



SORVEGLIANZA DEL MERCATO RISULTATI DELLE DUE CAMPAGNE

WORKSHOP: Textiles market surveillance; organization in the EU, risk assessment and testing

24-01-2024



Introduzione - Legislazione rilevante per REACH4TEXTILES

- Regolamenti rilevanti per le sostanze pericolose/tossico-nocive negli articoli
- Regolamento REACH:
 - Allegato XVII (cogente)
 - Elenco: Candidate List
- Restrizioni nel Regolamento-POP
- Metodi per i Test (ISO, EN)



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Raccolta delle sostanze rilevanti per i tessuti nell'Allegato XVII e dei POP

- Ritardanti di fiamma (No. 4, 7 & 8)
 - Composti organostannici (No. 20)
 - Cadmio (No. 23)
 - Nichel (No. 27)
 - 22 Ammine aromatiche cancerogene (No. 43 - Annex 8)
 - Nonilfenolo etossilato (NPEO) (No. 46a)
 - Cromo VI (No. 47)
 - PAHs (idrocarburi policiclici aromatici (No. 50 Prg. 5)
 - Ftalati (No. 51/52, 72)
 - Dimetilfumarato (DMFu) (No. 61)
 - Piombo (No. 63)
 - CMR sostanze (**No. 72**): 33 substances (DMF, DMAc, NMP, CH₂O etc.)
- POP-REG 2019/1021:**
- PFOS (PFCs a C8)
 - SCCPs (cloroparaffine a catena corta)
 - Pentaclorofenolo
 - DecaBDE (ritardante di fiamma)
 - PFOA (entrato in All XVII)



PIANO DI CAMPIONAMENTO BASATO SUL RISCHIO E SULLA TIPOLOGIA DI ARTICOLO



Approccio basato sul rischio

Acquisto basato sul rischio

- Identificare gli articoli complessi di interesse: Tessuti colorati, stampe, accessori in plastica, parti spalmate (PVC, PU), parti spalmate (PVC, PU), parti in gomma, pelle, schiuma, chiusure lampo
- Indicazioni speciali: idrorepellente, resistente, facile da stirare, ...

Definire le componenti di un articolo complesso

Test basati sul rischio su tutte le parti in base alla matrice di test.

- Analisi FT-IR viene utilizzata quando la composizione è sconosciuta

Definire le componenti di un articolo complesso

- **Identificare tutte le componenti di un articolo complesso:**
- Accessori
- Parti tessili
- Stampe plastisol
- Cerniere, tiretti, cordoncini, componenti dei bottoni, ...
- Parti rivestite

Definire le componenti di un articolo complesso

- N° 13 componenti

1. Fascia nera al collo
2. Top e maniche elasticizzate
3. Top con inserto in schiuma
4. Fodera inserto
5. Gonna superiore
6. Gonna a strato intermedio
7. Gonna a strati interna
8. Vita elastica (sul retro)
9. Parti della vita rivestite in PU
10. Parti della fodera in PU
11. Occhielli in metallo
12. Nastro
13. Estremità metalliche della fascia



Matrice di test basata sul rischio

- La matrice di test sviluppata nel primo ciclo di test è stata ulteriormente perfezionata.
- Sono stati presi in considerazione i risultati del primo ciclo di test.
- A causa della procedura di restrizione per i bisfenoli che è stata aperta nel frattempo, è stato deciso di testare anche i tessuti particolarmente a rischio, a base poliammide, per i BISFENOLI

Matrice di test basata sul rischio

RISK-BASED TESTING MATRIX	CARCINOGENIC AMINES	PHTHALATES	MPED	CADMIUM	PAHS	PFOS	CHROMIUM VI	ORGANOTIN COMPOUNDS	DMF	LEAD	SCOP/MCOP	FORMALDEHYDE	O-UNILINE (SYNTHETIC MATERIAL)	SILICONES	NICKEL	BISPHENOLS	PCP
COLOURED FABRICS (MIDDLE EAST)	█																
PRINTS	█																
PLASTIC, RUBBER PARTS (TEETH ZIPPER, BUCKLE, BUTTON)		█			█												
WATER RESISTANT, REPELLENT FABRICS						█											
TEXTILES WITH IRON FREE FINISH																	
PU-COATED MATERIALS/PU PRINTS		█															
PVC-COATED MATERIALS		█															
I FEATHER		█															
PA/ELASTANE OR MIXTURES																	
WOOL, RECYCLED WOOL							IF DARK										
METAL PARTS																	
ELASTIC PARTS																	
FOAM																	
SILICONE FROM CHINA																	
PRINTED SILK																	

- PDF version

█ ONLY TEST ON RECYCLED MATERIALS AND/OR ARTICLES PRODUCED IN COUNTRIES FROM THE MIDDLE EAST
█ ONLY SOFT PLASTIC PARTS
█ ONLY COATED LEATHER
█ ONLY DIRECT SKIN CONTACT
█ PES AND RECYCLED MATERIALS



