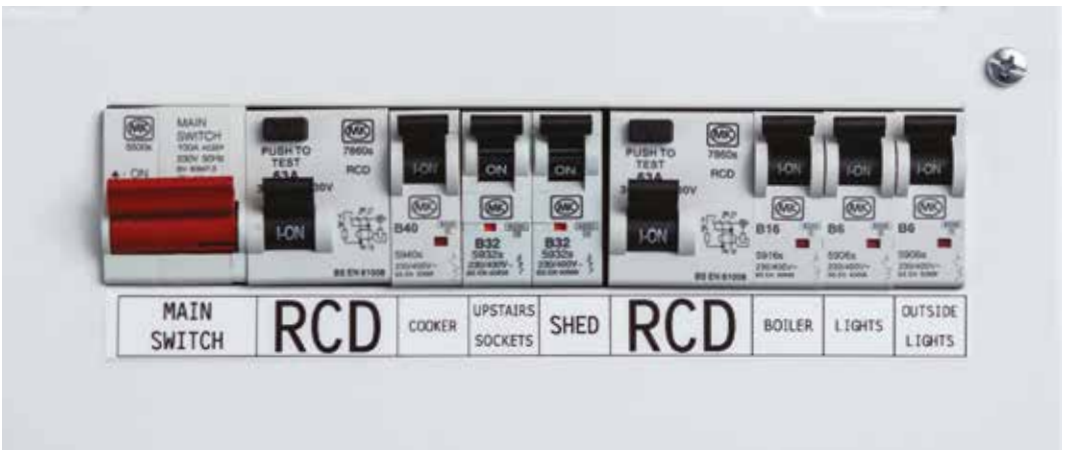


## Brother's TZe laminated labels designed to last

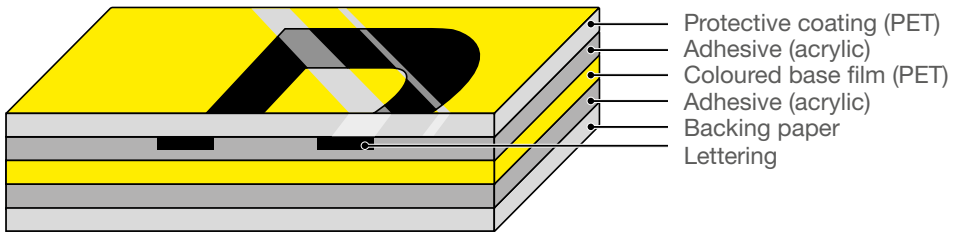
Putting Brother's TZe laminated label through a series of extreme tests to test their durability such as heavy abrasion, high and low temperature, sunshine, water, and chemicals, TZe laminated labels have been designed to last. TZe laminated label is a professional labelling solution for office, industry, or home.



# Brother's TZe laminated labels



# Why Brother's TZe laminated labels can withstand the test of time



When using TZe laminated tape cassettes in Brother's P-touch label printers, a clear polyethylene laminate layer is applied over the entire label and thermal transfer ink at the time of printing, unlike comparable competitors' label printers.

With an additional level of protection, the text and valuable information on the label remains legible, even under harsh conditions such as long-term use outdoors and in sunny conditions.

With Brother's specially developed dedicated tapes using adhesives and label materials for more demanding applications such as textured surfaces or wrapping around cables, TZe laminated labels will stay attached to whatever labelling requirement.

The following pages show the tests being performed on TZe laminated labels.



Strong  
Adhesion

## Strong Adhesion Tests



# Strong Adhesion Tests



Strong  
Adhesion

Strong adhesion tests were conducted in two stages:

**Stage 1:** Adhesion to smooth and textured surfaces

**Stage 2:** Adhesion to various diameter curved surfaces

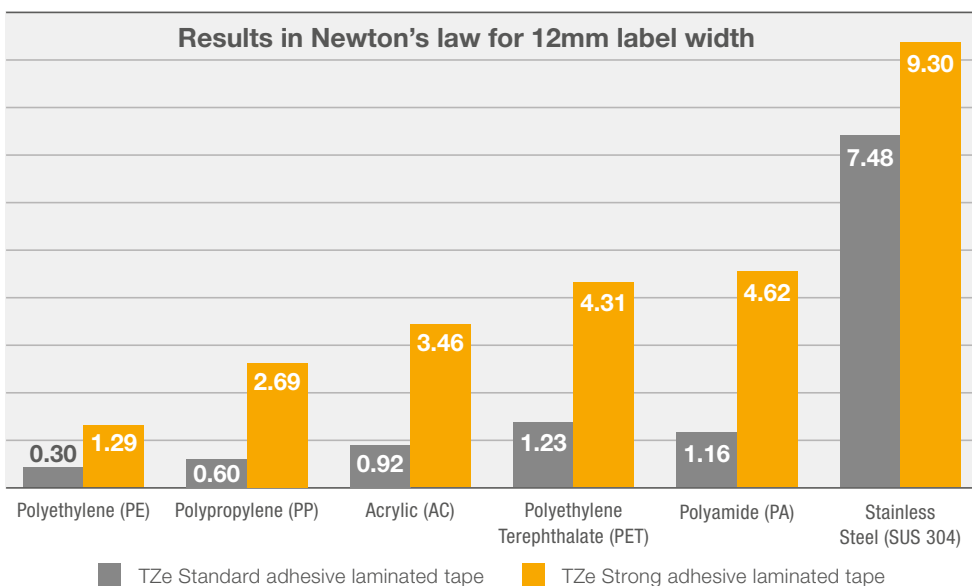
## STAGE 1

### Adhesion to smooth and textured surfaces test procedure

To test the adhesive strength of TZe laminated labels, TZe standard adhesive, and TZe strong adhesive laminated labels were affixed on a variety of materials at room temperature and left for 30 days. After this period, the adhesive strength was tested by measuring the force required to remove the labels at an angle of 180 degrees. This testing method complies with Japanese Standard JIS Z 0237 (2009) testing.

### Test results

The chart below shows the amount of force required (measured in Newton's law) to remove TZe standard adhesive and TZe strong adhesive laminated labels from various materials. The higher the value, the stronger the tapes were affixed to the material. As the test shows that when TZe strong adhesive laminated labels are used on textured surfaces, they maintained three times the adhesive strength as compared with TZe standard adhesive laminated labels on average. TZe strong adhesive laminated labels have been specially developed to adhere to both smooth and textured surfaces, and even on more demanding materials.





Strong  
Adhesion

# Strong Adhesion Tests

## STAGE 2

### Adhesion to various diameter curved surfaces test procedure

To test the adhesive strength of TZe laminated labels, TZe standard adhesive, TZe strong adhesive, and TZe flexible ID laminated labels were affixed on a variety of materials at room temperature and left for 14 days. After this period, the labels were visually inspected to see if there are any peeling from the materials they were attached to.

### Test results

The table below explains that TZe standard adhesive, TZe strong adhesive, and TZe flexible ID laminated labels showed no signs of peeling from materials of 6mm or higher in diameter. However, when these labels were wrapped or applied as a flag label to the diameter material of 3mm, TZe standard adhesive and TZe strong adhesive laminated labels have shown signs of peeling or falling off completely. Only TZe flexible ID laminated labels remain intact with no peeling.

TZe flexible ID laminated labels have been developed for flagging and wrapping around wires, cables, pipes, and tubes with a minimum diameter of 3mm, and these labels will stay affixed on these surfaces. TZe self-laminating labels have the same properties as TZe flexible ID laminated labels and can also be used for wrapping around cables.

Whereas TZe strong adhesive laminated labels are recommended to use on textured material or surfaces with larger diameter curved.

	CURVED SURFACE		WRAPPED		FLAGGED
	Ø50mm glass beaker	Ø25mm glass beaker	Ø6mm PVC cable	Ø3mm Polypropylene tube	Ø3mm Polypropylene tube
TZe standard tape	●	●	●	●	◐
TZe strong adhesive tape	●	●	●	●	◐
TZe flexible ID tape	●	●	●	●	●

- No peeling of label observed
- ◐ Some peeling of label observed
- Label peeled off completely



# Strong Adhesion Tests



Strong  
Adhesion





Water  
Resistant



Chemical  
Resistant

## Water and Chemical Resistance Tests



# Water and Chemical Resistance Tests



Water  
Resistant



Chemical  
Resistant

Water and Chemical resistance tests were conducted in three stages:

**Stage 1:** Water and Chemical submersion

**Stage 2:** Water and Chemical abrasion

**Stage 3:** Pure water and 5% Sodium chloride (salt) solution immersion

## STAGE 1

### Water and Chemical submersion test procedure

To test TZe laminated labels against the effects of water and chemicals, TZe standard adhesive, TZe strong adhesive, and TZe flexible ID laminated labels were attached to glass slides and immersed in a variety of liquids for 2 hours at room temperature.

### Test results

Although some labels soaked in certain chemicals showed slight separation of the laminate, the table below shows no change in the print quality and these labels remained affixed to the slides. Hence even if any of the chemicals tested are spilled on TZe laminated labels, a quick wipe should be enough to prevent any damage.

