Bremer Umweltinstitut

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[redacted]

20457 Hamburg

[redacted]

AZ: M 3487 FT I

22.10.2025

[redacted]

Please find enclosed the analytical results for the samples tested as part of the "SHEIN" project.

For details on the individual results, please refer to our enclosed report of analysis.

The ANALYSIS REPORT is structured as follows:

1. ORDER DESCRIPTION
2. ANALYSIS METHODS
3. RESULTS

With best regards
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[redacted]

Attachments: ANALYSIS REPORT

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ANALYSIS REPORT

1 Order Description

Client:
Greenpeace e.V.
Moritz Jäger-Roschko
Hongkongstr. 10
20457 Hamburg

Order placement date:
17-06-2025
21-07-2025 for PFAS M 3487 FT- 10, -11, -38, -47, -48
28-07-2025 for PFAS M 3487 FT-49
11-08-2025 for brominated flame retardants

Contractor:
Bremer Umweltinstitut
Gesellschaft für Schadstoffanalytik und Begutachtung mbH
Fahrenheitstraße 1
28359 Bremen

Report number:
M 3487 FT I

Sample receipt:
23-06-2025 (Austria); M 3487 FT -10, -11, -38, -48, -49
(Germany); M 3487 FT -1, -2, -5, -7, -8, -12, -19 to -21, -23, -25 to -28, -37, -45 to -47, -50
(Portugal); M3487 FT -3, -14, -16, -44
(Spain); M3487 FT -24, -32, -39, -42
(Sweden); M 3487 FT -22, -33 to -34
25-06-2025 (Germany); M 3487 FT -51, -52
04-07-2025 (Germany); M 3487 FT -4, -54 to -57
(Switzerland); M3487 FT -6, -13, -17, -53
08-07-2025 (Thailand); M3487 FT -29, -31, -35, -36, -42
21-07-2025 (Israel); M 3487 FT -9, -15, -18, -30, -43
06-08-2025: M 3487 FT – 32, supplementary delivery (circuit board)

Test period:
24-06-2025 to 22-08-2025

Sampling:
The samples were taken and sent by the client.

1.1 Description of samples

Sample number	Article description*	Analysis goal
M 3487 FT - 1	*Shoe sample:* S_GP_001, Slippers with flower-shaped zirconia-studded decor, product number sx25051073251287759, textile shoe upper, PU leather in-/midsole, polymer outer sole 	

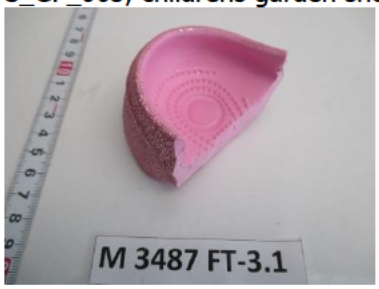
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Sample number	Article description*	Analysis goal
M 3487 FT - 1.1	*Accessoire:* Zirconia-studded „flower" decor from sample with product number sx25051073251287759, S_GP_001, Slippers 	- X-ray fluorescence analysis (XRF)
M 3487 FT - 1.2	*Textile sample:* Jeans-style outer material of sample with product number sx25051073251287759, S_GP_001, Slippers 	- Formaldehyde
M 3487 FT - 1.3	*Material sample:* Outer sole of sample with product number sx25051073251287759, S_GP_001, Slippers 	- XRF
M 3487 FT - 1.4	*Textile sample:* Insole of sample with product number sx25051073251287759, S_GP_001, Slippers 	- Volatile organic compounds (VOC)-Screening

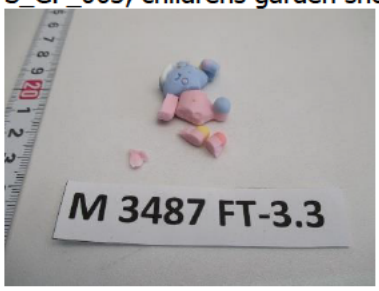
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Sample number	Article description*	Analysis goal
M 3487 FT - 2	*Shoe sample:* S_GP_002, waterproof snow boots, product number sx2409015255935290, compound PU leather and textile shoe upper, textile inner lining, thermoplastic rubber (TPR) polymer outer sole 	
M 3487 FT - 2.1	*Textile sample:* Nubuck leather-like upper material with product number sx2409015255935290, S_GP_002, snow boots 	- Aromatic amines
M 3487 FT - 2.2	*Material sample:* Composite sample, outer sole in black and yellow colour of sample with product number sx2409015255935290, S_GP_002, snow boots 	- XRF
M 3487 FT - 2.3	*Textile sample:* Fur-like inner lining, product number sx2409015255935290, S_GP_002, snow boots 	- Heavy metals

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Sample number	Article description*	Analysis goal
M 3487 FT - 3	*Shoe sample:* S_GP_003, „HOEASE" brand childrens garden shoes in glittering pink colour with decor (cloud and crown), ethylene vinyl acetate (EVA) polymer, product number: - 	
M 3487 FT - 3.1	*Shoe sample:* Composite outer and insole polymer sample, S_GP_003, childrens garden shoes 	- XRF - VOC-Screening
M 3487 FT - 3.2	*Accessoire sample:* Transparent plastic portions of cloud and crown accessoire, S_GP_003, childrens garden shoes 	- Phthalates

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Sample number	Article description*	Analysis goal
M 3487 FT - 3.3	*Accessoire sample:* Pastel-coloured accessoire (cloud and crown), S_GP_003, childrens garden shoes 	- XRF
M 3487 FT - 4	*Shoe sample:* S_GP_005, „bubble Form Clogs", black colour, product number sk2407106468187658, material: ethylene 	
M 3487 FT - 4.1	*Shoe sample:* Base material of product number sk2407106468187658, S_GP_005, „bubble Form Clogs" 	- Polycyclic aromatic hydrocarbons (PAH) - XRF

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Sample number	Article description*	Analysis goal
M 3487 FT - 5	*Shoe sample:* S_GP_006, „Fashion Black Slippers", „Criss Cross Slides" sandals, black colour, product number sx2407065708600234, material: PU leather and polyethylene 	
M 3487 FT - 5.1	*Material sample:* Criss-cross straps of sample with product number sx2407065708600234, S_GP_006, black sandals 	- Phthalates

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Sample number	Article description*	Analysis goal
M 3487 FT - 5.2	*Material sample:* Outer sole of sample with product number sx2407065708600234, S_GP_006, black sandals 	- PAH - XRF
M 3487 FT - 5.3	*Textile sample:* Insole of sample with product number sx2407065708600234, S_GP_006, black sandals 	- VOC-Screening
M 3487 FT - 6	*Shoe sample:* S_GP_008, Wellington boots/ wellies, product number sx2309268046965801, polyvinylchloride (PVC) shoe upper, textile insole, PVC outer sole 	

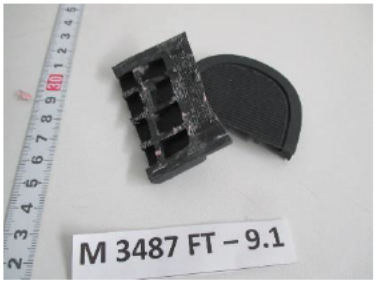
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Sample number	Article description*	Analysis goal
M 3487 FT – 6.1	*Material sample:* Composite sample of shoe upper and outer sole of sample with product number sx2309268046965801, S_GP_008 glittering black wellies 	- Phthalates - XRF
M 3487 FT - 7	*Shoe sample:* S_GP_009, Combat boots with buckles and rivets decor, product number sx2209220587811315, PU leather shoe upper, textile inner lining, polymer outer sole 	
M 3487 FT - 7.1	*Textile sample:* Cross-section of shoe upper from sample with product number sx2209220587811315, S_GP_009, combat boots 	- VOC-Screening
M 3487 FT - 7.2	*Material sample:* Black outer sole of sample with product number sx2209220587811315, S_GP_009, combat boots 	- PAH - XRF - Pb, Cd (total digestion)

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Sample number	Article description*	Analysis goal
M 3487 FT - 7.3	*Accessoire sample:* Badge applied to shoe tongue of sample with product number sx2209220587811315, S_GP_009, combat boots 	- Phthalates - XRF
M 3487 FT - 7.4	*Textile sample:* Brown inner lining of sample with product number sx2209220587811315, S_GP_009, combat boots 	- Quinoline
M 3487 FT - 8	*Shoe sample:* S_GP_010, „CUCCOO SZL" brand wine red pointed-tip leather boots, product number sx2409257684216101, PU leather shoe upper, textile inner lining, rubber polymer outer sole 	
M 3487 FT - 8.1	*Textile sample:* Shoe upper of sample with product number sx2409257684216101, S_GP_010, „CUCCOO SZL" boots, wine red boots 	- VOC-Screening

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Sample number	Article description*	Analysis goal
M 3487 FT - 8.2	*Material sample:* Black outer sole of sample with product number sx2409257684216101, S_GP_010, „CUCCOO SZL" boots, wine red boots 	- PAH
M 3487 FT - 8.3	*Textile sample:* Brown inner lining of sample with product number sx2409257684216101, S_GP_010, „CUCCOO SZL" boots, wine red boots 	- Quinoline
M 3487 FT - 9	*Shoe sample:* S_GP_011, flat summer shoes sandals, product number sx25042395225517988, textile shoe upper, textile insole, rubber polymer outer sole 	
M 3487 FT – 9.1	*Material sample:* Outer sole of sample with product number sx25042395225517988, S_GP_011, summer sandals 	- PAH - Pb, Cd (total digestion) - Phthalates

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Sample number	Article description*	Analysis goal
M 3487 FT – 9.2	*Textile sample:* Shoe upper of sample with product number sx25042395225517988, S_GP_011, summer sandals 	- VOC-Screening
M 3487 FT - 10	*Shoe sample:* S_GP_013, Low-rise snow boots, product number sx2407298863657451, composite PU leather and polyurethane (PU) shoe upper, textile inner lining, PVC polymer outer sole 	
M 3487 FT - 10.1	*Material sample:* Outer sole of sample with product number sx2407298863657451, S_GP_013, low-rise snow boots 	- Phthalates, - XRF
M 3487 FT - 10.2	*Textile sample:* Shoe upper of sample with product number sx2407298863657451, S_GP_013, low-rise snow boots 	- Per- and polyfluoroalkyl substances (PFAS) - VOC-Screening

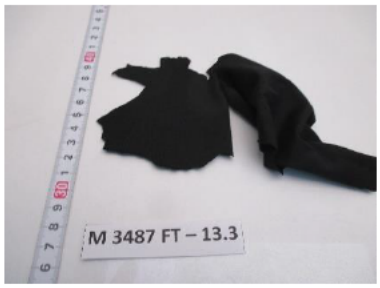
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Sample number	Article description*	Analysis goal
M 3487 FT - 11	*Shoe sample:* S_GP_014, white sneakers with thick outer sole, product number st25030399175495063, composite textile and PU polymer PU leather shoe upper, textile inner lining, PVC polymer outer sole 	
M 3487 FT - 11.1	*Material sample:* outer sole of sample with product number st25030399175495063, S_GP_014, white sneakers 	- Phthalates - XRF
M 3487 FT - 11.2	*Textile sample:* Shoe upper of sample with product number st25030399175495063, S_GP_014, white sneakers 	- PFAS

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Sample number	Article description*	Analysis goal
M 3487 FT - 12	*Shoe sample:* S_GP_015, sports/ running shoes, product number sm25040683897627921, composite polymer and textile shoe upper, textile inner lining, polyethylene vinyl acetate (PEVA) outer sole 	
M 3487 FT - 12.1	*Material sample:* Outer sole of sample with product number sm25040683897627921, S_GP_015, sports/ running shoes 	- XRF - VOC-Screening
M 3487 FT - 12.2	*Accessoire sample:* Badge applied to shoe tongue of sample with product number sm25040683897627921, S_GP_015, sports/ running shoes 	- Phthalates