Metodi di analisi

TESTING METHODS REACH4TEXTILES

- **CARCINOGENIC AMINES:** EN 14362-1 (2017) for textiles and EN 17234-1 (2015) for leather
- **PHTHALATES:** CPSC CH-C1001-09.4 (2018) for plastics and EN 14389 for textiles
- **NPEO:** ISO 18218-1 (2015) for leather and ISO 18254-1 (2016) for textiles
- **CADMIUM:** EN 1122 or US16 CFR1303 CPSC CH-E1001-08.3 (2012); CH-E1002-08.3 (2012); CH-E1003-09.1 (2011)
- **PAH'S:** AfPS GS 2019:01
- **PFC'S:** ISO 23702-1 (2018)
- **CHROMIUM VI:** EN ISO 17075-1 or 2 (2075), chromium VI CMR restriction 1 mg/kg DIN 38405:1987 or EN ISO 16711-2 for Cr VI in textile, ageing method A2
- **ORGANOTIN COMPOUNDS:** ISO/TS 16179 (2012)
- **DMF:** ISO 17131 (2019)
- **LEAD:** US16 CFR1303 CPSC CH-E1001-08.3 (2012); CH-E1002-08.3 (2012); CH-E1003-09.1 (2011)
- **SCCP:** ISO 18219-1, MCCP: ISO 18219-2 (leather)
- **SCCP/MCCP:** ISO 22818 (2021) (textiles)
- **FORMALDEHYDE:** ISO 14184-1 (2011)
- **QUINOLINE:** DIN 54231
- **NICKEL:** EN 1811:2023-04
- **BISPHENOLS:** Ultrasonic extraction with THF, LCMSMS analysis (1h 60°C) Centexbel test method
- **PENTACHLOROPHENOL:** ISO 14041 (2004) for textiles and ISO 17070 (2015) for leather

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RISULTATI FUORI LIMITE SOGLIA (FAILED) CENTEXBEL/CENTROCOT

ALCUNI ESEMPI E CONSIDERAZIONI



REACH **4** *textiles*

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Tender EC Contract no. S12.851459/S12.849063 (101064066)

ANNEX XVII (COGENTE) - NON CONFORMI



Campione IT39 PIOMBO

Fabric: 100% polyester; coating: 100% polyurethane
Apparel (skirt) - Outlet center
Made in Burma



Metal accessories for child. Total lead

Reference norm	CPSC-CH-E1001-08.3:2012				
Test equipment	ICP-MS				
Test procedure	Microwave digestion and total metal quantification by atomic emission spectrometry				
Working range	(3.0 - 1000) mg/kg				
Test began on:	20/04/2023	Test ended on:	12/05/2023		
Results for sample	23LA09280/02	UM	Result	min	max
Sample 23LA09280 - Slider of zip: body					
Total lead	mg/kg	2.6			500
Total cadmium	mg/kg	< 0.4			100
Results for sample	23LA09280/03	UM	Result	min	max
Sample 23LA09280 - Slider of zip: spring cap					
Total lead	mg/kg	22.5			500
Total cadmium	mg/kg	1.6			100
Results for sample	23LA09280/04	UM	Result	min	max
Sample 23LA09280 - Slider of zip: puller					
Total lead	mg/kg	1129.0			500
Total cadmium	mg/kg	15.6			100

Allegato XVII voce 63: 0,05% di piombo per articoli forniti al pubblico e che possono essere ingeriti dai bambini.
EN 16711-3 test di rilascio se > 0,05%, risultato < 0,05 µg/cm2/h

Campione I47 FTALATI

100% polyester
 Online China (Wish)
 Made in China
 Outerw (waterproof jacket)



Textiles, Accessories. Phthalates
 Test method CPSC-CH-C1001-09.4:2018
 Test equipment GC-MS
 Working range (0.01 - 10.0) %
 Test began on: 19/04/2023 Test ended on: 11/05/2023

Results for sample 23LA09562/07	CAS	UM	Result	min	max
Sample 23LA09562 - Zip teeth plastic part					
Di-iso-butylphthalate (DIBP)	84-69-5	%	< 0.01		0.1
Di-iso-heptylphthalate (DIHP)	71888-89-6	%	< 0.01		0.1
Di-C-7-11-branched alkylphthalates (DHNUP)	68515-42-4	%	< 0.01		
Di-n-hexylphthalate (DHP)	84-75-3	%	< 0.01		0.1
Bis-(2-methoxyethyl)-phthalate (DMEP)	117-82-8	%	< 0.01		0.1
Di-n-pentylphthalate (DnPP)	131-18-0	%	< 0.01		0.1
Di-iso-pentylphthalate (DIPP)	605-50-5	%	< 0.01		0.1
N-pentyl-iso-pentylphthalate	776297-69-9	%	< 0.01		
1,2-benzenedicarboxylic acid dipentylester	131-18-0	%	< 0.01		
Di-(2-ethylhexyl)-phthalate (DEHP)	117-81-7	%	0.12		0.1
Dibutylphthalate (DBP)	84-74-2	%	< 0.01		0.1
Butylbenzylphthalate (BBP)	85-68-7	%	< 0.01		0.1
Di-iso-nonylphthalate (DINP)	28553-12-0, 68515-48-0	%	< 0.01		0.1
Di-isodecylphthalate (DIDP)	26761-40-0	%	< 0.01		0.1
Di-n-octylphthalate (DNOP)	117-84-0	%	< 0.01		0.1

Allegato XVII voce 51: 0,1% DEHP, DBP, BBP e DIBP singolarmente o la somma degli ftalati.