	Toluene	Hexane	Ethanol	Ethyl Acetate	Acetone	Mineral Spirit	Pure water	0.1N Hydrochloric Acid	0.1N Sodium Hydroxide
TZe standard tape	●	●	●	●	●	●	●	●	●
TZe strong adhesive tape	●	●	●	●	●	●	●	●	●
TZe flexible ID tape	●	●	●	●	●	●	●	●	●

● No print discolouration



#### Label after testing:

Label: TZe strong adhesive laminated label  
Chemical: Acetone



Water  
Resistant



Chemical  
Resistant

# Water and Chemical Resistance Tests

## STAGE 2

### Water and Chemical abrasion test procedure

TZe standard adhesive, TZe strong adhesive, and TZe flexible ID laminated labels were subjected to a 200g weight with a chemical and solvent-infused cloth, which was passed over each label for 100 round trips. These labels were then visually inspected to check if there are any print quality problems.

### Test results

The table below shows the print quality of TZe laminated labels remains unaffected when rubbed with various chemicals.

	Toluene	Hexane	Ethanol	Ethyl Acetate	Acetone	Mineral Spirit	Pure water	0.1N Hydrochloric Acid	0.1N Sodium Hydroxide
TZe standard tape	●	●	●	●	●	●	●	●	●
TZe strong adhesive tape	●	●	●	●	●	●	●	●	●
TZe flexible ID tape	●	●	●	●	●	●	●	●	●

● No print discolouration



#### Label before testing:

Label: TZe strong adhesive laminated label



#### Label after testing:

Label: TZe strong adhesive laminated label  
Chemical: 0.1N Hydrochloric Acid

# Water and Chemical Resistance Tests



Water  
Resistant



Chemical  
Resistant

## STAGE 3

### Pure water and 5% Sodium chloride (salt) solution immersion test procedure

The final test involved TZe standard adhesive, TZe strong adhesive, and TZe flexible ID laminated labels being affixed on stainless steel plates which were then immersed in two solutions. They were placed in a thermostatic chamber set at 40°C and removed after the predetermined periods with results documented as shown in the table below. After that, the appearance of the labels was visually checked.

### Test results

As the table shows that even after 30 days of immersion in pure water or 5% Sodium chloride (salt) solution, TZe standard adhesive, TZe strong adhesive, and TZe flexible ID laminated labels stayed perfectly attached and the print quality was unaffected.

	4 DAYS		10 DAYS		30 DAYS	
	Peeling	Fading	Peeling	Fading	Peeling	Fading
TZe standard tape	●	●	●	●	●	●
TZe strong adhesive tape	●	●	●	●	●	●
TZe flexible ID tape	●	●	●	●	●	●

● No peeling of tape or fading of text observed



### Label after testing:

Label: TZe strong adhesive laminated label  
Liquid: 5% Sodium chloride solution



Abrasion  
Resistant

# Abrasion Resistance Test



# Abrasion Resistance Test



**Abrasion  
Resistant**

Brother's tape lamination technology ensures that TZe laminated labels can withstand heavy abrasion.

## Abrasion resistance test procedure

TZe standard adhesive, TZe strong adhesive, and TZe flexible ID laminated labels were attached to stainless steel plates with a BA (bright annealed) surface. Competitors' non-laminated labels were also attached to plates made of the same material and surface finish.

A 1kg sanding device was then passed over the labels with 50 return passes, at a speed of 40 round trips per minute.

## Test results

As the table and images below show that even after 50 passes of heavy sanding device, the laminated surface on TZe tapes showed some wear but the characters underneath were unaffected and the text remained legible. The text on the Competitors' non-laminated labels was either completely illegible or showed signs of extreme wear.

	PRINT QUALITY	
TZe standard adhesive tape	●	
TZe strong adhesive tape	●	
TZe flexible ID tape	●	
Competitor Brand D industrial flexible nylon tape	●	
Competitor Brand B nylon cloth tape	●	
Competitor Brand D industrial permanent polyester tape	●	
Competitor Brand D industrial vinyl tape	●	
Competitor Brand D durable tape	●	
Competitor Brand D standard tape	●	
Competitor Brand B permanent polyester tape	●	
Competitor Brand D vinyl tape	●	