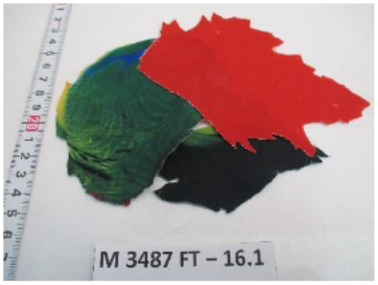
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Sample number	Article description*	Analysis goal
M 3487 FT – 13	*Textile sample:* S_GP_016, black short-sleeve t-shirt with colorful rainbow pattern print, product number sz2408159102937006, materials: 95% polyester, 5% elasthane 	
M 3487 FT – 13.1	*Textile sample:* Printed areas, all colours of sample with product number sk2311231677695323, S_GP_016, black t-shirt with rainbow print 	- Ethoxylated alkylphenols (APEO) - Phthalates
M 3487 FT – 13.2	*Textile sample:* Printed areas, light yellow/ yellow/ orange colour portion of sample with product number sk2311231677695323, S_GP_016, black t-shirt with rainbow print 	- Heavy metals (extractable)
M 3487 FT – 13.3	*Textile sample:* Black base fabric of sample with product number sk2311231677695323, S_GP_016, black t-shirt with rainbow print 	- Quinoline

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Sample number	Article description*	Analysis goal
M 3487 FT – 14	*Textile sample:* S_GP_017, black t-shirt with print, product number sz2408159102937006, materials: 95 % polyester, 5% elasthane with product care label 	
M 3487 FT – 14.1	*Textile sample:* Printed areas of sample with product number sz2408159102937006, S_GP_017, T- black t-shirt with print 	- APEO - Organotin compounds
M 3487 FT – 14.2	*Textile sample:* Black base fabric of sample with product number sz2408159102937006, S_GP_017, black t-shirt with print 	- Aromatic amines - Quinoline

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Sample number	Article description*	Analysis goal
M 3487 FT – 15	*Textile sample:* S_GP_018, „Manfinity" metallic-look mens buttoned short-sleeve shirt, product number sm2212213346647014, Base fabric materials: 90 % polyester 10% elasthane with product care label 	- APEO - Heavy metals (extractable) - Phthalates - Quinoline
M 3487 FT – 16	*Textile sample:* S_GP_019, „Manfinity" mens christmas shirt, product number sm2411260565014661, materials: 95% polyester, 5% elasthane with product care label 	
M 3487 FT – 16.1	*Textile sample:* Compound sample of fabrics in green/ black/ red colour of sample with product number sm2411260565014661, S_GP_019, mens christmas shirt 	- Heavy metals (extractable) - Organotin compounds - Quinoline

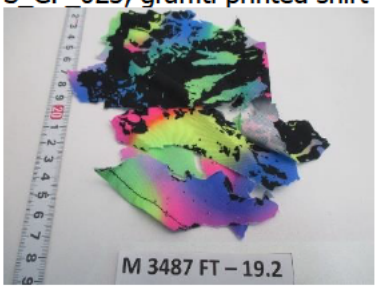
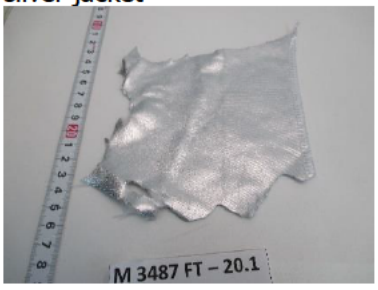
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Sample number	Article description*	Analysis goal
M 3487 FT – 16.2	*Textile sample:* Printed areas „Santa Claus" of sample with product number sm2411260565014661, S_GP_019, mens christmas shirt 	- APEO - Formaldehyde
M 3487 FT – 17	*Textile sample:* S_GP_020, „Manfinity" glittering buttoned shirt, materials: 83% polyester, 12% metallic fibers, 5% elasthane, product number sm2208041350633838, with product care label 	- Heavy metals (extractable) - Quinoline
M 3487 FT - 18	*Textile sample:* S_GP_021, v-neck blouse with sequin decor, product number sz2411143543072244, materials: 95 % polyester 5% elasthane, with product care label 	

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Sample number	Article description*	Analysis goal
M 3487 FT – 18.1	*Textile sample:* Blue petticoat of sample with product number sz2411143543072244, S_GP_021, sequinned blouse 	- Aromatic amines
M 3487 FT – 18.2	*Textile sample:* Netted fabric without sequins of sample with product number sz2411143543072244, S_GP_021, sequinned blouse 	- Formaldehyde
M 3487 FT - 19	*Textile sample:* S_GP_023, colourful reflective graffiti printed shirt, short-sleeve, glittering buttons, product number sm2211300945939410, materials: 95% polyester, 5% elasthane, with product care label 	

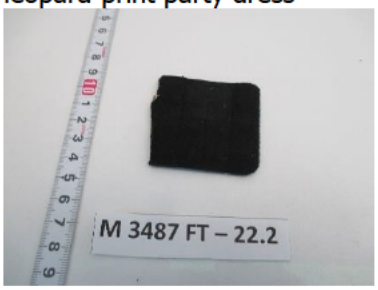
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Sample number	Article description*	Analysis goal
M 3487 FT - 19.1	*Textile sample:* Printed areas, yellow/ pink/ black coloured fabric sections of sample with product number sm2211300945939410, S_GP_023, graffiti printed shirt 	- Heavy metals (extractable) - Organotin compounds - Quinoline
M 3487 FT - 19.2	*Textile sample:* Multicolour printed areas of sample with product number sm2211300945939410, S_GP_023, graffiti printed shirt 	- APEO - Formaldehyde
M 3487 FT - 20	*Textile sample:* S_GP_024, silver jacket with silver tasseled hem, product number sz2406275541714328, materials: 97 % polyester, 3% elasthane with product care label 	
M 3487 FT - 20.1	*Textile sample:* Base fabric material of sample with product number sz2406275541714328, S_GP_024, silver jacket 	- APEO - Formaldehyde - Heavy metals (extractable) - VOC-Screening

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Sample number	Article description*	Analysis goal
M 3487 FT - 21	*Textile sample:* S_GP_025, „INAWLY" brand „Santa Claus Graphic Print Round Neck Short Sleeve T-Shirt", product number sz2409057697744399, materials: 95 % polyester, 5% elasthane with product care label 	
M 3487 FT - 21.1	*Textile sample:* Printed areas of sample with product number sz2409057697744399, S_GP_025, „Santa Claus" t-shirt 	- APEO - Heavy metals (extractable) - Phthalates
M 3487 FT - 21.2	*Textile sample:* Pink base fabric of sample with product number sz2409057697744399, S_GP_025, „Santa Claus" t-shirt 	- Quinoline

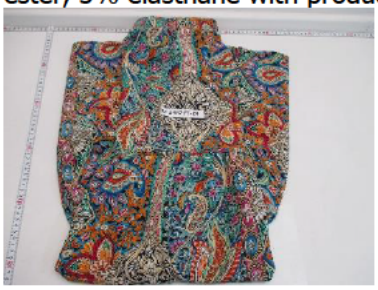
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Sample number	Article description*	Analysis goal
M 3487 FT - 22	*Textile sample:* S_GP_026, „Metallic Sequin Square Neck party" leopard-print sequin dress, product number sz2402299798805448, material: 100 % polyester with product care label 	
M 3487 FT - 22.1	*Textile sample:* Black petticoat fabric of sample with product number sz2402299798805448, S_GP_026, leopard-print party dress 	- Aromatic amines - Quinoline
M 3487 FT - 22.2	*Textile sample:* Black rear fastener of sample with product number sz2402299798805448, S_GP_026, leopard-print party dress 	- APEO
M 3487 FT - 22.3	*Textile sample:* Base fabric sans sequins of sample with product number sz2402299798805448, S_GP_026, leopard-print party dress 	- Formaldehyde - Heavy metals (extractable)

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Sample number	Article description*	Analysis goal
M 3487 FT - 23	*Textile sample:* S_GP_027, short sequinned cocktail dress, product number sz2410218552235515, material: 100 % polyester with product care label 	
M 3487 FT - 23.1	*Textile sample:* Silver sequins of sample with product number sz2410218552235515, S_GP_027, sequinned cocktail dress 	- XRF
M 3487 FT - 23.2	*Textile sample:* Product care label, black print of sample with product number sz2410218552235515, S_GP_027, sequinned cocktail dress 	- Aromatic amines

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Sample number	Article description*	Analysis goal
M 3487 FT - 24	*Textile sample:* S_GP_028, SHEIN „LUNE" brand Hawaiian paisley-print A-line style skirt, product number sz2405096224476190, materials: 97 % polyester, 3% elasthane with product care label 	
M 3487 FT - 24.1	*Textile sample:* Base fabric of sample with product number sz2405096224476190, S_GP_028, Hawaiian A-line style skirt 	- APEO - Formaldehyde - Heavy metals (extractable) - Quinoline
M 3487 FT - 25	*Textile sample:* S_GP_029, SHEIN „Clasi" brand shiny metallic-style two-piece, golden colour, product number sz2405280992220891, material: 100 % polyester with product care label 	

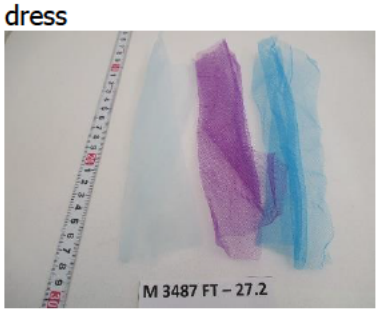
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Sample number	Article description*	Analysis goal
M 3487 FT - 25.1	*Textile sample:* Base fabric, Composite sample (shirt and pants) of sample with product number sz2405280992220891, S_GP_029, golden two-piece 	- APEO - Formaldehyde - Heavy metals (extractable) - VOC-Screening
M 3487 FT - 26	*Textile sample:* S_GP_030, SHEIN „Clasi" brand sequinned party jumpsuit, product number sz2405280992220891, materials: 95 % polyester, 5% elasthane with product care label 	
M 3487 FT - 26.1	*Textile sample:* Composite sample of base fabric and petticoat of sample with product number sz2405280992220891, S_GP_030, sequinned jumpsuit 	- Aromatic amines - Heavy metals (extractable) - Quinoline

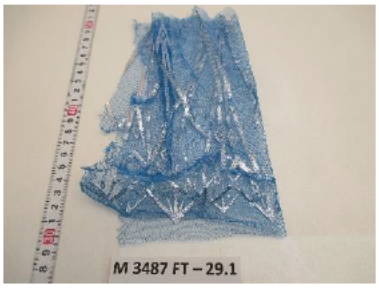
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Sample number	Article description*	Analysis goal
M 3487 FT - 26.2	*Textile sample:* Composite sample from sleeve area (cloth and netted fabric) without sequins of sample with product number sz2405280992220891, S_GP_030, sequinned jumpsuit 	- Formaldehyde
M 3487 FT - 27	*Textile sample:* S_GP_032, netted fabric mermaid costume dress and hair band, product number sk2309192015124624, material: 100 % polyester with product care label 	
M 3487 FT - 27.1	*Textile sample:* Ribbons and suspenders of sample with product number sk2309192015124624, S_GP_032, mermaid dress 	- Quinoline

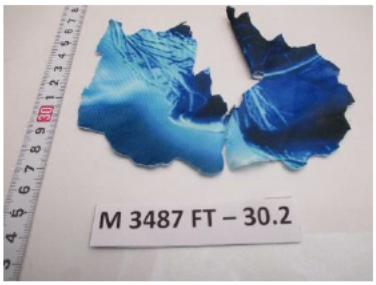
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Sample number	Article description*	Analysis goal
M 3487 FT - 27.2	*Textile sample:* Tulle fabric of sample with product number sk2309192015124624, S_GP_032, mermaid dress 	- Formaldehyde
M 3487 FT - 28	*Textile sample:* S_GP_037, SHEIN „Zip-Up Long Sleeve Reversible Top and pant", product number sk2408084999389350, material: 100 % polyester with product care label 	
M 3487 FT - 28.1	*Textile sample:* Base fabric of sample with product number sk2408084999389350, S_GP_037, two-piece set of jacket and pants 	- APEO - Formaldehyde - VOC-Screening
M 3487 FT - 29	*Textile sample:* S_GP_038, princess dress with print, frilled tulle fabric skirt, product number sk2412254123997662, materials: 95 % polyester, 5 % elasthane, with product care label 	

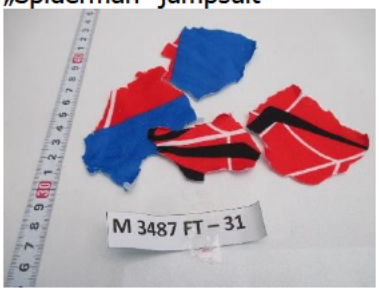
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Sample number	Article description*	Analysis goal
M 3487 FT – 29.1	*Textile sample:* Tulle fabric of sample with product number sk2412254123997662, S_GP_038, princess dress 	- Formaldehyde
M 3487 FT – 29.2	*Textile sample:* Silver print on skirt of sample with product number sk2412254123997662, S_GP_038, princess dress 	- Heavy metals (extractable)
M 3487 FT - 30	*Textile sample:* S_GP_039, t-shirt with dinosaur digital print, product number sk2408071273732320, material: 100 % polyester with product care label 	
M 3487 FT – 30.1	*Textile sample:* Printed areas, all colours of sample with product number sk2408071273732320, S_GP_039, t-shirt with dinosaur 	- Phthalates