Campione IT48 SCCP/MCCP (Cloroparaffine)

100% Cotton
 PRINT: PVC (FT-IR test)
 Made in Bangladesh
 Fast Fashion shop
 Babywear (T-shirt)



Leather. Medium chain chlorinated paraffins (MCCPs)

Test method: UNI EN ISO 18219-2:2022
 Test equipment: GC-ECNI-MS
 Working range: (100-1500) mg/kg
 Test began on: 27/04/2023 Test ended on: 08/06/2023

Results for sample 23LA09567/03	*	CAS	UM	Result	min	max
Sample 23LA09567 - Print						
Medium Chain Chlorinated Paraffins		85535-85-9	mg/kg	> 2000		1000

Leather. Short chain chlorinated paraffins (SCCPs)

Test method: UNI EN ISO 18219-1:2022
 Test equipment: GC-ECNI-MS
 Working range: (100-1500) mg/kg
 Test began on: 27/04/2023 Test ended on: 08/06/2023

Results for sample 23LA09567/03	*	UM	Result	min	max
Sample 23LA09567 - Print					
Short Chain Chlorinated Paraffins (C10-C13)		mg/kg	> 2000		1000

Regolamentazione POP: 0,15% SCCP
 limite SVHC SCCP/MCCP: 0,1%.

Campione G41 NPEO (Alchilfenoli etossilati)

70% Wool, recycelt, 27% PA, 3% PES 1
Ladies blazer with recycled material



Textiles, Accessories. Alkylphenoethoxylates (NPEO, OPEO)

Test method ISO 18254-1:2016
 Test equipment LC-MS/MS
 Test procedure Extraction with solvent in ultrasonic bath, quantitative determination by gaschromatography for alkylphenols mono and diethoxyates and quantitative determination by liquid chromatography for alkylphenols with higher grade of ethoxylation
 Working range (0.7 - 1000) mg/kg
 Test began on: 02/06/2023 Test ended on: 02/06/2023

Results for sample	23LA10546/01	UM	Result	min	max
Sample	23LA10546 - Main fabric				
	NPEO (1-20)	mg/kg	190.0		100
	OPEO (1-20)	mg/kg	9.4		100
Results for sample	23LA10546/02	UM	Result	min	max
Sample	23LA10546 - Brown inner piping				
	NPEO (1-20)	mg/kg	3.3		100
	OPEO (1-20)	mg/kg	6.9		100

Allegato XVII voce 46 bis: 100 mg/kg NPEO per tessuti lavabili

Campione G52 AZO (Ammine aromatiche cancerogene derivanti da azocoloranti)

Carnival costume
Made in China



Allegato XVII voce 43 : 30 mg/kg (tessili e cuoio)

Textiles, Accessories. Aromatic amines derived from azocolorants

Test method: UNI EN ISO 14362-1:2017
Test equipment: GC-MS and confirmation with LC-MS/MS

Results for sample	23LA10721/02	CAS	UM	Result	min	max
Sample	23LA10721 - Elastic lace top					
	2,4,5-Trimethylaniline hydrochloride	36-97-5	mg/kg	< 1		30
	2,4-Diaminoanisole sulfate	39156-41-7	mg/kg	< 1		30
	2-naphthylammonium acetate	553-00-4	mg/kg	< 1		30
	4-chloro-o-toluidine hydrochloride	3165-93-3	mg/kg	< 1		30
	4-aminobiphenyl	92-67-1	mg/kg	< 1		30
	benzidine	92-87-5	mg/kg	< 1		30
	o-aminoazotoluene	97-56-3	mg/kg	< 1		30
	2-amino-4-nitrotoluene	99-55-8	mg/kg	< 1		30
	4-chloroaniline	106-47-8	mg/kg	< 1		30
	2,4-diaminoanisole	615-05-4	mg/kg	< 1		30
	4,4'-diaminodiphenylmethane	101-77-9	mg/kg	< 1		30
	3,3'-dichlorobenzidine	91-94-1	mg/kg	< 1		30
	o-dianisidine (3,3'-dimethoxybenzidine)	119-90-4	mg/kg	< 1		30
	o-toluidine (3,3'-dimethylbenzidine)	119-93-7	mg/kg	43.7		30
	3,3'-dimethyl-4,4'-diaminodiphenylmethane	838-88-0	mg/kg	< 1		30
	p-cresidine (2-methoxy-5-methylaniline)	120-71-8	mg/kg	< 1		30
	4-chloro-o-toluidine	95-69-2	mg/kg	< 1		30
	2-naphthylamine	91-59-8	mg/kg	< 1		30
	3,3'-dichloro-4,4'-diaminodiphenylmethane	101-14-4	mg/kg	< 1		30
	4,4'-diaminodiphenyl ether	101-80-4	mg/kg	< 1		30
	4,4'-diaminodiphenyl sulphide	139-65-1	mg/kg	< 1		30
	o-toluidine	95-53-4	mg/kg	< 1		30
	2,4-toluenediamine	95-80-7	mg/kg	< 1		30
	2,4,5-trimethylaniline	137-17-7	mg/kg	< 1		30
	o-anisidine (2-methoxyaniline)	90-04-0	mg/kg	< 1		30
	4-aminoazobenzene	60-09-3	mg/kg	< 1		30
	2,4-xylidine	95-68-1	mg/kg	< 1		30
	2,6-xylidine	87-62-7	mg/kg	< 1		30

