

LABORATÓRIOS - V.N.FAMALICÃO



COMPANY

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Request Nr.: 952/2018

Date of Reception : 2018/01/30

Observations

Groups of tests

EN ISO 20471:2013

Samples reference - Your reference

1826/2018 - Arox T2 WR - 5310 fl. Orange

Tests required

Tests according EN ISO 20471

1/1 Plain fabric ref. Arox T2 WR - 5310

Composition: 100% Polyester, colour fluorescent orange, weight 160 g/m²

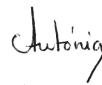
COMMENTS

See last page

- The tests were performed between the following dates: 2018/01/30 and 2018/02/20.

V.N.FAMALICÃO, 21th February 2018

LABORATORY
COORDINATOR



(Engª Antónia Andrade)

NOTES:

- These results were obtained according to the proceedings referred in the Quality Manual of CITEVE and concern only the samples submitted to testing (above mentioned).
- Any part of this report cannot be reproduced without the prior permission of CITEVE.
- The tests signalled by * are not included in the scope of accreditation of this laboratory
- q.l - quantification limit d.l. - detection limit n.d. - not detected
- Samples are stored for 6 months after the date of entry, except for chemical products that are stored for a month.

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<u>Sample Ref.</u>	<u>Your ref.</u>	<u>Sample description</u>
1826 /2018	Arox T2 WR - 5310 fl. Orange	1/1 plain fabric

Test/Standard: TENSILE STRENGTH (STRIP METHOD) / ISO 13934-1:2013

Results

MAXIMUM FORCE	
Warp - Mean value (N)	2300
Weft - Mean value (N)	960
ELONGATION AT MAXIMUM FORCE	
Warp - Mean value (%)	41,5
Weft - Mean value (%)	29,0

Test Conditions

Number of specimens tested - 10 (total)
Width of specimens - 50 mm
Gauge length - 200 mm
Pretension (N) - 5
State of specimens - conditioned
Rate of extension - 100 mm/min
Conditioned Atmosphere:
20+/-2°C and 65+/-4% R.H.

Test/Standard: DIMENSIONAL STABILITY TO DOMESTIC WASHING AND DRYING / ISO 6330:2012

Results

Wales/length/warp (mean value %) -	-0,8
Courses/width/weft (mean value %) -	-0,8

Test Conditions

Washing machine: Type A
Washing programme: (ISO 6330:2012): 4N (40°C)
Total load (kg): 2
Type of load used: Type III (100% polyester)
Detergent used: Ref. 3 (ECE)
Perborate de sodium + TAED
Drying method: Drip line dry
Number of washing and drying cycles: 5
Number of specimens tested: 3
Note: the signal + means extension and the signal - means shrinkage.

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Test/Standard: COLOUR FASTNESS TO ARTIFICIAL LIGHT / ISO 105-B02:2014

Results

The sample tested was used to make the colour measurement.

Test Conditions

Apparatus: Air-cooled xenon arc lamp
Black standard temperature: 47+/-3°C
Humidity test control: rating 5

Test/Standard: COLOUR FASTNESS TO DRY RUBBING / ISO 105 X12:2016

Results

Staining (warp or length/weft or width): 4-5

Test Conditions

Note: the referred value corresponds to the worst value found.
Finger used: cylinder
Force used: 9 N
Direction of test: warp and weft or length and width
Conditioning conditions: min 4 h at 20+/-2°C and 65+/-4% R.H.

Test/Standard: COLOUR FASTNESS TO WASHING / ISO 105 C06:2010

Results

Colour change:	4-5
Colour staining on:	
Cotton	4-5
Polyester	4-5

Test Conditions

Test number: A2S (40°C)
Number of stainless steel balls used: 10
Treatment with acetic acid: No
Detergent used: ECE

Test/Standard: COLOUR FASTNESS TO ACID PERSPIRATION / ISO 105-E04:2013

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Results

Colour change:	4-5
Colour staining on:	
Cotton	4-5
Polyester	4-5

Test Conditions

Option used: horizontal

Test/Standard: COLOUR FASTNESS TO ALKALINE PERSPIRATION / ISO 105-E04:2013

Results

Colour change:	4-5
Colour staining on:	
Cotton	4-5
Polyester	4-5

Test Conditions

Option used: horizontal

Test/Standard: COLOUR MEASUREMENT / EN ISO 105 J03:2009

Results

Chromaticity coordinates:	A	B	C
x	0,593	0,589	0,548
y	0,366	0,366	0,367
Luminance factor:	0,43	0,44	0,47

