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Business process	Contact person	Our ref.	Date
	Bantle, Stefan	NGÖ1/Wet/KI	5. February 2020

Report no. 20.0.04274

Client:	Avery Dennison NTP AS
Contact person:	Mr Andrew Lillesaeter-Spendlove Phone +47 4790 2544
Date of order:	1/22/2020
Receipt of order:	1/29/2020
Receipt of material:	1/24/2020
Test sample:	Two sections of knitted fabric with six different prints Sample 1: knitted fabric, colour white with printed stripes in cyan, magenta, yellow, black, orange and violet Sample 2: knitted fabric, colour white with printed stripes in cyan, magenta, yellow, black, orange and violet
Period of testing:	1/31/2020 to 2/5/2020
Aim of test(s):	Determination of several colour fastnesses.
Sampling:	The test sample has been delivered to us by the client.

The report comprises 8 pages.

Our terms of business shall apply:
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DE262079343

Hohenstein Textile Testing Institute GmbH & Co. KG · County Court Stuttgart HRA 723464
Personally liable associate: Hohenstein Verwaltungs GmbH · County Court Stuttgart HRB 752904
CEO: Dr. Stefan Droste · Company Headquarter is Boennigheim

Materials which have to be tested:

Sample	
1	knitted fabric, colour white with printed stripes in cyan, magenta, yellow, black, orange and violet
2	knitted fabric, colour white with printed stripes in cyan, magenta, yellow, black, orange and violet
2.1	printed stripe (on knitted fabric, white), cyan
2.2	printed stripe (on knitted fabric, white), magenta
2.3	printed stripe (on knitted fabric, white), yellow
2.4	printed stripe (on knitted fabric, white), black
2.5	printed stripe (on knitted fabric, white), orange
2.6	printed stripe (on knitted fabric, white), violet

RESULT

Colour fastness to washing

Test result:

Sample		Colour fastness to washing 60 °C DIN EN ISO 105-C06-C2S ^A steel balls: yes souring treatment: no ECE-detergent with phosphates		
1	knitted fabric, colour white with printed stripes in cyan, magenta, yellow, black, orange and violet	PES 4-5	CO 4-5	T 4-5

Rating 5 means for the best and rating 1 for the worst fastness grade.

Colour fastness to water

Test result:

Sample		Colour fastness to water DIN EN ISO 105-E01:2013-06 ^A		
1	knitted fabric, colour white with printed stripes in cyan, magenta, yellow, black, orange and violet	PES 4-5	CO 4-5	T 4-5

Rating 5 means the best and rating 1 the worst fastness grade.

Colour fastness to perspiration

Test result:

Sample	Colour fastness to perspiration DIN EN ISO 105-E04:2013-08 ^A					
	alkaline			acidic		
1 knitted fabric, colour white with printed stripes in cyan, magenta, yellow, black, orange and violet	PES 4-5	CO 4-5	T 4-5	PES 4-5	CO 4-5	T 4-5

Rating 5 means the best and rating 1 the worst fastness grade.

Colour fastness to bleaching: Hypochlorite

Test result:

Sample	Colour fastness to bleaching: Hypochlorite DIN EN 20105-N01:1995-03 ^A	
	Change of shade	
1 knitted fabric, colour white with printed stripes in cyan, magenta, yellow, black, orange and violet	4-5	

Rating 5 means the best and rating 1 the worst fastness grade.

Colour fastness to bleaching: Peroxide

Test result:

Sample	Colour fastness to bleaching: Peroxide Bleaching bath: Bath 1 (natural/regenerated cellulose) DIN EN ISO 105-N02:1995-05 ^A		
1 knitted fabric, colour white with printed stripes in cyan, magenta, yellow, black, orange and violet	PES 4-5	CO 4-5	T4-5

Rating 5 means the best and rating 1 the worst fastness grade.

Colour fastness to rubbing

Test result:

Sample	Colour fastness to rubbing DIN EN ISO 105-X12:2016-11 ^A	
	dry	wet
2.1 printed stripe (on knitted fabric, white), cyan	CO 4-5	CO 4-5
2.2 printed stripe (on knitted fabric, white), magenta	CO 4-5	CO 4-5
2.3 printed stripe (on knitted fabric, white), yellow	CO 4-5	CO 4-5
2.4 printed stripe (on knitted fabric, white), black	CO 4-5	CO 4-5
2.5 printed stripe (on knitted fabric, white), orange	CO 4-5	CO 4-5
2.6 printed stripe (on knitted fabric, white), violet	CO 4-5	CO 4-5

Rating 5 means the best and rating 1 the worst fastness grade.

Colour fastness to artificial light^A

Test result:

Sample	Colour fastness to artificial light DIN EN ISO 105-B02:2014-11 ^A Testing apparatus: Xenotest Alpha, flip-flop modus Exposure conditions: A1 (normal) Exposure method: 2 Irradiance: 42 W/m ²
	Change of shade
1 knitted fabric, colour white with printed stripes in cyan, magenta, yellow, black, orange and violet	>4

Rating 8 means best and rating 1 means the worst fastness grade.

Colour fastness to sea water

Test result:

Sample	Colour fastness to sea water DIN EN ISO 105-E02:2013-06 ^A		
1 knitted fabric, colour white with printed stripes in cyan, magenta, yellow, black, orange and violet	PES 4-5	CO 4-5	T 4-5

Rating 5 means the best and rating 1 the worst fastness grade.

Colour fastness to chlorinated water

Test result

Sample	Colour fastness to chlorinated water DIN EN ISO 105-E03:2010-08 ^A Concentration of active chlorine used chlorine 50mg/l
Change of shade	
1 knitted fabric, colour white with printed stripes in cyan, magenta, yellow, black, orange and violet	4-5

Rating 5 means the best and rating 1 the worst fastness grade.

Abbreviations

Staining on white adjacent fabric:

- CO = Cotton
- PES = Polyester
- T = Change of shade

Schloss Hohenstein, 5. February 2020

Division Manager Textile Testing

Dipl.-Ing. (FH) Elisabeth Panian



Deputy Teamleader of Textile Testing

Dipl.-Ing. (FH) Sindy Wetzel

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