Campione G52 Nichel rilasciato

Carnival costume
Made in China



Metal accessories. Release of nickel

Test method: UNI EN 1811:2015
 Test equipment: ICP-MS
 Test area: 1.1 cm²
 Extraction volume: 10 ml
 Working range: (3.0 - 100) µg/l
 Method quantification limit: 3 µg/l
 Test began on: 08/06/2023 Test ended on: 08/06/2023

Results for sample 23LA10721/11

	UM	Result	min	max
Sample 23LA10721 - Metal eyelets of the side panels				
Conformity to the European requirement		Fail		
Nickel - first test	µg/cm ² /week	1.00		0.5
Nickel - second test	µg/cm ² /week	1.13		0.5
Nickel - third test	µg/cm ² /week	0.87		0.5

Conformity to the European limit, equal to 0.5 µg/cm²/week in accordance with point 27 of Annex XVII of the Regulation 1907/2006 (REACH), has been evaluated considering the uncertainty of the test result, as described in the Annex A of the Standard UNI EN 1811:2015 and equal to 46%.
 Result must be deemed:

- compliant when is less to 0.88 µg/cm²/week
- non-compliant when greater or equal to 0.88 µg/cm²/week.

Results are reported in micrograms of released metal per square centimeter (test area) per week.

Allegato XVII voce 27: rilascio di 0,5 µg/cm²/settimana di nichel in articoli con contatto diretto e a lungo termine con la pelle.

Campione B35 IDROCARBURI POLICICLICI AROMATICI



Reference: T2302968_01s - B35_Grey print

Determination of PAH content CMR

Date of ending the test 18-04-2023
Standard used AfPS GS 2019:01

Deviation from the standard
Extraction method Ultrasonic extraction with toluene
Analytical method GC/MS/MS

Results
Reporting limit (mg/kg) 0.200
Benzo fluoranthenes (*) 0.600

Compound	C mg/kg
naphthalene	< 0.200
acenaphthylene	< 0.200
acenaphthene	0.274
fluorene	0.216
phenanthrene	3.60
anthracene	0.329
fluoranthene	1.65
pyrene	9.01
benzo(a)anthracene	5.95
chrysene	47.7
benzo(b,j,k)fluoranthene*	7.34
benzo(e)pyrene	19.6
benzo(a)pyrene	3.27
indeno(1,2,3,c,d)pyrene	2.27
dibenzo(a,h)anthracene	3.16
benzo(g,h,i)perylene	4.45
sum of PAHs	109

Allegato XVII voce 50: parti in gomma e plastica che entrano in contatto diretto e prolungato con la pelle, limite IPA= 1 mg/kg.

Campione B48 CADMIO



Reference: T2302279_03s - B48 **Plastic logo** ←

Determination of the elemental composition of metals after digestion.

Date of ending the test 04-04-2023
 Standard used US16 CFR 1303 CPSC CH-E1001-08.3(2012);CH-E1002-08.3(2012);CH-E1003-09.1(2011)

Deviation from the standard
 Remark The determination of Cd is not performed under accreditation

Sample preparation Mineralization using concentrated acids in a microwave.
 Analytical method ICP-MS

Results
 Determination of Pb, Cd
 Reporting limit Depending on the analysed element

Metals	Reporting limit	Concentration
	mg/kg	mg/kg
Pb (lead)	5.00	23.1
Cd (cadmium)	5.00	331

Allegato XVII voce 23: 100 mg/kg Cd in articoli di plastica

Campione B48 SCCP/MCCP



Reference: T2302279_03s - B48_Plastic logo

Determination of chloroparaffins

Date of ending the test 26-04-2023
 Standard used ISO 22818 (2021)
 Extraction method Ultrasonic extraction with toluene
 Separation and detection CI-GC/MS
 Components SCCP (C₁₀-C₁₃)
 MCCP (C₁₄-C₁₇)

Results
 Determination limit 50 mg/kg

Compounds	C (mg/kg)
SCCP (C ₁₀ -C ₁₃)	1610
MCCP (C ₁₄ -C ₁₇)	18100
Sum SCCP and MCCP	20000

Regolamentazione POP: 0,15% SCCP, limite SVHC SCCP/MCCP: 0,1%.

Campione G44 PIOMBO



Reference: T2304183_05s - G46_Metal rings in the sides



Determination of the elemental composition of metals after digestion.

Date of ending the test 27-04-2023
 Standard used US16 CFR 1303 CPSC CH-E1001-08.3(2012);CH-E1002-08.3(2012);CH-E1003-09.1(2011)

Deviation from the standard
 Remark The determination of Cd is not performed under accreditation
 Sample preparation Mineralization using concentrated acids in a microwave.
 Analytical method ICP-MS

Results
 Determination of Pb, Cd
 Reporting limit Depending on the analysed element

Metals	Reporting limit mg/kg	Concentration mg/kg
Pb (lead)	5.00	718
Cd (cadmium)	5.00	8.28

Allegato XVII voce 63: 0,05% di piombo per articoli forniti al pubblico e che possono essere ingeriti dai bambini.