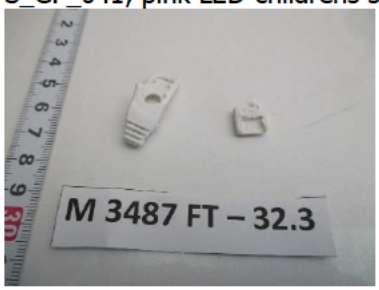
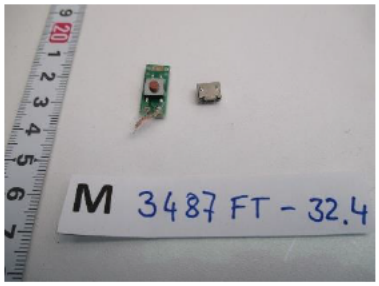
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Sample number	Article description*	Analysis goal
M 3487 FT – 30.2	*Textile sample:* Light blue/ dark blue sections of printed areas, sample with product number sk2408071273732320, S_GP_039, t-shirt with dinosaur 	- Heavy metals (extractable)
M 3487 FT – 30.3	*Textile sample:* Sleeve area, gray base fabric of sample with product number sk2408071273732320, S_GP_039, t-shirt with dinosaur 	- Quinoline
M 3487 FT - 31	*Textile sample:* S_GP_040, SHEIN „Spiderman" costume set consisting of jumpsuit and cloak, product number Sk2411045510045491, materials: 95 % polyester, 5 % elasthane, with product care label 	

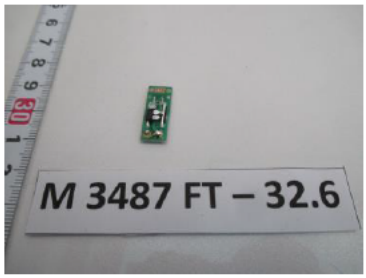
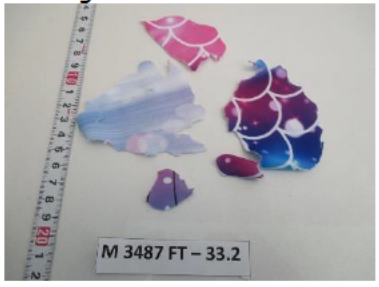
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Sample number	Article description*	Analysis goal
M 3487 FT – 31.1	*Textile sample:* Base fabric of sample with product number Sk2411045510045491, S_GP_040, „Spiderman" jumpsuit 	- Heavy metals (extractable) - Quinoline - VOC-Screening
M 3487 FT - 32	*Shoe sample:* S_GP_041, childrens shoes, rollerblade mesh sneakers with LED-lights, product number sk25030591367491111, textile shoe upper, textile inner lining, TPR polymer outer sole 	
M 3487 FT - 32.1	*Material sample:* Composite sample from rubber shoe collar details, outer sole and velcro strap area of sample with product number k25030591367491111, S_GP_041, pink LED-childrens shoe 	- VOC-Screening

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Sample number	Article description*	Analysis goal
M 3487 FT - 32.2	*Material sample:* Shoe quarter and eyestay area rubber components of sample with product number k25030591367491111, S_GP_041, pink LED-childrens shoe 	- Phthalates - XRF
M 3487 FT - 32.3	*Material sample:* White plastic on/off switch of sample with product number k25030591367491111, S_GP_041, pink LED-childrens shoe 	- Phthalates - XRF
M 3487 FT - 32.4	*Material sample:* Electric circuitry of sample with product number k25030591367491111, S_GP_041, pink LED-childrens shoe 	- XRF
M 3487 FT - 32.5	*Material sample:* outer sole of sample with product number k25030591367491111, S_GP_041, pink LED-childrens shoe 	- XRF

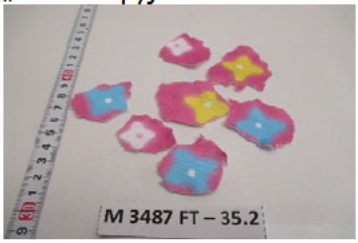
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Sample number	Article description*	Analysis goal
M 3487 FT - 32.6	*Material sample:* Circuit board of sample with product number k25030591367491111, S_GP_041, pink LED-childrens shoe 	- brominated flame retardants
M 3487 FT - 33	*Textile sample:* S_GP_042, SHEIN „Tween", three-piece bathing suit with print, flounce fabric hem without sealed border, product number sk2411135175179716, materials: 82 % polyester, 18 % elasthane with product care label 	
M 3487 FT - 33.1	*Textile sample:* Tulle fabric from fin area of sample with product number sk2411135175179716, S_GP_042, three-piece bathing suit 	- Formaldehyde
M 3487 FT - 33.2	*Textile sample:* Printed areas of sample with product number sk2411135175179716, S_GP_042, three-piece bathing suit 	- APEO - Quinoline

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Sample number	Article description*	Analysis goal
M 3487 FT - 33.3	*Textile sample:* Metal bra clasps of sample with product number sk2411135175179716, S_GP_042, three-piece bathing suit 	- XRF
M 3487 FT - 34	*Shoe sample:* S_GP_043, „TEEOEC" brand 2024 updated „unicorn" childrens wellies, product number sk2407154412452525, material: *ethylene* 	
M 3487 FT - 34.1	*Material sample:* Pink base material of sample with product number sk2407154412452525, S_GP_043, unicorn childrens wellies 	- Phthalates - XRF
M 3487 FT - 34.2	*Accessoire sample:* Rubberized applied shapes "unicorn" and „rainbow" of sample with product number sk2407154412452525, S_GP_043, unicorn childrens wellies 	- Phthalates

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Sample number	Article description*	Analysis goal
M 3487 FT - 34.3	*Accessoire sample:* Rubberized applied shape "rainbow" of sample with product number sk2407154412452525, S_GP_043, unicorn childrens wellies 	- XRF
M 3487 FT - 35	*Textile sample:* S_GP_044, childrens two-piece pyjama set (short-sleeve top and shorts) with „unicorn" design print, glow-in-the-dark, product number sk25022467866708972, materials: 91 % polyester 9 % elasthane, with product care label 	
M 3487 FT – 35.1	*Textile sample:* Printed areas of top, "unicorn mane" section, of sample with product number sk25022467866708972, S_GP_044, childrens „unicorn" pyjama set 	- Quinoline
M 3487 FT – 35.2	*Textile sample:* Printed areas of top, yellow/ blue/ pink „star" motifs of sample with product number sk25022467866708972, S_GP_044, childrens „unicorn" pyjama set 	- Heavy metals (extractable)

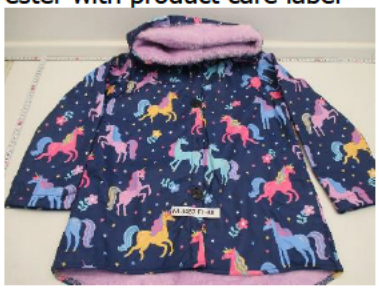
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Sample number	Article description*	Analysis goal
M 3487 FT – 36	*Shoe sample:* S_GP_045, black and white high-heel shoes, product number sx2309025137536549, PU PU leather shoe upper, acrylic inner lining, polymer outer sole 	
M 3487 FT – 36.1	*Material sample:* Black outer sole of sample with product number sx2309025137536549, S_GP_045, black and white high-heel shoes 	- PAH - Phthalates - XRF
M 3487 FT – 36.2	*Textile sample:* White shoe upper of sample with product number sx2309025137536549, S_GP_045, black and white high-heel shoes 	- VOC-Screening

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Sample number	Article description*	Analysis goal
M 3487 FT - 37	*Shoe sample:* S_GP_046, Childrens snow boots, product number sa2408272834527510, PU PU leather shoe upper, flanell fabric inner lining, polyester insole, rubber outer sole 	
M 3487 FT - 37.1	*Textile sample:* Shoe upper of sample with product number sa2408272834527510, S_GP_046, Childrens snow boots 	- VOC-Screening
M 3487 FT - 37.2	*Textile sample:* Velcro straps of sample with product number sa2408272834527510, S_GP_046, Childrens snow boots 	- APEO
M 3487 FT - 37.3	*Textile sample:* Outer sole of sample with product number sa2408272834527510, S_GP_046, Childrens snow boots 	- XRF

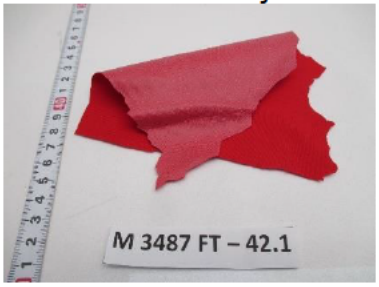
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Sample number	Article description*	Analysis goal
M 3487 FT - 38	*Textile sample:* S_GP_048, SHEIN „Unicorn" pattern hooded raincoat, product number sk2407162760755335, material: 100 % polyester with product care label 	
M 3487 FT - 38.1	*Textile sample:* Printed areas of sample with product number sk2407162760755335, S_GP_048, hooded raincoat 	- APEO - Heavy metals (extractable) - PFAS - Quinoline
M 3487 FT - 39	*Textile sample:* S_GP_049, rain coat with „unicorn" print, product number sk2406178934043401, no materials composition or product care label affixed to product, material: *100 % ethylene* 	
M 3487 FT - 39.1	*Textile sample:* Printed area with "unicorn" motif of sample with product number sk2406178934043401, S_GP_049, „unicorn" print raincoat 	- APEO

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Sample number	Article description*	Analysis goal
M 3487 FT - 39.2	*Textile sample:* Printed areas with "UNICORN" label + „bow" motif of sample with product number sk2406178934043401, S_GP_049, „unicorn" print raincoat 	- Phthalates
M 3487 FT - 39.3	*Textile sample:* Blue/ yellow /gray/ pink printed areas on sleeve sections of sample with product number sk2406178934043401, S_GP_049, „unicorn" print raincoat 	- XRF
M 3487 FT - 41	*Textile sample:* S_GP_051, soft shell hooded jacket, product number st2501025550510174, material: 100% polyester with product care label (chinese language only) 	

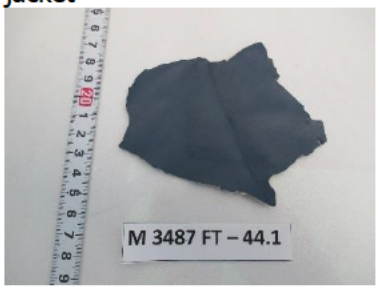
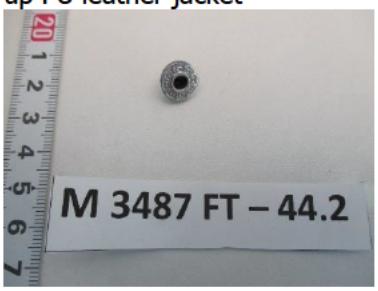
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Sample number	Article description*	Analysis goal
M 3487 FT - 41.1	*Textile sample:* Base fabric of sample with product number st2501025550510174, S_GP_051, soft shell hooded jacket 	- PFAS - Quinoline
M 3487 FT - 41.2	*Accessoire sample:* Hidden rubber material beneath velcro patch applications of sample with product number st2501025550510174, S_GP_051, soft shell hooded jacket 	- Phthalates
M 3487 FT - 42	*Textile sample:* S_GP_052, outdoor windbreaker and rain jacket combo, product number st2309208171191818, material: 100 % polyester, with product care label 	
M 3487 FT – 42.1	*Textile sample:* Base fabric of sample with product number st2309208171191818, S_GP_052, outdoor windbreaker and rain jacket combo 	- PFAS