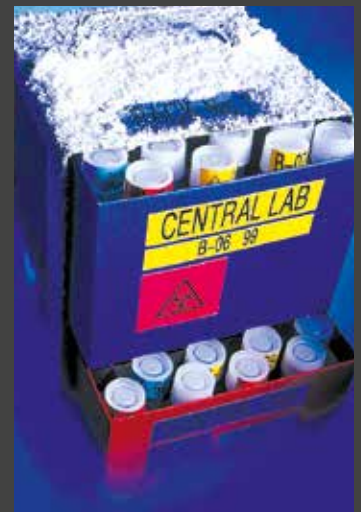
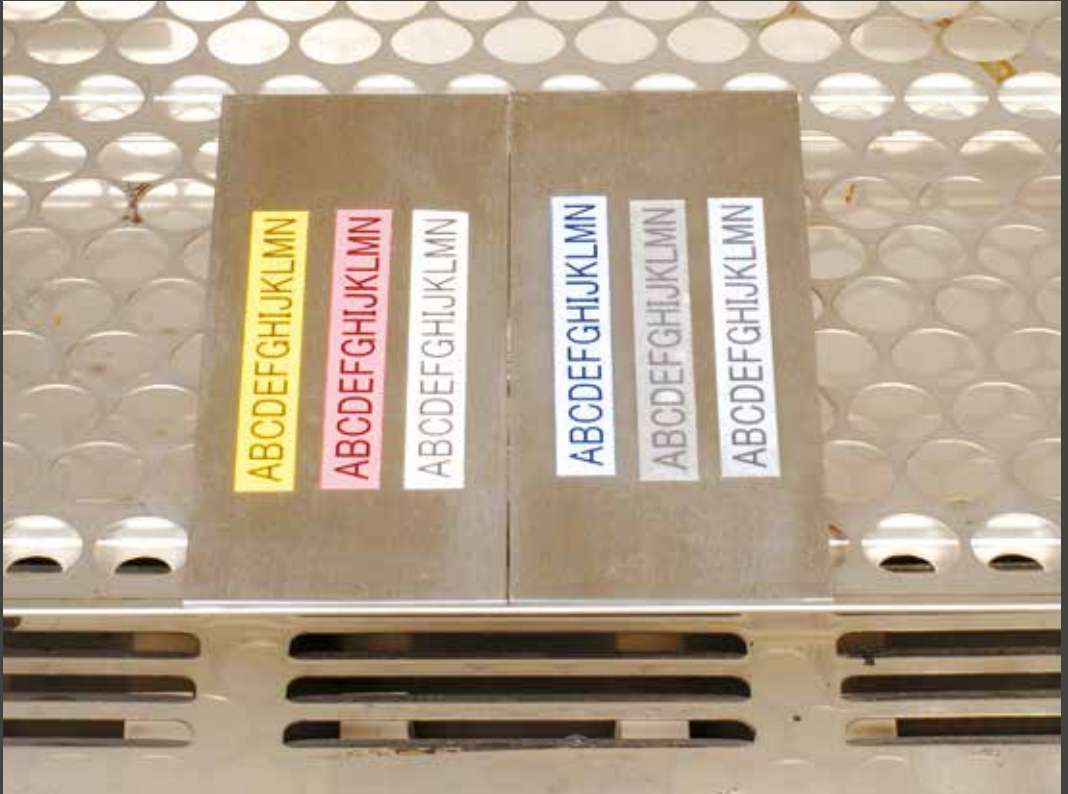
- Print quality unaffected
- Print quality affected

- Print illegible
- ↔ Area of label tested



Temperature  
Resistant

# Temperature Resistance Test





# Temperature Resistance Test



Temperature  
Resistant

When TZe labels are in freezing conditions or extremely warm environments, TZe laminated labels have been designed to last. The results have shown that TZe laminated labels can withstand temperatures from  $-80^{\circ}\text{C}$  to  $+150^{\circ}\text{C}$ .

## Temperature resistance test procedure

TZe standard adhesive, TZe strong adhesive, and TZe flexible ID laminated labels were attached to stainless steel and placed in a thermo-hygrostat chamber set under the test conditions, taken out after a predetermined time, and returned to room temperature where the appearance of the label was visually checked.

## Test results

As the table below shows that even after 3 days at  $-80^{\circ}\text{C}$ , no noticeable change in label adhesive or colour occurred. After 2 days at  $+150^{\circ}\text{C}$ , despite of slight discolouration of the label, the text on the label remained completely intact\*. We recommend Brother's TZe-M931, TZe-M951, and TZe-M961 Black on Matt Silver laminated labels as these labels are the most resistant to discolouration under high temperatures, and TZe flexible ID laminated labels as these labels are suitable when used in an autoclave or sterilising unit.

TEMPERATURE	TIME	RESULT
$-80^{\circ}\text{C}$	3 days	●
$-30^{\circ}\text{C}$	30 days	●
$+50^{\circ}\text{C}$ at 90% RH	30 days	●
$+100^{\circ}\text{C}^*$	18 days	●
$+150^{\circ}\text{C}^*$	2 days	●

\* When used under extremely high temperatures or for long periods, the laminate film may be separated, discolored, or shrink.

When in doubt, do request a free label sample from Brother.