EN 16711-3 test di rilascio se > 0,05%, risultato < 0,05 µg/cm²/h

Campione IT40 Ni rilasciato

Fabric: 100% polyester;
 coating: 100% polyurethane;
 lining: 100% polyester
 Made in Bangladesh
 Outerw (jacket) - Outlet center



Metal accessories. Release of nickel

Test method UNI EN 1811:2015
 Test equipment ICP-MS
 Test area 15,30 cm²
 Extraction volume 50 ml
 Working range (3,0 - 100) µg/l
 Method quantification limit 3 µg/l

Results for sample 23LA09305/14	UM	Result	min	max
Sample 23LA09305 - Buckle				
Conformity to the European requirement		Fail		
	cm ²	15.32		
Nickel - first test:	µg/cm ² /week	2.00		0.5

Conformity to the European limit, equal to 0.5 µg/cm²/week in according to point 27 of Annex XVII of the Regulation 1907/2006 (REACH), has been evaluated considering the uncertainty of the test result, as described in the Annex A of the Standard UNI EN 1811:2015 and equal to 46%.

Result must be deemed:

- compliant when is less to 0.88 µg/cm²/week
- non-compliant when greater or equal to 0.88 µg/cm²/week.

Results are reported in micrograms of released metal per square centimeter (test area) per week.

Allegato XVII voce 27: rilascio di 0,5 µg/cm²/settimana di nichel in articoli con contatto diretto e a lungo termine con la pelle.

Restrizione nichel: considerazioni

- La conformità al requisito europeo, pari a $0,5 \mu\text{g}/\text{cm}^2/\text{settimana}$ secondo quanto riportato al punto 27 dell'Allegato XVII del Regolamento 1907/2006 (REACH), è valutata considerando l'incertezza associata al risultato di prova, descritta nell'allegato A della norma UNI EN 1811:2015 e pari al 46%.
- Il risultato deve essere considerato:
 - - conforme se inferiore a $0,88 \mu\text{g}/\text{cm}^2/\text{settimana}$
 - - non conforme se maggiore o uguale a $0,88 \mu\text{g}/\text{cm}^2/\text{settimana}$.
- I risultati sono espressi come microgrammi di metallo ceduti per centimetro quadro (superficie di prova) per settimana.

 IN VIGORE

UNI EN 1811:2023

Metodo di prova di riferimento per il rilascio di nichel da tutti gli assemblati che vengono inseriti in parti perforate del corpo umano e da articoli destinati a venire in contatto diretto e prolungato con la pelle

Recepisce [EN 1811:2023](#)



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RISULTATI CROMO VI - CRITICITÀ



Cromo VI

- Grandi differenze nei risultati dei test, di conseguenza nell'ambito del progetto, è stato effettuato un circuito interlaboratorio sui prodotti in pelle per i quali era disponibile materiale sufficiente da inviare ad altri due istituti
- I test possono essere eseguiti prima e dopo l'invecchiamento: metodi diversi. ISO 17075-1 (colorimetrico) e ISO 17075- 2 (cromatografico).
- Seconda campagna di test: è stato effettuato l'invecchiamento A2

If a leather sample is tested with both ISO 17075-1 and this document, the results obtained with this document are considered as the reference. The advantage of the method described in this document is that there are no interferences from the colour of the extract. **Nevertheless, interlaboratory trials do not show significant differences (see Annex D) and the results are comparable between both methods.**

Metodo di invecchiamento A2 per Cromo VI

- Selezione del metodo di invecchiamento: ISO 10195 (2018) A2 (24h, 80°C)

Leather — Chemical determination of chromium(VI) content in leather — Thermal pre-ageing of leather and determination of hexavalent chromium

Table 1 — Definition of the pre-ageing temperature

Method	Conditions	Recommended use
A1	At (60 ± 2) °C and humidity less than 20 %	General purpose ageing for leathers not subjected to critical conditions in manufacturing (gloves, garments, leather goods, handmade and fashion articles) and/or transportation
A2	At (80 ± 2) °C and humidity less than 10 %	Ageing for leathers subjected to critical conditions in manufacturing (footwear, automotive, upholstery) and/or transportation

Campione B27 CrVI (1° campagna di test)

Reference: T2210771 - B27

Image of the tested sample



T2210771_01s: Main leather
T2210771_02s: Black strings
T2210771_03s: Metal buckle

T2210771_04s: Cook label
T2210771_05s: Black sealing tape

Without ageing

Reference: T2210771_02s - B27 **Black strings**

Determination of the chrome(VI) content

Date of ending the test	25-07-2022
Standard used	EN ISO 17075 (2007)
Deviation from the standard	-
Extraction method	Aqueous extract (pH 8.0) under an inert atmosphere.
Analysis method	Colour reaction with 1,5- diphenylcarbazide, measured photometrically at 540 nm
Cell length	1 cm
Results	
Reporting limit	3.0 mg/kg
Tested parts	
Volatile matter (%)	15.6

Chrome(VI) content

	mg/kg Cr VI
1	5.7

With ageing A2

Reference: T2210771_06d - B27

Determination of the chrome(VI) content

Date of ending the test	02-05-2023
Standard used	EN ISO 17075-1 (2017)
Deviation from the standard	-
Extraction method	Aqueous extract (pH 8.0) under an inert atmosphere.
Analysis method	Colour reaction with 1,5- diphenylcarbazide, measured photometrically at 540 nm
Cell length	1 cm
Results	
Reporting limit	3.0 mg/kg
Tested parts	
Volatile matter (%)	13.8

Chrome(VI) content

	mg/kg Cr VI
1	15.7

Allegato XVII, voce 47: 3 mg/kg di CrVI per il cuoio a contatto diretto con la pelle.