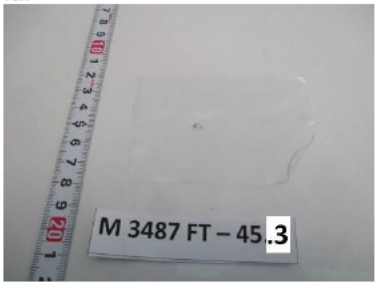
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Sample number	Article description*	Analysis goal
M 3487 FT – 42.2	*Accessoire sample:* Composite sample from plastic pocket and coat zippers and plastic drawstring-locks of sample with product number st2309208171191818, S_GP_052, outdoor windbreaker and rain jacket combo 	- XRF
M 3487 FT – 42.3	*Textile sample:* Black velcro straps on sleeves of sample with product number st2309208171191818, S_GP_052, outdoor windbreaker and rain jacket combo 	- APEO
M 3487 FT - 43	*Textile sample:* S_GP_054, raincoat with zip-up hoodie, product number st2411143707130047, material: 100 % polyamide, with product care label 	

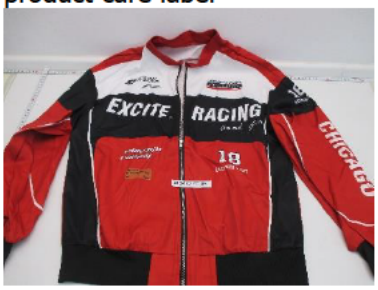
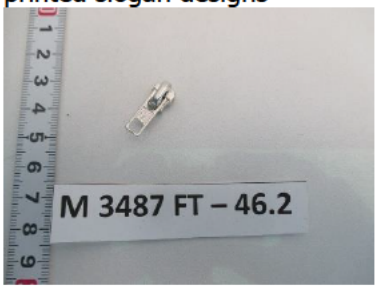
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Sample number	Article description*	Analysis goal
M 3487 FT – 43.1	*Textile sample:* Outer material of sample with product number st2411143707130047, S_GP_054, raincoat with zip-up hoodie 	- PFAS
M 3487 FT - 44	*Textile sample:* S_GP_055, „Manfinity Homme" zip-up PU leather jacket, product number sm2306014334316141, material: 100 % polyester with product care label 	
M 3487 FT - 44.1	*Textile sample:* Base fabric of sample with product number sm2306014334316141, zip-up PU leather jacket 	- APEO - Formaldehyde - VOC-Screening
M 3487 FT - 44.2	*Accessoire sample:* Metal button with skin contact of sample with product number sm2306014334316141, zip-up PU leather jacket 	- Nickel release

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Sample number	Article description*	Analysis goal
M 3487 FT - 45	*Textile sample:* S_GP_056, insulated waterproof PU leather motorbike jacket with collar, product number sm2410191710927828, material: 100 % PU with product care label 	
M 3487 FT - 45.2	*Textile sample:* Black base fabric of sample with product number sm2410191710927828, S_GP_056, leather motorbike jacket with collar 	- APEO - Formaldehyde - Phthalates - VOC-Screening
M 3487 FT - 45.3	*Accessoire sample:* Transparent coating inside pockets of sample with product number sm2410191710927828, S_GP_056, leather motorbike jacket with collar 	- Phthalates

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Sample number	Article description*	Analysis goal
M 3487 FT - 45.4	*Textile sample:* Inner lining in collar area of sample with product number sm2410191710927828, S_GP_056, leather motorbike jacket with collar 	- Quinoline
M 3487 FT - 46	*Textile sample:* S_GP_057, „Flirla" brand jacket with printed slogan designs, product number sz2406011999887893, 100 % Polyester with product care label 	
M 3487 FT - 46.1	*Textile sample:* Printed areas of sample with product number sz2406011999887893, S_GP_057, jacket with printed slogan designs 	- APEO - Quinoline
M 3487 FT - 46.2	*Accessoire sample:* Metal zipper of sample with product number sz2406011999887893, S_GP_057, jacket with printed slogan designs 	- Nickel release

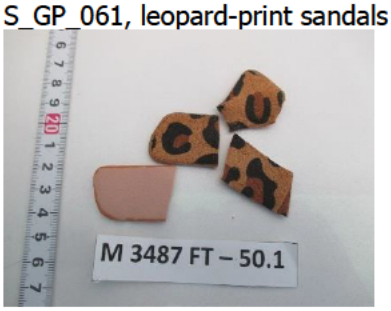
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Sample number	Article description*	Analysis goal
M 3487 FT - 47	*Textile sample:* S_GP_058, SHEIN „Clasi" shiny golden insulated winter jacket, product number sz2408139757945079, material: 100 % polyester 	
M 3487 FT - 47.1	*Textile sample:* Outer material of sample with product number sz2408139757945079, S_GP_058, shiny golden winter jacket 	- APEO - Formaldehyde - Heavy metals (extractable) - PFAS - Phthalates - VOC-Screening
M 3487 FT - 47.2	*Accessoire sample:* Metal zipper and slider of sample with product number sz2408139757945079, S_GP_058, shiny golden winter jacket 	- Nickel release
M 3487 FT - 48	*Textile sample:* S_GP_059, „In My Nature" brand hiking jacket, product number st2410243521722842, material: 100 % polyester with product care label 	

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Sample number	Article description*	Analysis goal
M 3487 FT - 48.1	*Textile sample:* Black base fabric of sample with product number st2410243521722842, S_GP_059, hiking jacket 	- Heavy metals (extractable) - PFAS - Quinoline
M 3487 FT - 49	*Textile sample:* S_GP_060, raincoat set with reflective patches, product number sh2404232402498418, no product care label included 	
M 3487 FT - 49.1	*Textile sample:* Velcro straps of sample with product number sh2404232402498418, S_GP_060, raincoat set with reflective patches 	- APEO
M 3487 FT - 49.2	*Textile sample:* Metal eyelet with skin contact of sample with product number sh2404232402498418, S_GP_060, raincoat set with reflective patches 	- Nickel release

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Sample number	Article description*	Analysis goal
M 3487 FT - 49.3	*Textile sample:* Base fabric with reinforced seams of sample with product number sh2404232402498418, S_GP_060, raincoat set with reflective patches 	- Heavy metals (extractable) - Phthalates - PFAS
M 3487 FT - 50	*Textile sample:* S_GP_061, sandals with leopard-print pattern, product number sx2404042379710014, material: *acrylic*, composite cloth and PU PU leather inner lining, ethylene insole, roughout leather shoe upper, ethylene outer sole 	
M 3487 FT - 50.1	*Textile sample:* Leopard-print shoe upper of sample with product number sx2404042379710014, S_GP_061, leopard-print sandals 	- Heavy metals (extractable) - Organotin compounds - VOC-Screening
M 3487 FT - 50.2	*Textile sample:* Black outer sole of sample with product number sx2404042379710014, S_GP_061, leopard-print sandals 	- PAH

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Sample number	Article description*	Analysis goal
M 3487 FT - 50.3	*Textile sample:* Cross-section of insole and outer sole of sample with product number sx2404042379710014, S_GP_061, leopard-print sandals 	- Phthalates - XRF - VOC-Screening - Pb, Cd (total digestion)
M 3487 FT - 51	*Textile sample:* S_GP_066, chiffon blouse with flower pattern, product number sz2501104028729622, material: 100% polyester with product care label 	
M 3487 FT - 51.1	*Textile sample:* Printed areas of sample with product number sz2501104028729622, chiffon blouse 	- Heavy metals (extractable) - Quinoline
M 3487 FT - 51.2	*Accessoire sample:* Flower-shaped tulle fabric sans sequins of sample with product number sz2501104028729622, chiffon blouse 	- Formaldehyde

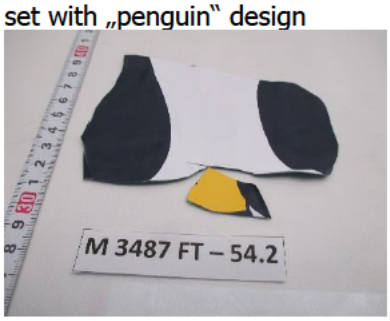
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Sample number	Article description*	Analysis goal
M 3487 FT - 52	*Textile sample:* S_GP_067, red knitted t-shirt, product number sz2411261770373817, materials: 62% cotton, 38% polyester with product care label 	
M 3487 FT - 52.1	*Textile sample:* Base fabric of sample with product number sz2411261770373817, red t-shirt 	- Aromatic amines - Formaldehyde - Heavy metals (extractable)
M 3487 FT – 53	*Shoe sample:* S_GP_050, childrens 3D duck wellies, product number sk25031882366546146, ethylene outer sole, ethylene shoe upper, textile insulation, ethylene insole 	
M 3487 FT – 53.1	*Material sample:* Yellow base material of sample with product number sk25031882366546146, S_GP_050, childrens 3D duck wellies 	- Phthalates - XRF

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Sample number	Article description*	Analysis goal
M 3487 FT – 53.2	*Accessoire sample:* Rubberised polymer shapes "duck and wing" applied to sample with product number sk25031882366546146, S_GP_050, childrens 3D duck wellies 	- Phthalates - XRF
M 3487 FT - 54	*Textile sample:* S_GP_062, SHEIN two-piece set of t-shirt and shorts with „penguin" design, product number sS2105110064913765, materials: 95 % cotton, 5% elasthane with product care label 	
M 3487 FT – 54.1	*Textile sample:* Yellow/ black printed areas on shorts of sample with product number sS2105110064913765, S_GP_062, two-piece set with „penguin" design 	- Formaldehyde - Heavy metals (extractable)

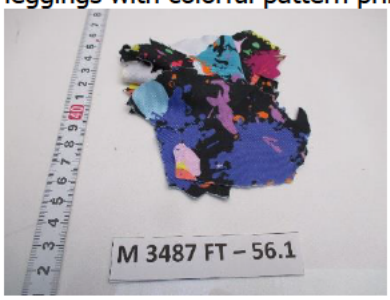
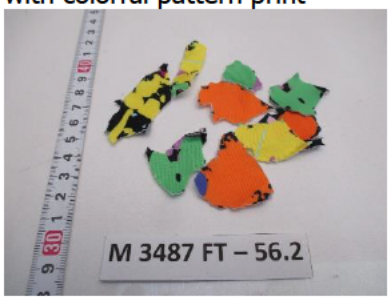
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Sample number	Article description*	Analysis goal
M 3487 FT – 54.2	*Textile sample:* Printed areas on t-shirt with "Penguin" motif *(Plastisol)* of sample with product number sS2105110064913765, S_GP_062, two-piece set with „penguin" design 	- APEO - Organotin compounds - Phthalates
M 3487 FT - 55	*Textile sample:* S_GP_063, short-sleeve t-shirt with „tortoise" design, product number sk25031766136220011, materials: 5% elast-hane, 95% polyester with product care label 	
M 3487 FT – 55.1	*Textile sample:* Printed areas of sample with product number sk25031766136220011, S_GP_063, t-shirt with „tortoise" design 	- APEO - Phthalates

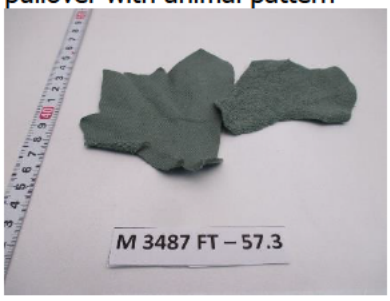
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Sample number	Article description*	Analysis goal
M 3487 FT – 55.2	*Textile sample:* Printed areas with „tortoise flipper" motif of sample with product number sk25031766136220011, S_GP_063, t-shirt with „tortoise" design 	- Heavy metals (extractable)
M 3487 FT – 55.3	*Textile sample:* Lilac base fabric of sample with product number sk25031766136220011, S_GP_063, t-shirt with „tortoise" design 	- Quinoline
M 3487 FT - 56	*Textile sample:* S_GP_064, leggings with colorful pattern print, product number st2409095242562340, materials: 90% polyester, 10% elasthane 	

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Sample number	Article description*	Analysis goal
M 3487 FT – 56.1	*Textile sample:* Printed areas in all colours of sample with product number st2409095242562340, S_GP_064, leggings with colorful pattern print 	- Organotin compounds
M 3487 FT – 56.2	*Textile sample:* Printed areas, yellow/ green/ orange colour sections of sample with product number st2409095242562340, S_GP_064, leggings with colorful pattern print 	- Heavy metals (extractable)
M 3487 FT - 57	*Textile sample:* S_GP_065, childrens pullover with animal pattern, product number sk2410041092323392, material: 100% cotton with product care label 	

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Sample number	Article description*	Analysis goal
M 3487 FT – 57.1	*Textile sample:* Printed areas with "penguin", "panda" and "fox" motifs of sample with product number sk2410041092323392, S_GP_065, childrens pullover with animal pattern 	- APEO - Organotin compounds
M 3487 FT – 57.2	*Textile sample:* Printed areas with "penguin" and "fox"motifs of sample with product number sk2410041092323392, S_GP_065, childrens pullover with animal pattern 	- Heavy metals (extractable)
M 3487 FT – 57.3	*Textile sample:* Base fabric of sample with product number sk2410041092323392, S_GP_065, childrens pullover with animal pattern 	- Formaldehyde

* Sample information provided by the client

Polymer materials abbreviation glossary: TPR = thermoplastic rubber
PE = polyethylene
PU = polyurethane
EVA = ethylene vinyl acetate
PVC = polyvinyl chloride
PEVA = polyethylene vinyl chloride

Testing goal abbreviation glossary:
XRF = x-ray flourescence analysis
PAH = polycyclic aromatic hydro carbons
PFAS = per- and polyfluoroalkyl substances
VOC = volatile organic compounds
APEO = Ethoxylated alkylphenols

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2 Analysis methods

2.1 Test method for analysis of ethoxylated nonyl phenols and octyl phenols

DIN EN ISO 18254-1:2016-09, LC-MS/MS, determination of ethoxylated alkylphenols with 3-15 ethoxy groups
Accreditation status: Accredited method of Bremer Umweltinstitut GmbH.