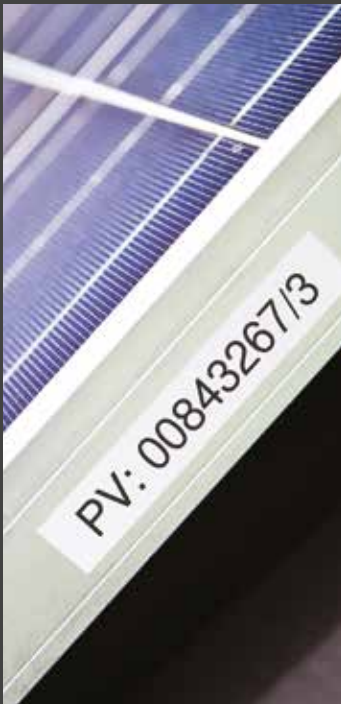
No peeling of tape or fading of text observed

No peeling of tape observed. Text is legible but some tape discolouration occurred.



Fade  
Resistant

# Fade Resistance Test



## Fade Meter (Time - $\Delta E$ )

TAPE COLOUR	118h	236h	478h*
Clear (Transparent)	9.66	15.69	24.69
White	0.83	1.58	3.18
Red	1.65	5.95	54.61
Blue	1.27	2.85	5.71
Yellow	22.59	55.57	57.2
Green	1.24	1.62	3.77
Fluorescent Orange	46.57	50.33	54.43
Fluorescent Yellow	81.02	85.09	84.66
Black	0.55	0.18	1.11
Strong Adhesive - White	0.83	1.58	3.18
Flexible ID - White	1.49	2.35	3.94

\*478 hours approximates to 1 year in outdoor sunny conditions

# Fade Resistance Test



Fade  
Resistant

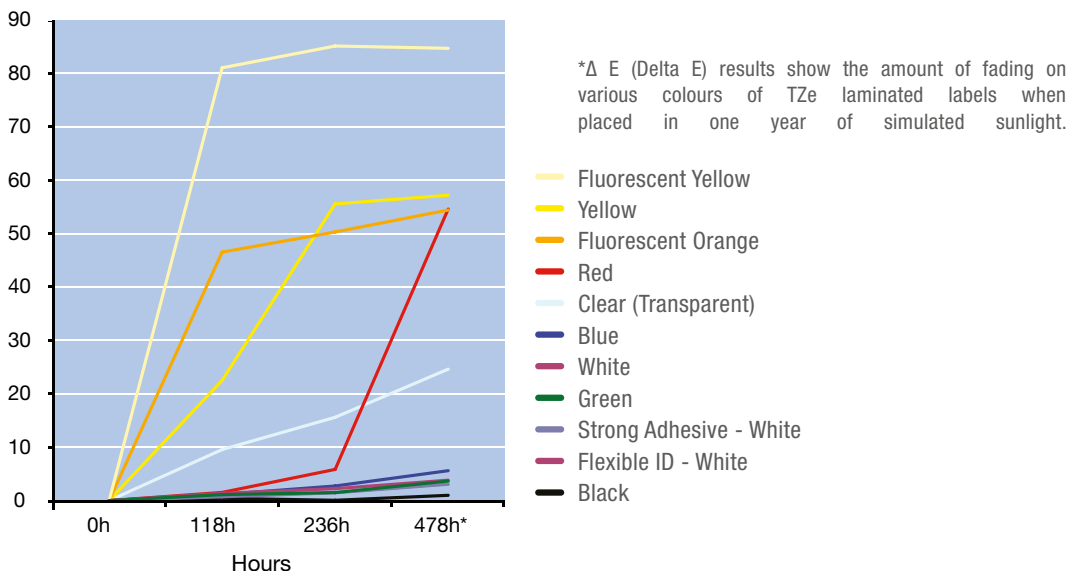
TZe laminated labels have been designed to keep the text clear and legible for many years.

## Fade resistance test procedure

TZe Black on White strong adhesive and TZe flexible ID laminated labels and various coloured of TZe standard adhesive laminated labels were attached to stainless steel plates and exposed to simulated outdoor UV radiation of approximately 12 months. After that, the appearance of the labels was checked to see if these labels are compliant with JIS K7350-2/ISO 4892-2 standards.

## Test results

The printed text on all TZe laminated tapes remained unchanged and was perfectly legible. The red, yellow and fluorescent tapes showed a larger change to the tape background colour as compared to other tape colours, which showed little or no change. The higher the  $\Delta E$  (Delta E) value, the larger the change in visual perception from the original colour.





**Chemical  
Resistant**

# Oil Resistance Tests

The protective laminate top-coat on TZe laminated labels ensures the text is protected even when submerged or rubbed with oil. Oil resistance tests were conducted in two stages:

**Stage 1:** Oil immersion

**Stage 2:** Oil rubbing

## STAGE 1

### Oil immersion test procedure

TZe standard adhesive, TZe strong adhesive, and TZe flexible ID laminated labels were attached to glass slides and immersed in various oils at room temperature for 2 hours, and the change in appearance was checked visually after these 2 hours.