Campione G40 CrVI



CrVI without ageing

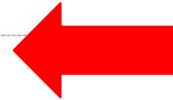
Reference: T2304187_01s - G40_Outer leather

Determination of the chrome(VI) content

Date of ending the test 26-04-2023
 Standard used EN ISO 17075-1 (2017)
 Deviation from the standard -
 Extraction method Aqueous extract (pH 8.0) under an inert atmosphere.
 Analysis method Colour reaction with 1,5- diphenylcarbazi de, measured photometrically at 540 nm
 Cell length 1 cm
 Results
 Reporting limit 3.0 mg/kg
 Volatile matter (%) 10.3

Chrome(VI) content

	mg/kg Cr VI
1	< 3.0



CrVI with ageing A2

Reference: T2304187_03d - G40_Outer leather

Determination of the chrome(VI) content

Date of ending the test 02-05-2023
 Standard used EN ISO 17075-1 (2017)
 Deviation from the standard -
 Extraction method Aqueous extract (pH 8.0) under an inert atmosphere.
 Analysis method Colour reaction with 1,5- diphenylcarbazi de, measured photometrically at 540 nm
 Cell length 1 cm
 Results
 Reporting limit 3.0 mg/kg
 Tested parts
 Volatile matter (%) 10.3

Chrome(VI) content

	mg/kg Cr VI
1	5.6

Allegato XVII, voce 47: 3 mg/kg di CrVI per il cuoio a contatto diretto con la pelle.

Cromo VI - considerazioni

Applicazione del cromo VI nell'Allegato XVII del REACH: con o senza invecchiamento?

Quale metodo utilizzare? ISO 17075-1 o 2, o entrambi?

Il campionamento è molto importante

I test del circuito interlaboratorio mostrano differenze in diversi laboratori – prova molto critica

Quando i valori sono diversi: i valori di invecchiamento sono sempre più elevati



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CRITICITA' BISFENOLI



Campione B33

50%polyester, 32% polyamide, 18% elastane



Proposta di restrizione dell'allegato XVII:
bisfenoli singoli o somma di 10 mg/kg

Reference: T2302296_07s - B33_Flower elastic shoulder

Determination of bisphenols

Date of ending the test 08-05-2023
Standard used Centexbel

Deviation from the standard
Extraction method Ultrasonic extraction with THF
Analytical method LC-MS/MS
Compounds See table

Results

Determination limit 1 mg/kg

Components	C (mg/kg)	CAS no	Acronym
Bisphenol A	< 1.00	80-05-7	BPA
Bisphenol B	< 1.00	77-40-7	BPB
Bisphenol F	84.2	620-92-8	BPF
Bisphenol S	< 1.00	80-09-1	BPS
Bisphenol AF	< 1.00	1478-61-1	BPAF



Campione IT53

Main body: 88% nylon, 12% Lycra elasthan;
 Mesh: 82% nylon, 18% elasthan
 Made in Vietnam



Textiles, Accessories. Bisphenols (BPA, BPS, BPF, BPAF, BPB)

Test equipment LC-MS/MS
 Test method Internal method (according to Standard 100 by Oeko-Tex® - Testing Methods 01/2022)
 Working range (1-1000) mg/kg
 Test began on: 19/04/2023 Test ended on: 04/05/2023

Operative note: THF, 1h 60°C USB

Results for sample	23LA10457/01	*	CAS	UM	Result	min	max
Sample	23LA10457 - Tracksuit: Blue/coral main fabric						
Bisphenol A			80-05-7	mg/kg	< 1.0		
Bisphenol AF			1478-61-1	mg/kg	< 1.0		
Bisphenol B			77-40-7	mg/kg	< 1.0		
Bisphenol F			620-92-8	mg/kg	< 1.0		
Bisphenol S			80-09-1	mg/kg	51		

Proposta di restrizione dell'allegato XVII:
 bisfenoli singoli o somma di 10 mg/kg

Campione B51

fabric; 100% PES, palm: goat leather, lining: 100% PES



Proposta di restrizione dell'allegato XVII:
bisfenoli singoli o somma di 10 mg/kg

Reference: T2302293_02s - B51_White leather palm

Determination of bisphenols

Date of ending the test 28-04-2023
Standard used Centexbel
Deviation from the standard
Extraction method Methanol ultrasonic
Analytical method LC-MS/MS
Compounds See table

Results

Determination limit 1 mg/kg

Components	C (mg/kg)	CAS no	Acronym
Bisphenol A	< 1.00	80-05-7	BPA
Bisphenol B	< 1.00	77-40-7	BPB
Bisphenol F	197	620-92-8	BPF
Bisphenol S	122	80-09-1	BPS
Bisphenol AF	< 1.00	1478-61-1	BPAF

Conclusioni: Bisfenoli

Materiali testati: PA, PA/Elastane, PES e PES riciclato

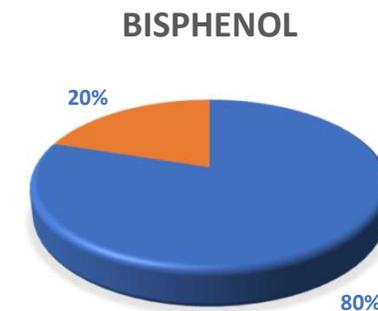
Totale test sulla restrizione del bisfenolo: 110

Test fuori limite: 22

Corrispondente al 20%

Questa restrizione avrebbe un forte impatto!!!