2.2 Test method for analysis of formaldehyde

DIN EN ISO 14184-1: 2011-12
Accreditation status: Accredited method of Bremer Umweltinstitut GmbH.

2.3 Test method for analysis of arylamines

BVL B 82.02-2:2017-12, corresponding to DIN EN ISO 14362-1:2017-05
BVL B 82.02-15:2017-12, corresponding to DIN EN ISO 14362-3:2017-05 for p-Aminoazobenzol
Accreditation status: accredited method of Bremer Umweltinstitut GmbH with the exception of the following parameters not subject to accreditation: p-phenylenediamine

2.4 Volatile organic compounds (VOC) - Screening

PAW 078:2023-05
1. Extraction with methanol for 30 minutes in an ultrasonic bath
2. Identification and quantitative determination by GC-MS. Approximately 60 compounds are quantified substance-specifically. Further compounds are identified with a MS database (NIST05) and the content is estimated by the response of ethylbenzene.

Accreditation status: Accredited method of Bremer Umweltinstitut GmbH.

2.5 Test method for analysis of PFAS - per- and polyfluoroalkyl substances

DIN EN 17681-1:2025-06
Accreditation status: Non-accredited method of Bremer Umweltinstitut GmbH.

2.6 Test method for analysis of heavy metals from eluate

1. Elution with synthetic sweat-solution (DIN EN 16711-2:2016-02)
2. Quantification in accordance to DIN EN ISO 17294-2:2024-12 with ICP-MS

Analysis was awarded to a laboratory accredited for the analytical method

2.7 Test method for analysis of material surfaces of heavy metals

XRF – P504-506-1:01/2017, x-ray fluorescence analysis with reference to DIN EN 62321-3-1:2014-10
Analysis was awarded to a laboratory accredited for the analytical method

2.8 Test method for analysis of nickel release

DIN EN 112472:2004-04 and DIN EN 1811:2015-10, quantitative determination according to DIN EN ISO 17294-2:2024-12 by means of ICP-MS
Analysis was awarded to a laboratory accredited for the analytical method

2.9 Test method for analysis of heavy metals – Lead, Cadmium

1. Acid digestion (referring to DIN ISO 16711-1:2016-02)
3. Quantification in accordance to DIN EN ISO 17294-2:2024-12 with ICP-MS

Analysis was awarded to a laboratory accredited for the analytical method

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2.10 Test method for analysis of phthalates

DIN EN ISO 14389:2023-01
Accreditation status: Accredited method of Bremer Umweltinstitut GmbH.

2.11 Test method for analysis of Polycyclic aromatic hydrocarbons (PAH)

AfPS GS 2019:01 PAK, with the addition of acenaphthylene, acenaphthene, and fluorene
Accreditation status: Accredited method of Bremer Umweltinstitut GmbH.

2.12 Test method for analysis of quinoline

Referring to DIN 54231
1. Extraction with methanol by ultrasonic bath
2. Separation, identification and quantification using LC-MS/MS

Accreditation status: Non-accredited method of the Bremer Umweltinstitut

2.13 Test method for analysis of organotin compounds

DIN EN ISO 22744-1:2020-09
Accreditation status: Accredited method of Bremer Umweltinstitut GmbH.

2.14 Test method for anaylsis of brominated flame retardants: PBB (Polybromodiphenyls) and PBDE (Polybromodiphenyl ethers)

IEC 62321-6:2015-06, modified sample preparation
Analysis was awarded to a laboratory accredited for the analytical method

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3 Results

3.1 Ethoxylated alkylphenols

Sample number	Article	Nonylpheno-lethoxylates [mg/kg]	Oktylpheno-lethoxylates [mg/kg]
M 3487 FT – 13.1	Printed areas black t-shirt with rainbow print	< RL	< RL
M 3487 FT – 14.1	Printed areas of black t-shirt with print „PORTUGAL"	< RL	< RL
M 3487 FT – 15	Base fabric of metallic short-sleeve shirt „Manfinity"	< RL	< RL
M 3487 FT – 16.2	Printed area of red t-shirt with print „Santa Claus and bird, „Manfinity"	< RL	< RL
M 3487 FT – 19.2	Multicolored area of graffiti printed shirt	< RL	< RL
M 3487 FT – 20.1	Base fabric of silver jacket	< RL	< RL
M 3487 FT – 21.1	Printed area of Santa Claus Graphic Print „INAWLY"	< RL	< RL
M 3487 FT – 22.2	Black rear fastener of leopard-print party dress	< RL	< RL
M 3487 FT – 24.1	Base fabric of Hawaiian Paisley Print A-Line Skirt	< RL	< RL
M 3487 FT – 25.1	Base fabric of golden metallic set "long sleeve top and pants"	< RL	< RL
M 3487 FT – 28.1	Base fabric of rainbow set "zip-up long sleeve top and pant"	< RL	< RL
M 3487 FT – 33.2	Printed areas of swim set Mermaid	< RL	< RL
M 3487 FT – 37.2	Velcro straps of childrens snow boots	< RL	< RL
M 3487 FT – 38.1	Printed area of unicorn rain jacket	< RL	< RL
M 3487 FT – 39.1	Printed area from "Unicorn" of rain coat	< RL	< RL
M 3487 FT – 42.3	Black velcro straps on sleeves of red rain jacket	< RL	< RL
M 3487 FT – 44.1	Base fabric of PU leather jacket "Manfinity Homme"	< RL	< RL
M 3487 FT – 45.2	Base fabric of black motorcycle leather jacket	< RL	< RL
M 3487 FT – 46.1	Printed area of red jacket "Flirla"	< RL	< RL
M 3487 FT – 47.1	Outer material of shiny golden winter jacket „Clasi"	< RL	< RL
M 3487 FT – 49.1	Velcro straps of black rain coat set with reflectors	**130**	< RL
M 3487 FT – 54.2	Printed areas of "Penguin" motif *(Plastisol)* t-shirt	< RL	< RL
M 3487 FT – 55.1	Printed areas of t-shirt with „tortoise" design	< RL	< RL
M 3487 FT – 57.1	Printed areas with "penguin", "panda" and "fox" motifs of childrens pullover with animal pattern	< RL	< RL
RL		**3**	**3**
Requirements REACH		**< 100**	**-**

RL = Reporting Limit mg/kg = milligram per kilogram
REACH = Regulation (EG) No. 1907/2006, annex XVII, no. 46 a, ethoxylated nonylphenols: shall not be placed on the market after 3 February 2021 in textile products which can reasonably be expected to be washed in water during their normal life cycle, at concentrations > 100 mg/kg

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3.2 Formaldehyde

Sample Number	Article	Formaldehyde [mg/kg]
M 3487 FT – 1.2	Outer material „jeans-style" of slippers with flower decor	< RL
M 3487 FT – 16.2	Printed area of red christmas t-shirt „Santa Claus with bird, „Manfinity"	< RL
M 3487 FT – 18.2	Netted fabric without sequins of sequinned blouse	< RL
M 3487 FT – 19.2	Multicolored area of graffiti printed shirt	< RL
M 3487 FT – 20.1	Base fabric of silver jacket	**6**
M 3487 FT – 22.3	Base fabric without sequins of leopard-print party dress	**7**
M 3487 FT – 24.1	Base fabric of Hawaiian Paisley Print A-Line Skirt	< RL
M 3487 FT – 25.1	Base fabric of golden metallic set "long sleeve top and pants"	< RL
M 3487 FT – 26.2	Composite sample from sleeve area without sequins of green jumpsuit	< RL
M 3487 FT – 27.2	Tulle fabric of sample mermaid dress	**260**
M 3487 FT – 28.1	Base fabric of rainbow set "zip-up long sleeve top and pant"	< RL
M 3487 FT – 29.1	Tulle fabric of sample princess dress „Frozen"	< RL
M 3487 FT – 33.1	Tulle fabric from fin area of sample swim mermaid dress	< RL
M 3487 FT – 44.1	Base fabric of PU leather jacket "Manfinity Homme"	**51**
M 3487 FT – 45.2	Base fabric of black motorcycle leather jacket	< RL
M 3487 FT – 47.1	Outer material of shiny golden winter jacket „Clasi"	**15**
M 3487 FT – 51.2	Flower-shaped tulle fabric without sequins from chiffon blouse	**8**
M 3487 FT – 52.1	Base fabric of red t-shirt	< RL
M 3487 FT – 54.1	Yellow/black printed areas on shorts of set „penguin" design	< RL
M 3487 FT – 57.3	Base fabric of childrens pullover with "penguin", "panda" and "fox" motifs	< RL
RL		5
Requirements REACH		**75**
Requirements Toy Safety Directive*		***30***

RL = Reporting Limit = 5 mg/kg mg/kg = milligram per kilogram
REACH = Regulation (EG) No. 1907/2006, annex XVII, no. 72 for textiles and shoes,
* RL 2009/48/EG, European Directive on the Safety of Toys, specific limit value for formaldehyde in textile content of toys used for children up to 36 months.

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3.3 XRF – metal parts

Sample Number	Article	Cd, Ni, Pb, Br [mg/kg]
M 3487 FT – 32.4	Electric circuitry of pink LED-childrens shoe	**Br 3900**, all others < LOQ,
M 3487 FT – 33.3	Metal bra clasps of swim set mermaid	**Ni 42000**, all others < LOQ
LOQ Br, Cd, Pb		each 50
LOQ Ni		100
Requirements REACH *Pb* in jewelry products		**< 500**
Requirements REACH *Cd* in hard solders or jewelry products		**< 100**

mg/kg = milligram per kilogram LOQ = Limit of quantification
REACH = Regulation (EG) No. 1907/2006, annex XVII,
No. 63: May not be placed on the market or used in any single part of a jewelry product if the lead content (in metal) of that part is 0.05% or more by weight.
No. 23: Cadmium must not be used in concentrations of 0.01% by weight or more in hard solders or metal jewelry.

3.4 Nickel release

Sample Number	Article	Nickel release [µg/m²/week]
M 3487 FT – 33.3	Metal bra clasps of swim set mermaid	< LOQ
M 3487 FT – 44.2	Metal button with skin contact from zip-up, PU leather jacket	**0,2**
M 3487 FT – 46.2	Metal zipper from red jacket „Flirla"	< LOQ
M 3487 FT – 47.2	Metal zipper and slider from shiny golden winter jacket „Clasi"	< LOQ
M 3487 FT – 49.2	Metal eyelet with skin contact from rain coat set with reflecti-ve patches	< LOQ
LOQ		0,1
Requirements REACH		**≤ 0,5**

µg/m²/week = micrograms per square meter per week LOQ = Limit of quantification

REACH = Regulation (EG) No. 1907/2006, annex XVII, No. 27: Must not be used: In articles intended to come into direct and pro-longed contact with the skin, such as: Rivet buttons, clasps, rivets, zippers and metal parts when used in garments ,provided that the release of nickel from the parts of these articles exceeds 0,5 µg/cm²/week;

3.5 Heavy metals – total digestion

Sample Number	Article	Heavy metal [mg/kg]
M 3487 FT – 7.2	Outer sole from black combat boots	**Pb 103**
M 3487 FT – 9.1	Outer sole of sample flat summer sandals	**Cd 2,4, Pb 156**
M 3487 FT – 50.3	Insole grey from leopard-print sandals	Cd 24, **Pb 2670**
LOQ Cd		0,2
LOQ Pb		0,5
Requirements REACH *Cd* in polymers		**< 100**
Requirements REACH *Pb* in polymers (PVC)		**< 1000**

mg/kg = milligram per kilogram LOQ = Limit of quantification
REACH = Regulation (EG) No. 1907/2006, annex XVII No. 23: Mixtures and articles made from plastics, may not be placed on the market if their cadmium (Cd metal) content is 0.01% or more by weight of the plastic.
REACH = Regulation (EG) No. 1907/2006, annex XVII No. 63: Must not be placed on the market or used in products made from polymers or copolymers of vinyl chloride ("PVC") if the lead concentration is 0.1% by weight or more of the PVC material.