## STAGE 2

### Oil rubbing test procedure

TZe standard adhesive, TZe strong adhesive, and TZe flexible ID laminated labels were attached to the glass slides and rubbed with oil-soaked cloths for 100 round trips, using a measuring element of 4.6mm (16.6mm<sup>2</sup>) and a load of 200g. After this test was completed, the appearance of the labels was checked visually. This test is conducted in accordance with JIS-L-0849. (ISO 105-X12:2001 – Textiles Tests for colour fastness: Part X12).

### Test results

The table below shows that at the end of both tests no change to the print quality was occurred, and the labels remained affixed to the slides.

		Honilo 981	Variocut B30	CareCut ES1	Hysol X	Alusol B	Syntio 81E	Syntio 9954
TZe standard tape	2 hour immersion	●	●	●	●	●	●	●
	100 round trips rubbing	●	●	●	●	●	●	●
TZe strong adhesive tape	2 hours immersion	●	●	●	●	●	●	●
	100 round trips rubbing	●	●	●	●	●	●	●
TZe flexible ID tape	2 hours immersion	●	●	●	●	●	●	●
	100 round trips rubbing	●	●	●	●	●	●	●

● No change in the print quality and label remained affixed to the slides

# Autoclave Resistance Test



Temperature  
Resistant

TZe flexible ID laminated labels demonstrate excellent adhesion and text legibility, even after several passes through of the harsh environment of an autoclave sterilisation chamber.

## Autoclave resistance test procedure

TZe flexible ID laminated label was affixed to the flat and smooth stainless steel at room temperature. The condition of the label was observed after it was processed in an autoclave under the following test conditions:

### Autoclave test machine:

Steam steriliser GETINGE HS22

### Test program:

B cycle P11 \*EN (European Standard) prEN13060 standard compliant

### Pre-vacuum:

4 times

### Sterilising temperature:

134°C

### Sterilising duration:

5 minutes

### Drying duration:

20 minutes

## Test results

The table below shows the high durability of TZe flexible ID laminated labels during the test. After several process cycles, some slight label discolouration and separation of lamination film were observed. Nevertheless, the printed text stayed legible.

FLEXIBLE ID TAPES	1 cycles	5 cycles	10 cycles	20 cycles	30 cycles
Print quality	●	●	●	●	●
Label peeling	●	●	●	●	●
Tape discolouration	●	●	●	●	▸
Separation of laminate film	●	●	●	●	▸

- No noticeable change
- Slight changes observed

# Brother Tape Range

	6mm	9mm	12mm	18mm	24mm	36mm
<b>TZe STRONG ADHESIVE LAMINATED TAPE - 8 METRES</b>						
<b>Black on White</b>	TZe-S211	TZe-S221	TZe-S231	TZe-S241	TZe-S251	TZe-S261
<b>Black on Clear</b>		TZe-S121	TZe-S131	TZe-S141	TZe-S151	
<b>Black on Yellow</b>		TZe-S621	TZe-S631	TZe-S641	TZe-S651	
<b>TZe FLEXIBLE ID LAMINATED TAPE - 8 METRES</b>						
<b>Black on White</b>	TZe-FX211	TZe-FX221	TZe-FX231	TZe-FX241	TZe-FX251	TZe-FX261
<b>Black on Yellow</b>	TZe-FX611	TZe-FX621	TZe-FX631	TZe-FX641	TZe-FX651	TZe-FX661
<b>TZe SELF-LAMINATING TAPE - 8 METRES</b>						
<b>Black on White</b>					TZe-SL251	TZe-SL261
<b>Black on Yellow</b>					TZe-SL651	TZe-SL661
<b>TZe SECURITY LAMINATED TAPE - 8 METRES</b>						
<b>Black on White</b>				TZe-SE4	TZe-SE5	
<b>StE STENCIL TAPE - 3 METRES</b>						
<b>Black on White</b>				StE-141	StE-151	StE-161
<b>FLe FLAG (DIE-CUT) - 72 LABELS</b>						
<b>Black on White</b>					FLe-2511*	
<b>Black on Yellow</b>					FLe-6511*	
<b>Black on Green</b>					FLe-7511*	

\* Labels are: 45mm x 21mm when printed. 45mm x 10.5mm once applied.