PASS
FAIL



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SVHC NON CONFORMI



Campione B49 MCCP(Cloroparaffine a catena media)



Il limite SVHC è dello 0,1% su ogni parte di un articolo complesso.

Reference: T2302291_01s - B49 **Main PVC PU fabric**



Determination of chloroparaffins

Date of ending the test 26-04-2023
Standard used ISO 22818 (2021)

Extraction method Ultrasonic extraction with toluene
Separation and detection CI-GC/MS
Components SCCP (C₁₀-C₁₃)
MCCP (C₁₄-C₁₇)

Results
Determination limit 50 mg/kg

Compounds	C (mg/kg)
SCCP (C ₁₀ -C ₁₃)	213
MCCP (C ₁₄ -C ₁₇)	1400
Sum SCCP and MCCP	1600

REACH Candidate List (SVHC)

- Si tratta di sostanze estremamente problematiche (SVHC), designate come candidate per l'Allegato XIV, l'allegato per le sostanze che richiedono un'autorizzazione per l'uso in Europa.
- L'articolo 33, paragrafo 1, del Regolamento REACH stabilisce che nella catena di approvvigionamento devono circolare informazioni se una sostanza dell'elenco delle sostanze candidate è contenuta in misura superiore allo 0,1% in un articolo (o, per gli articoli più complessi, in un sottoinsieme).
- Ai sensi dell'articolo 33, paragrafo 2, il consumatore ha il diritto di ottenere queste informazioni su richiesta entro 45 giorni.



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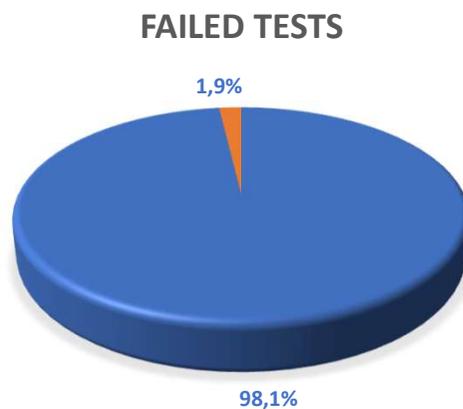
STATISTICA FINALE R4T



Statistica generale per entrambe le campagne

PASS
FAIL

Total # tests R4T	2374
Failed test results	43
Total # articles R4T	160
Failed	26



Statistica generale per entrambe le campagne

	Total tests	Fail	%
Carcinogenic amines	279	1	0,36
Quinoline	265	1	0,38
PAH's	215	3	1,40
Phthalates	191	9	4,71
APEO	440	14	3,18
Metals	397	2	0,50
Nickel release	43	3	6,97
SCCP/MCCP	170	3	1,76
Chromium VI	33	6	18,18



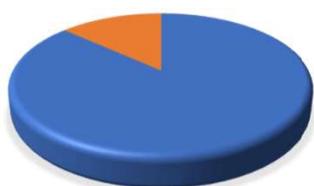
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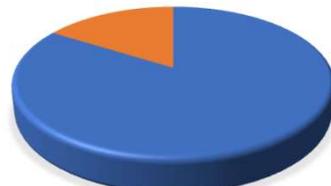
Statistica generale per entrambe le campagne

Test	Results
Brand Shop	PASS 26 FAIL 4
All Articles	30
Test	0
Fast Fashion Shop or retailer	PASS 26 FAIL 5
All Articles	31
Test	0
Local Market	PASS 21 FAIL 3
All Articles	24
Test	0
Online High Level	PASS 21 FAIL 2
All Articles	23
Test	0
Online Low Level	PASS 20 FAIL 4
All Articles	24
Test	0
Online China	PASS 17 FAIL 4
All Articles	21
Test	0
Outlet Center	PASS 3 FAIL 4
All Articles	7

