Description of textile testing

Textile companies and consumer agencies conduct many kinds of analyses to make sure our clothes and the fabrics we use in our homes won't harm us, will be comfortable, and will stay colorful for a long time—this process is called textile testing.

Textile testing is the term for a whole series of tests that examine the physical, mechanical and chemical properties of textiles. Tests show whether companies making textiles or products from textile fabrics are in compliance with regulations or not.

Most obvious reason why textile testing is important is that it allows companies, consumer groups, and the government to make sure textiles are safe, good quality, and that the customer is getting what they are paying for. Textile products are made worldwide and sent to markets around the world. Testing ensures that something harmful or illegal doesn't slip through the regulatory cracks.

Formaldehyde

Formaldehyde (CAS 50-00-0) is a volatile chemical compound—it's a member of the aldehyde chemical family. It is widely used in the textile industry due to its fixative and adhesive properties, as it is useful to bind different products or materials. Additionally, it is used in the manufacture of plastics, rubbers and resins.

Formaldehyde is toxic by inhalation, coming into contact with the skin, and swallowing. Skin contact may cause irritation. Classified as possibly carcinogenic, it is suspected to be mutagenic and toxic to the reproductive system.

Acceptable limits:

- “No detection” in textile products aimed at users younger than 3 years old (clothing, footwear, accessories, and home textiles, mainly).
- Maximum 75 ppm in textile products with direct and prolonged contact with the skin, aimed at users older than 3 years old (clothing, footwear, accessories, and home textiles, mainly).
- Maximum 75 ppm in textile products without direct contact with the skin, aimed at users between 3 and 14 years old (clothing, accessories and home textiles, mainly).
- Maximum 300 ppm in textile products without direct contact with the skin, aimed at users older than 14 years old (clothing, accessories, and home textiles, mainly).

Determination of the pH value

pH value is a parameter used to indicate the acidity and/or basicity of any given substance. It ranges from 0 (most acidic) to 14 (most basic). The value for neutral pH is 7. In the textile industry, especially in the wet treatment operations (pre-treatment, dyeing, printing, tanning, and finishing, among others), pH variations are produced in the bath of the facility as the chemical base of the performed operation.

Textile fabrics which can directly contact the skin have a relatively higher requirement on pH value. pH value will not make the skin itchy if controlled between weak acid or neutrality.

Acceptable limits:

- 4.0-7.5 in textile products aimed at users younger than 14 years old (clothing, footwear, accessories, and home textiles, mainly).
- 4.0-7.5 in textile products with direct and prolonged contact with the skin, aimed at users older than 14 years old (clothing, footwear, accessories, and home textiles, mainly).
- 4.0-9.0 in textile products without direct contact with the skin, aimed at users older than 14 years old (clothing, accessories, and home textiles, mainly).

Air permeability

The air permeability of a fabric is a measure of how well it allows the passage of air through it. Air permeability affects the comfort aspect of a garment in terms of air passage through the fabric. High air permeability per unit area of a fabric gives lower protection against winds, especially for outer-wear garments, whereas low air permeability causes heavy body perspiration.

Acceptable limits:

Trousers, shorts	Skirts	Jackets	Coats Rainwear	Knitwear	Anoraks Skiwear Sportswear	Pyjamas, nightwear	Shirts, Dresses, Blouses	Lingerie	Swimwear	Lining
Depending on requirements										
*	*	*	25 mm/s (l/m²*s)	*	25 mm/s (l/m²*s)	*	*	*	*	*

* = Test not applicable to this product.

Abrasion resistance

Abrasion resistance is the ability of a fabric to resist surface wear caused by flat rubbing contact with another material.

Abrasion might initially “only” influence the appearance, but eventually might lead to the destruction of the textile product. Structure of the fabrics might exhibit a displacement and/or pull-out of fibers or complete fiber bundles. Abrasive stress can also result in complete destruction, which means a tearing of the yarn.

Acceptable limits:

Trousers, shorts	Skirts	Jackets	Coats	Knitwear	Anoraks Skiwear Sportswear	Pyjamas, nightwear	Shirts, Dresses, Blouses	Lingerie	Swimwear	Lining
Pressure 9 kPa										
20.000 revs.	20.000 revs	16.000 revs	16.000 revs	8.000 revs.*	16.000 revs	10.000 revs	12.000 revs	10.000 revs	20.000 revs	10.000 revs

Color fastness to dry and wet rubbing

Color fastness is the index and/or grade which measures the resistance of the colour of any type of textile to the aggression made by continuous rubbing with other fabric (dry and wet

rubbing). The Colour Fastness to Rubbing measures the colour resistance as “colour staining” (staining of a white standard probe), ranging the index from 1 (worst fastness) to 5 (best fastness).

Acceptable limits:

Trousers, shorts	Skirts	Jackets	Coats	Knitwear	Anoraks Skiwear Sportswear	Pyjamas, nightwear	Shirts, Dresses, Blouses	Lingerie	Swimwear	Lining
Staining										
dry 4	dry 4	dry 4	dry 4	dry 4	dry 4	dry 4	dry 4	dry 4	dry 4	dry 4
Staining										
wet 3-4	wet 3-4	wet 3-4	wet 3-4	wet 3-4	wet 3-4	wet 3-4	wet 3-4	wet 3-4	wet 3-4	wet 3-4

Tensile strength

The tensile strength of the fabric is the maximum amount of tensile stress and tension that fabric can take before breaking or failure to resist anymore. The resultant values help to determine the quality, limitations, and best applications. It is one of the main standards to assess the intrinsic quality of woven fabrics.