HSe 3:1 HEAT SHRINK TUBE - 1.5 METRES

5.2mm | 9.0mm | 11.2mm | 21.0mm | 31.0mm

<b>Black on White</b>	HSe-211E	HSe-221E	HSe-231E	HSe-251E	HSe-261E
<b>Black on Yellow</b>	HSe-611E	HSe-621E	HSe-631E	HSe-651E	HSe-661E

3.5mm | 6mm | 9mm | 12mm | 18mm | 24mm | 36mm

STANDARD LAMINATED TAPE - 8 METRES

<b>Black on White</b>	TZe-211	TZe-221	TZe-231	TZe-241	TZe-251	TZe-261
<b>Black on Clear</b>	TZe-111	TZe-121	TZe-131	TZe-141	TZe-151	TZe-161
<b>Black on Yellow</b>	TZe-611	TZe-621	TZe-631	TZe-641	TZe-651	TZe-661
<b>Black on Red</b>		TZe-421	TZe-431	TZe-441	TZe-451	TZe-461
<b>Black on Blue</b>		TZe-521	TZe-531	TZe-541	TZe-551	TZe-561
<b>Black on Green</b>		TZe-721	TZe-731	TZe-741	TZe-751	
<b>Blue on White</b>		TZe-223	TZe-233	TZe-243	TZe-253	TZe-263
<b>Red on White</b>		TZe-222	TZe-232	TZe-242	TZe-252	TZe-262
<b>Red on Clear</b>			TZe-132			
<b>Blue on Clear</b>			TZe-133			
<b>White on Clear</b>			TZe-135	TZe-145		
<b>White on Black</b>	TZe-315	TZe-325	TZe-335	TZe-345	TZe-355	TZe-365
<b>White on Blue</b>			TZe-535		TZe-555	
<b>White on Red</b>			TZe-435			
<b>Gold on Black</b>			TZe-334	TZe-344	TZe-354	

6mm | 9mm | 12mm | 18mm | 24mm | 36mm

**FLUORESCENT LAMINATED TAPE - 5 METRES**

<b>Black on Fluorescent Orange</b>	TZe-B31	TZe-B51
<b>Black on Fluorescent Yellow</b>	TZe-C31	TZe-C51

**MATT LAMINATED TAPE - 8 METRES**

<b>Black on Clear</b>	TZe-M31
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**METALLIC LAMINATED TAPE - 8 METRES**

<b>Black on Matt Silver</b>	TZe-M921	TZe-M931	TZe-M951	TZe-M961
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**PREMIUM LAMINATED TAPE - 8 METRES**

<b>Black on Premium Gold</b>	TZe-PR831	TZe-PR851
<b>Black on Premium Silver</b>	TZe-PR935	TZe-PR955



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# Choose the right tape for the job

SURFACE	WIRE AND CABLE IDENTIFICATION							GENERAL IDENTIFICATION		
	Flexible ID	Self-Laminating	Heat Shrink Tube	Flag	Strong Adhesive	Security	Stencil	Tape	Width	Recommended cable diameters
Smooth surfaces	✓				✓	✓	✓	HSe-211E	5.2mm	Ø0.8mm to 3.1mm
Textured surfaces	●				✓	●		HSe-221E	9.0mm	Ø1.6mm to 5.4mm
Cable wrap	✓	✓	✓					HSe-231E	11.2mm	Ø2.1mm to 7.0mm
Cable flag	✓			✓				HSe-251E	21.0mm	Ø4.2mm to 13.5mm
								HSe-261E	31.0mm	Ø6.3mm to 20mm
								HSe-611E	5.2mm	Ø0.8mm to 3.1mm
								HSe-621E	9.0mm	Ø1.6mm to 5.4mm
								HSe-631E	11.2mm	Ø2.1mm to 7.0mm
								HSe-651E	21.0mm	Ø4.2mm to 13.5mm
								HSe-661E	31.0mm	Ø6.3mm to 20mm

HEAT SHRINK TUBE (Shrink Ratio: 3:1)



✓ Recommended ● Acceptable

# Brother's Genuine Supplies



## Brother's genuine supplies work in perfect harmony with Brother's label printers.

Designed, manufactured, and tested in controlled environments by the same team of engineers as Brother's hardware and providing the best possible results for your business and protection of print investment.





# Frequently asked questions

## **How accurate are the tests in simulating real-world examples?**

Every effort was made to ensure the tests accurately simulate real-world examples. However, when printed labels are used in the real world, many factors could change the results of these tests, such as surface material, heat, moisture, pressure, chemicals, etc. When in doubt, always test Brother's TZe laminated labels in your environment to ensure they meet your requirements.

## **Which tape is recommended for rough or textured surfaces?**

TZe strong adhesive tape has been specially developed for more demanding surfaces such as rough or textured surfaces.

## **Which tape is recommended for cable labelling?**

Use TZe self-laminating tape or TZe flexible ID laminated tape for cable wrap labelling. For cable flag labelling, use TZe flexible ID laminated tape. Brother's HSe Heat Shrink tube is also available for wire and cable identification.