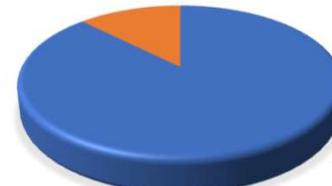
BRAND SHOP



FAST FASHION OR RETAILER



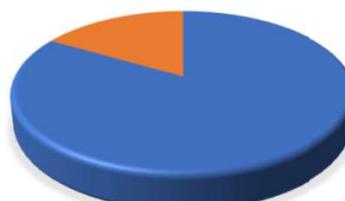
LOCAL MARKET



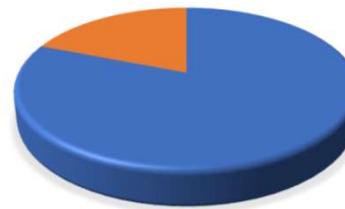
ONLINE HIGH LEVEL



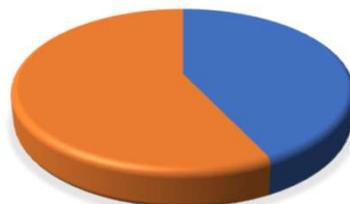
ONLINE LOW LEVEL



ONLINE CHINA



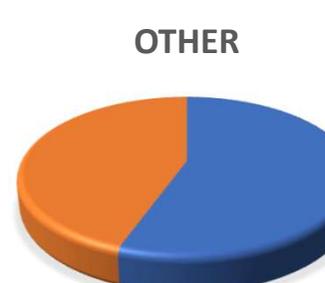
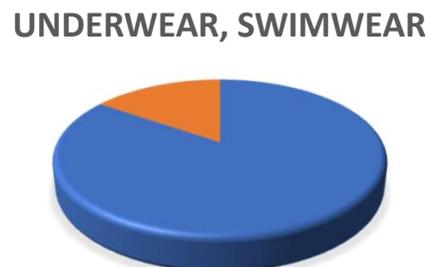
OUTLET CENTER



PASS
FAIL

Statistica generale per entrambe le campagne

Test	Results
Babywear	PASS 22 FAIL 3
All Articles	25
Underwear, swimwear	PASS 22 FAIL 4
All Articles	26
Nightwear	PASS 12 FAIL 1
All Articles	13
Apparel	PASS 35 FAIL 4
All Articles	39
Outerwear	PASS 29 FAIL 6
All Articles	35
Other	PASS 10 FAIL 8
All Articles	18
Bedlinen	PASS 4 FAIL 0
All Articles	4

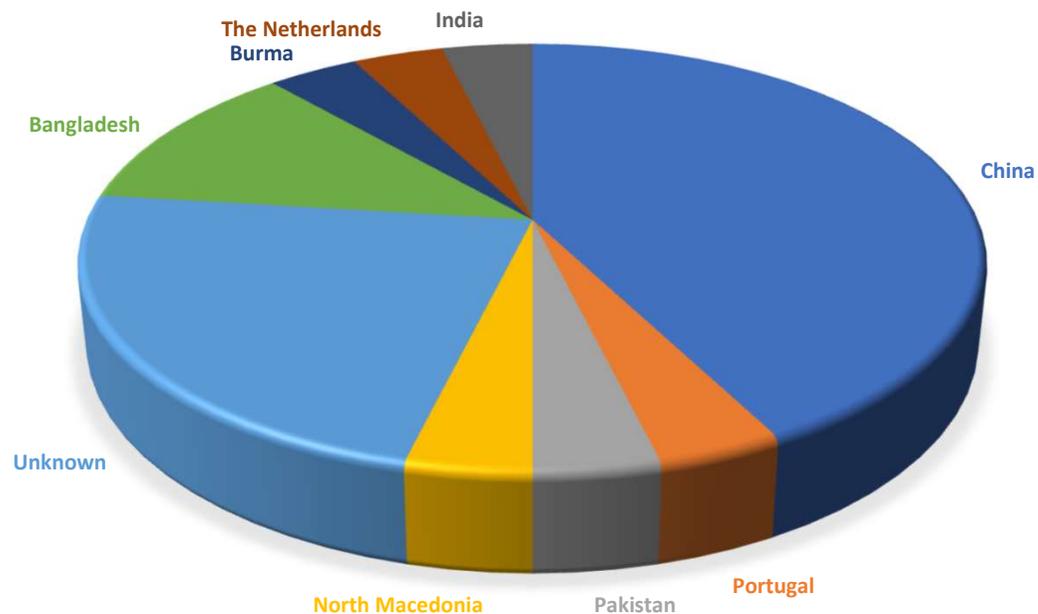


PASS
FAIL

Statistica generale per entrambe le campagne

Origin fails overall R4T	
China	11 (66)
Portugal	1
Pakistan	1
North Macedonia	1
Unknown	6
Bangladesh	3
Burma	1
The Netherlands	1
India	1
Total fail	26

ORIGIN FAILS R4T



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CONCLUSIONI



Conclusioni

- Totale tests eseguiti in R4T: 2374
- Tests non conformi: 43
- 1,81%

- Totale articoli testati: 160
- Articoli non conformi: 26
- 16,25%

- Molti non conformi dalla Cina: 11/66 (16,67%).

Conclusioni

- Sostanze rilevate non conformi:
 - Ammine aromatiche cancerogene
 - Chinolina
 - PAH's (odrocarburi policiclici aromatici)
 - Ftalati
 - APEO (alchilfenoli etossilati)
 - Metalli totali
 - Nichel rilasciato
 - SCCP/MCCP (cloroparaffine a catena corta e media)
 - Cromo VI

Conclusioni

- 1° campagna di tests: ogni prodotto ha fallito un solo parametro.
- 2° campagna di test: una selezione più accurata, basata sugli input della prima campagna, ha dato luogo a un maggior numero di non conformità, alcuni prodotti complessi sono non conformi per più parametri/sostanze nelle diverse componenti.
- l'approccio basato sul rischio funziona
- comprare abbastanza materiale – si presenta il rischio di avere diversi lotti in un unico acquisto?
- l'obiettivo è chiaro: vengono definite le sostanze e i gruppi di prodotti a più alto rischio.
- I metodi di test su Ni e CrVI presentano forti criticità
- I prodotti certificati OEKO-TEX testati soddisfano i requisiti di legge (prima campagna di test, non più testati nella seconda).

Grazie per l'attenzione

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