Notes:

- A - Original
- B - After washing
- C - After light test

Test Conditions

Apparatus used: Macbeth 2145
Optical geometry configuration: 45/0
Observer: 2°
Illuminant: D65

Test/Standard: * WASHING / ISO 6330:2012

Results

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Test Conditions

Washing machine: Type A	
Washing programme:	4N (40°C)
Total load (kg): 2	
Detergent used: ECE + Sodium Perborate +TAED	
Drying method:	Drip line dry
Number of washing and drying cycles:	5
Number of specimens tested:	1

Test/Standard: *pH OF AQUEOUS EXTRACT / ISO 3071:2005*

Results

Mean pH-value -	6,0
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Test Conditions

Type of solution used -	KCl
pH of the extracting solution -	6,6
Temperature of the extracting solution -	20 °C

Test/Standard: *AROMATIC AMINES FROM AZO COLORANTS (with extraction) / EN ISO 14362-1:2017*

Results

Results in mg/kg

4-Aminobiphenyl	< 5 (q.l.)
Benzidine	< 5 (q.l.)
4-Chloro-o-toluidine	< 5 (q.l.)
2-Naphthylamine	< 5 (q.l.)
^a o-Aminoazotoluene	< 5 (q.l.)
^a 5-Nitro-o-toluidine	< 5 (q.l.)
4-Chloroaniline	< 5 (q.l.)
2,4-Diaminoanisole	< 5 (q.l.)
4,4'-Diaminodiphenylmethane	< 5 (q.l.)
3,3'-Dichlorobenzidine	< 5 (q.l.)
3,3'-Dimethoxybenzidine	< 5 (q.l.)
3,3'-Dimethylbenzidine	< 5 (q.l.)
4,4'-Methylene-di-o-toluidine	< 5 (q.l.)
p-Cresidine	< 5 (q.l.)
4,4'-Methylene-bis-(2-chloraniline)	< 5 (q.l.)
4,4'-Oxydianiline	< 5 (q.l.)
4,4'-Thiodianiline	< 5 (q.l.)

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o-Toluidine	< 5 (q.l.)
2,4-Diaminotoluene	< 5 (q.l.)
2,4,5-Trimethylaniline	< 5 (q.l.)
o-Anisidine	< 5 (q.l.)
2,4-Xylidine	< 5 (q.l.)
2,6-Xylidine	< 5 (q.l.)
° 4-Aminoazobenzene	< 5 (q.l.)

^aThese amines are reduced to o-toluidine and 2,4-Diaminotoluene.

^oThis amine is reduced to aniline and/or 1,4-phenylenediamine. If detected an additional test must be performed.

Test Conditions

Procedure: 10.1
Detection method:GC-MS
Quantification method:GC-MS or LC-MS
Confirmation method:LC-DAD or LC-MS
Detection limit: 1,5 mg/kg

Test/Standard: WATER VAPOUR RESISTANCE (Ret) / ISO 11092:2014

Results

Individual values (m ² .Pa/W):	3,76 3,87 3,91
Mean value (m ² .Pa/W):	3,85
Expanded uncertainty (m ² .Pa/W):	± 0,50

Test Conditions

No. of test specimens tested: 3
No. of individual measurements on each test specimen: 1
Test climate: 35°C and 40%RH
Assembly of test specimens on the measuring unit: The back of the test specimen towards the measuring unit.
The test was carried out:
Under extension: No
Applied pressure (use of slat

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frame): No

With air gaps between layers: N/A

Thickness of test specimen: < 3 mm

Note:

N/A - not applicable

COMMENTS

The sample our ref. 1826/2018 is according EN ISO 20471:2013 in tensile strength, dimensional stability to domestic washing (5 cycles 4N (40°C) Drip Line dry), colour measurement (new state and exposure light and after 5 cycles of washing and drying (4N (40°C) Drip Line dry), colour fastness to: dry rubbing, washing (A2S - 40°C), acid and alkaline perspiration and water vapour resistance and is according EN ISO 13688:2013 in aromatic amines derived from azocolorants and pH of aqueous extract.



request 952-2018 sample 1826-2018

High Visibility colour performance - ANNEX TO REPORT

ISO 20471: 2013

Request number 952/18

Sample reference 1826/18