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3.6 XRF - plastics and coated material

Sample Number	Article	Pb, Cd [mg/kg]
M 3487 FT – 1.1	Zirconia-studded „flower" decor from slipper jeans-style	each < LOQ
M 3487 FT – 1.3	Outer sole from slipper jeans-style	each < LOQ
M 3487 FT – 2.2	Outer sole in black and yellow colour from snow boot	each < LOQ
M 3487 FT – 3.1	Outer and insole from pink childrens garden shoes	each < LOQ
M 3487 FT – 4.1	Base material from black „bubble Form Clogs"	each < LOQ
M 3487 FT – 5.2	Outer sole from black sandals with criss cross sliders	each < LOQ
M 3487 FT – 6.1	Upper and outer sole from glittering black wellies	each < LOQ
M 3487 FT – 7.2	Outer sole from black combat boots	Cd < LOQ, **Pb 100**
M 3487 FT – 7.3	Badge applied to shoe tongue from black combat boots	each < LOQ
M 3487 FT – 10.1	Outer sole from low-rise snow boots	each < LOQ
M 3487 FT – 11.1	Outer sole from white sneakers	each < LOQ, Br 180
M 3487 FT – 12.1	Outer sole from sports/ running shoes	each < LOQ
M 3487 FT – 23.1	Silver sequins from sequinned cocktail dress	each < LOQ, Sb 190
M 3487 FT – 32.2	Shoe quarter and eyestay area rubber components from pink LED-childrens shoe	each < LOQ
M 3487 FT – 32.3	White plastic on/off switch from pink LED-childrens shoe	each < LOQ
M 3487 FT – 32.5	Outer sole of from pink LED-childrens shoe	each < LOQ
M 3487 FT – 34.1	Base material from unicorn childrens wellies	each < LOQ
M 3487 FT – 34.3	Rubberized applied shape "rainbow" from unicorn childrens wellies	each < LOQ
M 3487 FT – 36.1	Outer sole from black and white high-heel shoes	**Cd 120**, Pb < LOQ
M 3487 FT – 37.3	Outer sole from childrens snow boots	each < LOQ
M 3487 FT – 39.3	Printed areas blue-yellow and gray-pink from „unicorn" rain coat	each < LOQ
M 3487 FT – 42.2	Composite sample from plastic pocket and coat zippers and plastic drawstring-locks from outdoor windbreaker and rain jacket combo	each < LOQ
M 3487 FT – 50.3	Cross-section of insole and outer sole from leopard-print sandals	**Pb 2790**, Cd < LOQ
M 3487 FT – 53.1	Base material from childrens 3D duck yellow wellies	each < LOQ
M 3487 FT – 53.2	Rubberised shapes "duck and wing" applied to sample from childrens 3D duck yellow wellies	each < LOQ
LOQ Br, Cd, Sb, Pb		each 50
Requirements REACH *Cd* in polymers		**< 100**
Requirements REACH *Pb* in polymers (PVC)		**< 1000**

mg/kg = milligram per kilogram LOQ = Limit of quantification
REACH = Regulation (EG) No. 1907/2006, annex XVII,
No. 23: Mixtures and articles made from plastics, may not be placed on the market if their cadmium (Cd metal) content is 0.01% or more by weight of the plastic.
REACH = Regulation (EG) No. 1907/2006, annex XVII No. 63: Must not be placed on the market or used in products made from polymers or copolymers of vinyl chloride ("PVC") if the lead concentration is 0.1% by weight or more of the PVC material.

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3.7 Heavy metals - extractable

Sample Number	Article	As, Cd, Cr, Pb, Sb [mg/kg]
M 3487 FT – 2.3	Fur-like inner lining from snow boot	Sb 1,3 all others <LOQ
M 3487 FT – 13.2	Printed areas, light yellow/ yellow/ orange colour portion of sample black t-shirt with print	Sb 2,3 all others <LOQ
M 3487 FT – 15	Metallic-look short-sleeve shirt	Sb 8,3 all others <LOQ
M 3487 FT – 16.1	Compound sample of fabrics in green/ black/ red colour from mens christmas shirt	**Sb 27** all others <LOQ
M 3487 FT – 17	Glittering buttoned shirt	Sb 1,9 all others <LOQ
M 3487 FT – 19.1	Printed areas, yellow/ pink/ black coloured fabric sections of sample graffiti printed shirt	Sb 8,2 all others <LOQ
M 3487 FT – 20.1	Base fabric material of sample silver jacket	Sb 1,5 all others <LOQ
M 3487 FT – 21.1	Printed areas of sample „Santa Claus" t-shirt	Sb 1,2 all others <LOQ
M 3487 FT – 22.3	Base fabric sans sequins of sample leopard-print party dress	Sb 0,7 all others <LOQ
M 3487 FT – 24.1	Base fabric of sample Hawaiian A-line style skirt	Sb 0,6 all others <LOQ
M 3487 FT – 25.1	Base fabric, composite sample of sample set golden (shirt and pants)	Sb 2,2 all others <LOQ
M 3487 FT – 26.1	Composite sample of base fabric and petticoat of sample sequinned jumpsuit green	**Sb 53** all others <LOQ
M 3487 FT – 29.2	Silver print on skirt of sample princess dress „Frozen"	Sb 0,5 all others <LOQ
M 3487 FT – 30.2	Light blue/ dark blue sections of printed areas of sample t-shirt with dinosaur	Sb 16 all others <LOQ
M 3487 FT – 31.1	Base fabric of sample „Spiderman" jumpsuit	Sb 0,8 all others <LOQ
M 3487 FT – 35.2	Printed areas of top, yellow/ blue/ pink „star" motifs of sample childrens „unicorn" pyjama set	**Sb 24** all others <LOQ
M 3487 FT – 38.1	Printed areas of sample hooded raincoat „Unicorn"	Sb 1,5 all others <LOQ
M 3487 FT – 47.1	Outer material of sample shiny golden winter jacket	Sb 1,9 all others <LOQ
M 3487 FT – 48.1	Base fabric of sample hiking jacket	each <LOQ
M 3487 FT – 49.3	Base fabric with reinforced seams of sample raincoat set with reflective patches	**Cd 0,12** all others < LOQ
M 3487 FT – 50.1	Leopard-print shoe upper of sample leopard-print sandals	Sb 0,4 all others <LOQ
M 3487 FT – 51.1	Printed areas of sample chiffon blouse	Sb 5,0 all others <LOQ
M 3487 FT – 52.1	Base fabric of sample red t-shirt	each <LOQ
M 3487 FT – 54.1	Printed areas yellow-black on shorts of sample set (shirt and short) with „penguin" design	**Sb 55** all others <LOQ
M 3487 FT – 55.2	Printed areas with „tortoise flipper" motif of sample t-shirt with „tortoise" design	Sb 0,1 all others <LOQ
M 3487 FT – 56.2	Printed areas, yellow/ green/ orange colour sections of sample leggings with colorful pattern print	**Sb 22** all others <LOQ

Sample Number	Article	As, Cd, Cr, Pb, Sb [mg/kg]
M 3487 FT – 57.2	Printed areas with "penguin" and "fox"motifs of sample childrens pullover with animal pattern	each <LOQ
LOQ As, Pb, Sb		***0,1***
LOQ Cd		***0,05***
LOQ Cr		***0,5***
Requirements REACH *Cd, Cr VI, As, Pb* for clothing, accessories and footwear		**each < 1**

mg/kg = milligram per kilogram LOQ = Limit of quantification
REACH = Regulation (EG) No. 1907/2006, annex XVII, no. 72 for textiles, accessories and shoes

3.8 Brominated flame retardants: PBB and PBDE

Sample Number	Article	PBB, PBDE [mg/kg]
M 3487 FT – 32.6	Electric circuitry of pink LED-childrens shoe	PBB: < RL PBDE: < RL
RL		50
Requirements ROHS PBB		**Σ< 1000**
Requirements ROHS PBDE		**Σ< 1000**

mg/kg = milligram per kilogram RL = Reporting Limit
ROHS = European Directive 2011/65/EU with its amendments (EU)2015/863
Tested individual parameters:
PBB: 2-Bromobiphenyl, 3-Bromobiphenyl, 4-Bromobiphenyl, 2,2'-Dibromobiphenyl, 2,4-Dibromobiphenyl, 2,5-Dibromobiphenyl, 2,6-Dibromobiphenyl, 4,4'- Dibromobiphenyl,2,2',5-Tribromobiphenyl, 2,3',5-Tribromobiphenyl, 2,4,5-Tribromobiphenyl, 2,4,6-Tribromobiphenyl, 2,4',5-Tribromobiphenyl, 3,4,5-Tribromobiphenyl, 2,2',4,5'-Tetrabromobiphenyl, 2,2',5,5'-Tetrabromobiphenyl, 2,2',5,6'-Tetrabromobiphenyl, 3,3',5,5'-Tetrabromobiphenyl, 2,2',4,5,5'-Pentabromobiphenyl, 2,2',4,5',6- Pentabromobiphenyl, 2,2',4,4',5,5'-Hexabromobiphenyl, 2,2',4,4',6,6'-Hexabromobiphenyl, 3,3',4,4',5,5'-Hexabromobiphenyl, Decabromobiphenyl,
PBDE: 4-Bromodiphenyl ether, 4,4'-Dibromodiphenyl ether, 2,4,4'-Tribromodiphenyl ether, 2,2',4,4'-Tetrabromodiphenyl ether, 2,2',3,4,4'-Pentabromodiphenyl ether, 2,2',4,4',5-Pentabromodiphenyl ether, 2,2',4,4',6-Pentabromodiphenyl ether, 2,2',4,4',5,5'-Hexabromodiphenyl ether, 2,2',3,4,4',5',6- Heptabromodiphenyl ether, 2,2',3,3',4,4',5,6'-Octabromodiphenyl ether, 2,2',3,3',4,4',6,6'-Octabromodiphenyl ether, 2,2',3,4,4',5,5',6- Octabromodiphenyl ether, 2,2',3,3',4,4',5,5',6-Nonabromodiphenyl ether, 2,2',3,3',4,4',5,6,6'-Nonabromodiphenyl ether, 2,2',3,3',4,5,5',6,6'- Nonabromodiphenyl ether, Decabromodiphenyl ether

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3.9 PFAS - per- and polyfluoroalkyl substances