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3. https://study.com/academy/lesson/what-is-textile-testing-methods-importance.html#:~:text=Textile%20testing%20is%20the%20term%20for%20tests%20that,assess%20the%20properties%20of%20textiles.&text=Testing%20also%20helps%20companies%20test,helpful%20in%20creating%20new%20textiles.
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ATTN: MIMAKI USA. INC.

Investigation report on chemical substances in the raw materials of our products

We hereby certify the presence or absence of chemical substances in the raw materials of our products listed under 1.Products below.

Please be notified that we evaluated the raw materials of the products to determine the presence of the substances specified under 2.Object Substances below. We did not measure or analyze the final products themselves.

1. Products

Dye Sublimation Ink Sb54 series (Blue T, Magenta T, Yellow T, Black T, Light Blue T, Light Magenta T, F Pink T, F Yellow T)

2. Object Substances

1) Substances are listed in “CPSIA” (below).

Lead (Pb), Di-(2-ethylhexyl) phthalate (DEHP), Dibutyl phthalate (DBP), Butyl benzyl phthalate (BBP), Diisononyl phthalate (DINP), Diisodecyl phthalate (DIDP), Di-n-octylphthalate (DNOP)

2) Substances are listed in ”Proposition 65 (December 29, 2017)”.

3. Report

In our evaluation, we certify that we did not find the substances specified under 2.Object Substances above in the raw materials of the product listed under 1.Products above.

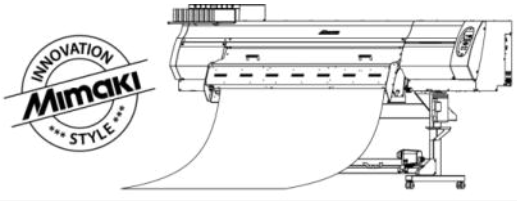
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Signature: Y. Kayama Date: 2018/02/16

Name: Yasunaga Kayama

Title: General Manager of Quality Management and Support Center

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www.latsert.lv, test@latsert.lv

TEST REPORT No 88369 A

1. Customer, its address **Printful Latvia JSC, 6B Ojara Vaciesa, LV-1004, Latvia**

2. Sample identification according to the announcement No L-18374
   Product name **Fabric #11827 100% PES**
   Sample size 1.20 x 1.20 m

3. Sample description
   Black colored fabric with label: Audums #11827 100% PES

4. Testing time

Received	Started	Finished
13/03/2020	18/03/2020	24/03/2020

5. Test results and methods

Parameter tested	Test result	Test method
Formaldehyde	Not detected	LVS EN ISO 14184-1:2011
pH, 20°C	5.9	LVS EN ISO 3071:2006
Abrasion resistance	> 50 000 rubs	LVS EN ISO 12947-2:2017 (Nominal test pressure 9 kPa)
Color fastness to dry rubbing:		LVS EN ISO 105-X12:2016
- the numerical grey scale rating for staining	4-5	
Tensile properties strip method Force:		LVS EN ISO 13934-1:2013 (gauge length 200 mm, rate of extension 100 mm/min, pretension 5 N)
- warp	1725±173 N	
- weft	2176±218 N	
Tensile properties strip method Elongation:		LVS EN ISO 13934-1:2013 (gauge length 200 mm, rate of extension 100 mm/min, pretension 5 N)
- warp	36.4±3.6%	
- weft	50.8±5.1%	

Z.Veseris
Laboratory Manager
25/03/2020

Analysis results obtained are applied only to the sample received.
Not allowed to copy part of the test report without the laboratory permission.

EC DECLARATION OF CONFORMITY

CE

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389-0512, JAPAN
TEL +81-268-64-2281
FAX +81-268-64-2285

We hereby declare that the following our products conform with the essential health and safety requirements of EC Directives.

Product	Color Inkjet Printer
Model No.	TS300P-1800
Serial No. covered	AABCDEEE AA: S4, B: 0 to 9, C: any alpha-numeric, D: any alphabet, EEE: 001 to 999
Manufacturer	MIMAKI ENGINEERING CO.,LTD. 2182-3, Shigeno-otsu, Tomi, Nagano, 389-0512, JAPAN
Authorised Compiler in the Community	MIMAKI EUROPE B.V. Stammerdijk 7E 1112 AA Diemen, The Netherlands Managing Director Sakae Sagane
Directives	Machinery Directive 2006/42/EC Low Voltage Directive 2014/35/EU EMC Directive 2014/30/EU RoHS Directive 2011/65/EU

The above products have been evaluated for conformity with above directives using the following European standards. The technical construction file (TCF) for this product is retained at the above Manufacturer's location.

Machinery Directive / Low Voltage Directive	EN ISO12100:2010, EN60204-1:2006+A1, EN60950-1:2006+A11+A1+A12
EMC Directive	EN55022:2010, EN61000-3-2:2006+A1+A2, EN61000-3-3:2008, EN55024:2010
RoHS Directive	EN50581:2012

Signature :

Date : May. 28. 2015

Name/Title : Hisayuki Kobayashi / President

Being the responsible person appointed and employed the manufacturer.

D800800-10_11.MAY.2015
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