## **Which tape is recommended for high temperatures?**

We recommend TZe-M931, TZe-M951, and TZe-M961 Black on Matt Silver laminated tape as they are most resistant to high temperatures in terms of discolouration.

## **How thick are laminated TZe labels?**

TZe laminated labels are around 160 micro metres in thickness, but this varies slightly by tape type.

# Frequently asked questions

## **Do TZe tapes contain silicone?**

Since the tape liner is silicone coated on both sides, there is a chance that small amounts of silicone may remain on the adhesive layer underneath the label even after the liner is peeled off.

## **Do TZe tapes contain latex?**

No. TZe tapes use acryl based adhesive materials and do not include latex.

## **Do TZe tapes contain lead?**

No. There is no lead in the TZe tape cassette case, tape or ink.

## **Do TZe tapes contain chloride?**

Except for Clear (Transparent) and Silver TZe tapes, Chloride materials are used in the coloured base film layer of other TZe tapes.

## **Do TZe tapes contain halogen?**

The coloured layer of the base film includes some Chlorine compound which means that TZe tapes cannot be categorised as halogen-free.

## **Do TZe tapes contain REACH SVHC?**

Please refer to [www.brother.eu/reach](http://www.brother.eu/reach) for the latest information.

## **Do TZe cassettes contain recycled material?**

Yes. TZe tape cassettes contain at least 5% of recycled material.

## **Do TZe labels create any outgassing?**

The following gases may be produced when labels are stored or applied in a hot environment: Toluene, n-butanol, 2-ethylhexyl alcohol, butyl carbinol acetate. These levels are however very low.

## **Do TZe labels leave any adhesive residue when removed?**

Labels can be removed from most materials with relative ease leaving little or no adhesive on the material. Extreme heat, humidity, and certain chemicals may result in some residual adhesive being left but this can be removed in most cases with Ethanol.

# Frequently asked questions

## **Can TZe labels be used on circuit boards?**

We do not recommend TZe labels to be used on circuit boards due to the sensitivity of circuit boards to dust, static electricity, and acid, although these are at very low levels.

## **Can TZe labels be used to label food?**

TZe labels can be used safely on food packaging but should not be in contact with the food itself.

## **Can TZe labels be used on copper?**

As adhesive materials used in TZe labels are acrylic, hence for weak acid, we do not recommend TZe labels to be used on copper.

## **Can TZe labels be used for the marking of electrical and electronic equipment (EEE) that is covered by the RoHS Directive?**

TZe labels conform with the requirements of the RoHS Directive and do not contain restricted substances (Cadmium (Cd), Lead (Pb), Mercury (Hg), Hexavalent Chromium (Cr VI), Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE), Bis(2-Ethylhexyl) phthalate (DEHP), Benzyl butyl phthalate (BBP), Dibutyl phthalate (DBP), Diisobutyl phthalate (DIBP) ) above the allowed limit values. TZe tape cassettes do not fall under the definition of EEE.

## **Can TZe labels be submerged in alcohol?**

Submersion of TZe labels in alcohol is not recommended for extended periods due to the possible deterioration of the tape adhesive.

## **Are Brother TZe tapes or HSe Tubes UL certified?**

Most TZe strong adhesive, TZe flexible ID, and TZe security laminated tapes have been recognised by Underwriters Laboratories, and are listed under the UL file number PGJ12.MH21016.

## **How long should a security TZe label be attached before peeling off?**

We recommend that TZe security laminated labels to be affixed for at least 24 hours in order to work effectively.

# Notes

1. A random sample of TZe laminated labels and Competitors' non-laminated tapes were selected and used to perform these tests.
2. All the test results were acquired under specific conditions configured by Brother and/or Allion (as detailed below), with the sole aim of providing information contained within this booklet.
3. Since tape adherence performance is affected by many variable factors, including the material the tape is attached to, the material's surface condition, whether it is greasy, dusty, rough or curved, and environmental conditions, customers should confirm adherence performance under the actual usage conditions. Products are used at the customers' discretion and the findings presented in this document should not be taken as a guarantee of TZe tape performance in any customer's specific circumstances.
4. Brother does not bear any responsibility for any losses incurred by any customers as a result of reliance on these information contained in this document.

## Test data sources:

### **Allion Japan Inc (April 2020):**

Strong adhesive | Water and Chemical resistance

Abrasion resistance (TZe laminated labels)

Temperature resistance (all temperatures except -80°C) | Oil resistance

### **Allion Japan Inc (October 2020):**

Abrasion resistance (Competitors' labels)

### **Brother Industries Ltd Japan (December 2012):**

Fade resistance | Temperature resistance (-80°C)

Autoclave resistance

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