Parameter	CAS-No.	M 3487 FT-10.2 Shoe upper from low-rise snow boots [mg/kg]	M 3487 FT-11.2 Shoe upper from white sneakers [mg/kg]	RL [mg/kg]	Restriction EU [mg/kg]
Perfluorinated carboxylic acids					
C4-C5-Carboxylic acids					
Perfluorobutanoic acid (PFBA)	375-22-4	< RL	< RL	0,010	-
Perfluoropentanoic acid (PFPA)	2706-90-3	< RL	< RL	0,010	-
Compounds related to C4-C5 carboxylic acids					
4:2 fluorotelomer alcohol (4:2 FTOH)	2043-47-2	< RL	< RL	0,10	-
C6: PFHxA					
Perfluorohexanoic acid (PFHxA)	307-24-4	< RL	< RL	0,010	$\Sigma \leq 0{,}025^{R1}$
C6: Compounds related to PFHxA					
6:2 fluorotelomer alcohol (6:2 FTOH)	647-42-7	< RL	< RL	0,10	$\Sigma < 1^{R1}$
6:2 fluorotelomer sulfonic acid (6:2-FTS)	27619-97-2	< RL	< RL	0,010	
C7: Carboxylic acids					
7H-Perfluoroheptanoic acid (7HPFHpA)	1446-95-8	< RL	< RL	0,010	-
Perfluoroheptanoic acid (PFHpA)	375-85-9	< RL	< RL	0,010	$< 1000^{S}$
C8: Carboxylic acids					
Perfluorooctanic acid (PFOA)	335-67-1	< RL	< RL	0,010	$\Sigma \leq 0{,}025^{P}$
C8: Compounds related to PFOA					
8:2 fluorotelomer alcohol (8:2 FTOH)	678-39-7	< RL	< RL	0,10	$\Sigma \leq 1^{P}$
8:2 fluorotelomer sulfonic acid (8:2-FTS)	39108-34-4	< RL	< RL	0,010	
C9-C14-Carboxylic acids					
Perfluorononanoic acid (PFNA)	375-95-1	< RL	< RL	0,010	
Perfluorodecanoic acid (PFDA)	335-76-2	< RL	< RL	0,015	
Perfluoroundecanoic acid (PFUnA)	2058-94-8	< RL	< RL	0,015	
Perfluorododecanoic acid (PFDoA)	307-55-1	< RL	< RL	0,015	$\Sigma < 0{,}025^{R2}$
Perfluorotridecanoic acid (PFTrA)	72629-94-8	< RL	< RL	0,015	
Perfluorotetradecanoic acid (PFTeA)	376-06-7	< RL	< RL	0,015	
Perfuoro(3,7dimethyloctanoic acid), (PF-3,7-DMOA)	172155-07-6	< RL	< RL	0,010	
Compounds related to C9-C14 carboxylic acids					
2H,2H,3H,3H-Heptadecafluoro-undecanoic acid (4HPFUnA)	34598-33-9	< RL	< RL	0,010	
8:2 fluorotelomer alcohol (8:2 FTOH)	678-39-7	< RL	< RL	0,10	
10:2 Fluorotelomer alcohol (10:2 FTOH)	865-86-1	< RL	< RL	0,10	$\Sigma < 0{,}260^{R2}$
10:2 fluorotelomer sulfonic acid (10:2-FTS)	120226-60-0	< RL	< RL	0,010	
Further carboxylic acids					
2,3,3,3-Tetrafluoro-2-(heptafluoropro-poxy)propionic acid (HPFO-DA)	13252-13-6	< RL	< RL	0,010	$< 1000^{S}$

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Parameter	CAS-No.	M 3487 FT-10.2 Shoe upper from low-rise snow boots [mg/kg]	M 3487 FT-11.2 Shoe upper from white sneakers [mg/kg]	RL [mg/kg]	Restriction EU [mg/kg]
Perfluorinated sulfonic acids (PFSA)					
C6: Perfluorinated sulfonic acids					
Perfluorohexane sulphonic acid (PFHxS)	355-46-4	< RL	< RL	0,010	$\Sigma \leq 0{,}025^{P}$
C8: Perfluorooctane sulphonic acid and derivatives					
Perfluorooctane sulphonic acid (PFOS)	1763-23-1	< RL	< RL	0,010	
Perfluoroctansulfonamid (PFOSA)	754-91-6	< RL	< RL	0,010	
N-Methylperfluor-1-octansulfonamid (N-MeFOSA)	31506-32-8	< RL	< RL	0,010	
N-Ethylperfluor-1-octansulfonamid (N-EtFOSA)	4151-50-2	< RL	< RL	0,010	$\Sigma < 1000^{P}$ ($\Sigma < 1\ \mu g/m^{2)P}$
2-(N-methylperfluoro-1-octanesulfonamide)-ethanol (N-MeFOSE)	24448-09-7	< RL	< RL	0,010	
2-(N-ethylperfluoro-1-octanesulfonamide)-ethanol (N-EtFOSE)	1691-99-2	< RL	< RL	0,010	
Further perfluorinated sulfonic acids					
Perfluorobutane sulphonic acid (PFBS)	375-73-5	< RL	< RL	0,010	$< 1000^{S}$
Perfluoropentane sulphonic acid (PFPS)	2706-91-4	< RL	< RL	0,010	-
Perfluoroheptane sulphonic acid (PFHpS)	375-92-8	< RL	< RL	0,010	-
Perfluorononane sulphonic acid (PFNS)	68259-12-1	< RL	< RL	0,010	-
Perfluorodecane sulphonic acid (PFDS)	335-77-3	< RL	< RL	0,010	-
Perfluorododecane sulphonic acid (PFDoS)	79780-39-5	< RL	< RL	0,010	-
4:2 fluorotelomer sulfonic acid (4:2-FTS)	757124-72-4	< RL	< RL	0,010	-

mg/kg = milligram per kilogram RL = reporting limit

[3] calculated in $\mu g/m^2$, area-related

R1 = REACH = Regulation (EC) No. 1907/2006, Annex XVII, No. 79: Undecafluorohexanoic acid (PFHxA), its salts, and PFHxA-related substances, may no longer be used in products or placed on the **market from October 10, 2026**. The concentration limit for the sum of PFHxA and its salts is 0.025 mg/kg, and for related compounds as a whole 1 mg/kg.

R2 = REACH = Regulation (EC) No. 1907/2006, Annex XVII, No. 68: Linear and branched perfluorinated carboxylic acids, including their salts (C9-C14 PFCA) and related compounds, may no longer be used in products or placed on the market from February 25, 2023. The concentration limit for the sum of C9-C14 PFCA is 0.025 mg/kg, and for related compounds as a whole 0.26 mg/kg.

P =POP = Regulation (EU) 2019/1021 on persistent organic pollutants

S=SVHC = Regulation (EC) No. 1907/2006, Article 59, EU Candidate List of Substances of Very High Concern

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Parameter	CAS-No.	M 3487 FT-38.1 Printed areas of sample Unicorn rain coat [mg/kg]	M 3487 FT-41.1 Base fabric of sample soft shell jacket [mg/kg]	RL [mg/kg]	Restriction EU [mg/kg]
Perfluorinated carboxylic acids					
C4-C5-Carboxylic acids					
Perfluorobutanoic acid (PFBA)	375-22-4	< RL	< RL	0,010	-
Perfluoropentanoic acid (PFPA)	2706-90-3	< RL	< RL	0,010	-
Compounds related to C4-C5 carboxylic acids					
4:2 fluorotelomer alcohol (4:2 FTOH)	2043-47-2	< RL	< RL	0,10	-
C6: PFHxA					
Perfluorohexanoic acid (PFHxA)	307-24-4	< RL	< RL	0,010	$\Sigma \leq 0{,}025^{R1}$
C6: Compounds related to PFHxA					
6:2 fluorotelomer alcohol (6:2 FTOH)	647-42-7	< RL	**0,68**	0,10	$\Sigma < 1^{R1}$
6:2 fluorotelomer sulfonic acid (6:2-FTS)	27619-97-2	< RL	< RL	0,010	
C7: Carboxylic acids					
7H-Perfluoroheptanoic acid (7HPFHpA)	1446-95-8	< RL	< RL	0,010	-
Perfluoroheptanoic acid (PFHpA)	375-85-9	< RL	< RL	0,010	$< 1000^{S}$
C8: Carboxylic acids					
Perfluorooctanic acid (PFOA)	335-67-1	< RL	< RL	0,010	$\Sigma \leq 0{,}025^{P}$
C8: Compounds related to PFOA					
8:2 fluorotelomer alcohol (8:2 FTOH)	678-39-7	**0,35**	**130**	0,10	$\Sigma \leq 1^{P}$
8:2 fluorotelomer sulfonic acid (8:2-FTS)	39108-34-4	< RL	< RL	0,010	
C9-C14-Carboxylic acids					
Perfluorononanoic acid (PFNA)	375-95-1	< RL	< RL	0,010	
Perfluorodecanoic acid (PFDA)	335-76-2	< RL	< RL	0,015	
Perfluoroundecanoic acid (PFUnA)	2058-94-8	< RL	< RL	0,015	
Perfluorododecanoic acid (PFDoA)	307-55-1	< RL	< RL	0,015	$\Sigma < 0{,}025^{R2}$
Perfluorotridecanoic acid (PFTrA)	72629-94-8	< RL	< RL	0,015	
Perfluorotetradecanoic acid (PFTeA)	376-06-7	< RL	< RL	0,015	
Perfuoro(3,7dimethyloctanoic acid), (PF-3,7-DMOA)	172155-07-6	< RL	< RL	0,010	
Compounds related to C9-C14 carboxylic acids					
2H,2H,3H,3H-Heptadecafluoro-undecanoic acid (4HPFUnA)	34598-33-9	< RL	< RL	0,010	
8:2 fluorotelomer alcohol (8:2 FTOH)	678-39-7	**0,35**	**130**	0,10	
10:2 Fluorotelomer alcohol (10:2 FTOH)	865-86-1	**0,13**	**35**	0,10	$\Sigma < 0{,}260^{R2}$
10:2 fluorotelomer sulfonic acid (10:2-FTS)	120226-60-0	< RL	< RL	0,010	
Further carboxylic acids					
2,3,3,3-Tetrafluoro-2-(heptafluoropro-poxy)propionic acid (HPFO-DA)	13252-13-6	< RL	< RL	0,010	$< 1000^{S}$

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Parameter	CAS-No.	M 3487 FT-38.1 Printed areas of sample Unicorn rain coat [mg/kg]	M 3487 FT-41.1 Base fabric of sample soft shell jacket [mg/kg]	RL [mg/kg]	Restriction EU [mg/kg]
Perfluorinated sulfonic acids (PFSA)					
C6: Perfluorinated sulfonic acids					
Perfluorohexane sulphonic acid (PFHxS)	355-46-4	< RL	< RL	0,010	$\Sigma \leq 0{,}025^{P}$
C8: Perfluorooctane sulphonic acid and derivatives					
Perfluorooctane sulphonic acid (PFOS)	1763-23-1	< RL	< RL	0,010	
Perfluoroctansulfonamid (PFOSA)	754-91-6	< RL	< RL	0,010	
N-Methylperfluor-1-octansulfonamid (N-MeFOSA)	31506-32-8	< RL	< RL	0,010	
N-Ethylperfluor-1-octansulfonamid (N-EtFOSA)	4151-50-2	< RL	< RL	0,010	$\Sigma < 1000^{P}$ ($\Sigma < 1\ \mu g/m^{2)P}$
2-(N-methylperfluoro-1-octanesulfonamide)-ethanol (N-MeFOSE)	24448-09-7	< RL	< RL	0,010	
2-(N-ethylperfluoro-1-octanesulfonamide)-ethanol (N-EtFOSE)	1691-99-2	< RL	< RL	0,010	
Further perfluorinated sulfonic acids					
Perfluorobutane sulphonic acid (PFBS)	375-73-5	< RL	< RL	0,010	$< 1000^{S}$
Perfluoropentane sulphonic acid (PFPS)	2706-91-4	< RL	< RL	0,010	-
Perfluoroheptane sulphonic acid (PFHpS)	375-92-8	< RL	< RL	0,010	-
Perfluorononane sulphonic acid (PFNS)	68259-12-1	< RL	< RL	0,010	-
Perfluorodecane sulphonic acid (PFDS)	335-77-3	< RL	< RL	0,010	-
Perfluorododecane sulphonic acid (PFDoS)	79780-39-5	< RL	< RL	0,010	-
4:2 fluorotelomer sulfonic acid (4:2-FTS)	757124-72-4	< RL	< RL	0,010	-

mg/kg = milligram per kilogram RL = reporting limit

[3] calculated in $\mu g/m^2$, area-related

R1 = REACH = Regulation (EC) No. 1907/2006, Annex XVII, No. 79: Undecafluorohexanoic acid (PFHxA), its salts, and PFHxA-related substances, may no longer be used in products or placed on the market **from October 10, 2026**. The concentration limit for the sum of PFHxA and its salts is 0.025 mg/kg, and for related compounds as a whole 1 mg/kg.

R2 = REACH = Regulation (EC) No. 1907/2006, Annex XVII, No. 68: Linear and branched perfluorinated carboxylic acids, including their salts (C9-C14 PFCA) and related compounds, may no longer be used in products or placed on the market from February 25, 2023. The concentration limit for the sum of C9-C14 PFCA is 0.025 mg/kg, and for related compounds as a whole 0.26 mg/kg.

P =POP = Regulation (EU) 2019/1021 on persistent organic pollutants

S=SVHC = Regulation (EC) No. 1907/2006, Article 59, EU Candidate List of Substances of Very High Concern

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Parameter	CAS-No.	M 3487 FT-42.1 Base fabric of sample red out-door jacket [mg/kg]	M 3487 FT-43.1 Outer material of sample rain coat with zip up hoodie [mg/kg]	RL [mg/kg]	Restriction EU [mg/kg]
Perfluorinated carboxylic acids					
C4-C5-Carboxylic acids					
Perfluorobutanoic acid (PFBA)	375-22-4	< RL	< RL	0,010	-
Perfluoropentanoic acid (PFPA)	2706-90-3	< RL	< RL	0,010	-
Compounds related to C4-C5 carboxylic acids					
4:2 fluorotelomer alcohol (4:2 FTOH)	2043-47-2	< RL	< RL	0,10	-
C6: PFHxA					
Perfluorohexanoic acid (PFHxA)	307-24-4	< RL	< RL	0,010	$\Sigma \leq 0{,}025^{R1}$
C6: Compounds related to PFHxA					
6:2 fluorotelomer alcohol (6:2 FTOH)	647-42-7	**0,74**	**7,63**	0,10	$\Sigma < 1^{R1}$
6:2 fluorotelomer sulfonic acid (6:2-FTS)	27619-97-2	< RL	< RL	0,010	
C7: Carboxylic acids					
7H-Perfluoroheptanoic acid (7HPFHpA)	1446-95-8	< RL	< RL	0,010	-
Perfluoroheptanoic acid (PFHpA)	375-85-9	< RL	< RL	0,010	$< 1000^{S}$
C8: Carboxylic acids					
Perfluorooctanic acid (PFOA)	335-67-1	< RL	**0,010**	0,010	$\Sigma \leq 0{,}025^{P}$
C8: Compounds related to PFOA					
8:2 fluorotelomer alcohol (8:2 FTOH)	678-39-7	**100**	**650**	0,10	$\Sigma \leq 1^{P}$
8:2 fluorotelomer sulfonic acid (8:2-FTS)	39108-34-4	< RL	< RL	0,010	
C9-C14-Carboxylic acids					
Perfluorononanoic acid (PFNA)	375-95-1	< RL	< RL	0,010	
Perfluorodecanoic acid (PFDA)	335-76-2	< RL	< RL	0,015	
Perfluoroundecanoic acid (PFUnA)	2058-94-8	< RL	< RL	0,015	
Perfluorododecanoic acid (PFDoA)	307-55-1	< RL	< RL	0,015	$\Sigma < 0{,}025^{R2}$
Perfluorotridecanoic acid (PFTrA)	72629-94-8	< RL	< RL	0,015	
Perfluorotetradecanoic acid (PFTeA)	376-06-7	< RL	< RL	0,015	
Perfuoro(3,7dimethyloctanoic acid), (PF-3,7-DMOA)	172155-07-6	< RL	< RL	0,010	
Compounds related to C9-C14 carboxylic acids					
2H,2H,3H,3H-Heptadecafluoro-undecanoic acid (4HPFUnA)	34598-33-9	< RL	< RL	0,010	
8:2 fluorotelomer alcohol (8:2 FTOH)	678-39-7	**100**	**650**	0,10	
10:2 Fluorotelomer alcohol (10:2 FTOH)	865-86-1	**34**	**200**	0,10	$\Sigma < 0{,}260^{R2}$
10:2 fluorotelomer sulfonic acid (10:2-FTS)	120226-60-0	< RL	< RL	0,010	
Further carboxylic acids					
2,3,3,3-Tetrafluoro-2-(heptafluoropro-poxy)propionic acid (HPFO-DA)	13252-13-6	< RL	< RL	0,010	$< 1000^{S}$

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Parameter	CAS-No.	M 3487 FT-42.1 Base fabric of sample red out-door jacket [mg/kg]	M 3487 FT-43.1 Outer material of sample rain coat with zip up hoodie [mg/kg]	RL [mg/kg]	Restriction EU [mg/kg]
Perfluorinated sulfonic acids (PFSA)					
C6: Perfluorinated sulfonic acids					
Perfluorohexane sulphonic acid (PFHxS)	355-46-4	< RL	< RL	0,010	$\Sigma \leq 0{,}025^{P}$
C8: Perfluorooctane sulphonic acid and derivatives					
Perfluorooctane sulphonic acid (PFOS)	1763-23-1	< RL	< RL	0,010	
Perfluoroctansulfonamid (PFOSA)	754-91-6	< RL	< RL	0,010	
N-Methylperfluor-1-octansulfonamid (N-MeFOSA)	31506-32-8	< RL	< RL	0,010	
N-Ethylperfluor-1-octansulfonamid (N-EtFOSA)	4151-50-2	< RL	< RL	0,010	$\Sigma < 1000^{P}$ ($\Sigma < 1$ µg/m$^{2)P}$
2-(N-methylperfluoro-1-octanesulfonamide)-ethanol (N-MeFOSE)	24448-09-7	< RL	< RL	0,010	
2-(N-ethylperfluoro-1-octanesulfonamide)-ethanol (N-EtFOSE)	1691-99-2	< RL	< RL	0,010	
Further perfluorinated sulfonic acids					
Perfluorobutane sulphonic acid (PFBS)	375-73-5	< RL	< RL	0,010	$< 1000^{S}$
Perfluoropentane sulphonic acid (PFPS)	2706-91-4	< RL	< RL	0,010	-
Perfluoroheptane sulphonic acid (PFHpS)	375-92-8	< RL	< RL	0,010	-
Perfluorononane sulphonic acid (PFNS)	68259-12-1	< RL	< RL	0,010	-
Perfluorodecane sulphonic acid (PFDS)	335-77-3	< RL	< RL	0,010	-
Perfluorododecane sulphonic acid (PFDoS)	79780-39-5	< RL	< RL	0,010	-
4:2 fluorotelomer sulfonic acid (4:2-FTS)	757124-72-4	< RL	< RL	0,010	-

mg/kg = milligram per kilogram RL = reporting limit
[3] calculated in µg/m², area-related
R1 = REACH = Regulation (EC) No. 1907/2006, Annex XVII, No. 79: Undecafluorohexanoic acid (PFHxA), its salts, and PFHxA-related substances, may no longer be used in products or placed on the **market from October 10, 2026**. The concentration limit for the sum of PFHxA and its salts is 0.025 mg/kg, and for related compounds as a whole 1 mg/kg.
R2 = REACH = Regulation (EC) No. 1907/2006, Annex XVII, No. 68: Linear and branched perfluorinated carboxylic acids, including their salts (C9-C14 PFCA) and related compounds, may no longer be used in products or placed on the market from February 25, 2023. The concentration limit for the sum of C9-C14 PFCA is 0.025 mg/kg, and for related compounds as a whole 0.26 mg/kg.
P =POP = Regulation (EU) 2019/1021 on persistent organic pollutants
S=SVHC = Regulation (EC) No. 1907/2006, Article 59, EU Candidate List of Substances of Very High Concern

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Parameter	CAS-No.	M 3487 FT-47.1 Outer material of sample shiny golden winter jacket [mg/kg]	M 3487 FT-48.1 Base fabric of sample hiking jacket [mg/kg]	RL [mg/kg]	Restriction EU [mg/kg]
Perfluorinated carboxylic acids					
C4-C5-Carboxylic acids					
Perfluorobutanoic acid (PFBA)	375-22-4	< RL	< RL	0,010	-
Perfluoropentanoic acid (PFPA)	2706-90-3	< RL	< RL	0,010	-
Compounds related to C4-C5 carboxylic acids					
4:2 fluorotelomer alcohol (4:2 FTOH)	2043-47-2	< RL	**0,92**	0,10	-
C6: PFHxA					
Perfluorohexanoic acid (PFHxA)	307-24-4	< RL	< RL	0,010	$\Sigma \leq 0{,}025^{R1}$
C6: Compounds related to PFHxA					
6:2 fluorotelomer alcohol (6:2 FTOH)	647-42-7	< RL	**140**	0,10	$\Sigma < 1^{R1}$
6:2 fluorotelomer sulfonic acid (6:2-FTS)	27619-97-2	< RL	< RL	0,010	
C7: Carboxylic acids					
7H-Perfluoroheptanoic acid (7HPFHpA)	1446-95-8	< RL	< RL	0,010	-
Perfluoroheptanoic acid (PFHpA)	375-85-9	< RL	< RL	0,010	$< 1000^{S}$
C8: Carboxylic acids					
Perfluorooctanic acid (PFOA)	335-67-1	< RL	< RL	0,010	$\Sigma \leq 0{,}025^{P}$
C8: Compounds related to PFOA					
8:2 fluorotelomer alcohol (8:2 FTOH)	678-39-7	**0,32**	**0,84**	0,10	$\Sigma \leq 1^{P}$
8:2 fluorotelomer sulfonic acid (8:2-FTS)	39108-34-4	< RL	< RL	0,010	
C9-C14-Carboxylic acids					
Perfluorononanoic acid (PFNA)	375-95-1	< RL	< RL	0,010	
Perfluorodecanoic acid (PFDA)	335-76-2	< RL	< RL	0,015	
Perfluoroundecanoic acid (PFUnA)	2058-94-8	< RL	< RL	0,015	
Perfluorododecanoic acid (PFDoA)	307-55-1	< RL	< RL	0,015	$\Sigma < 0{,}025^{R2}$
Perfluorotridecanoic acid (PFTrA)	72629-94-8	< RL	< RL	0,015	
Perfluorotetradecanoic acid (PFTeA)	376-06-7	< RL	< RL	0,015	
Perfuoro(3,7dimethyloctanoic acid), (PF-3,7-DMOA)	172155-07-6	< RL	< RL	0,010	
Compounds related to C9-C14 carboxylic acids					
2H,2H,3H,3H-Heptadecafluoro-undecanoic acid (4HPFUnA)	34598-33-9	< RL	< RL	0,010	
8:2 fluorotelomer alcohol (8:2 FTOH)	678-39-7	**0,32**	**0,84**	0,10	
10:2 Fluorotelomer alcohol (10:2 FTOH)	865-86-1	**0,14**	**0,16**	0,10	$\Sigma < 0{,}260^{R2}$
10:2 fluorotelomer sulfonic acid (10:2-FTS)	120226-60-0	< RL	< RL	0,010	
Further carboxylic acids					
2,3,3,3-Tetrafluoro-2-(heptafluoropro-poxy)propionic acid (HPFO-DA)	13252-13-6	< RL	< RL	0,010	$< 1000^{S}$

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Parameter	CAS-No.	M 3487 FT-47.1 Outer material of sample shiny golden winter jacket [mg/kg]	M 3487 FT-48.1 Base fabric of sample hiking jacket [mg/kg]	RL [mg/kg]	Restriction EU [mg/kg]
Perfluorinated sulfonic acids (PFSA)					
C6: Perfluorinated sulfonic acids					
Perfluorohexane sulphonic acid (PFHxS)	355-46-4	< RL	< RL	0,010	$\Sigma \leq 0{,}025^{P}$
C8: Perfluorooctane sulphonic acid and derivatives					
Perfluorooctane sulphonic acid (PFOS)	1763-23-1	< RL	< RL	0,010	
Perfluoroctansulfonamid (PFOSA)	754-91-6	< RL	< RL	0,010	
N-Methylperfluor-1-octansulfonamid (N-MeFOSA)	31506-32-8	< RL	< RL	0,010	
N-Ethylperfluor-1-octansulfonamid (N-EtFOSA)	4151-50-2	< RL	< RL	0,010	$\Sigma < 1000^{P}$ ($\Sigma < 1$ µg/m$^{2)P}$
2-(N-methylperfluoro-1-octanesulfonamide)-ethanol (N-MeFOSE)	24448-09-7	< RL	< RL	0,010	
2-(N-ethylperfluoro-1-octanesulfonamide)-ethanol (N-EtFOSE)	1691-99-2	< RL	< RL	0,010	
Further perfluorinated sulfonic acids					
Perfluorobutane sulphonic acid (PFBS)	375-73-5	< RL	< RL	0,010	$< 1000^{S}$
Perfluoropentane sulphonic acid (PFPS)	2706-91-4	< RL	< RL	0,010	-
Perfluoroheptane sulphonic acid (PFHpS)	375-92-8	< RL	< RL	0,010	-
Perfluorononane sulphonic acid (PFNS)	68259-12-1	< RL	< RL	0,010	-
Perfluorodecane sulphonic acid (PFDS)	335-77-3	< RL	< RL	0,010	-
Perfluorododecane sulphonic acid (PFDoS)	79780-39-5	< RL	< RL	0,010	-
4:2 fluorotelomer sulfonic acid (4:2-FTS)	757124-72-4	< RL	< RL	0,010	-

mg/kg = milligram per kilogram RL = reporting limit
[3] calculated in µg/m², area-related
R1 = REACH = Regulation (EC) No. 1907/2006, Annex XVII, No. 79: Undecafluorohexanoic acid (PFHxA), its salts, and PFHxA-related substances, may no longer be used in products or placed on the market **from October 10, 2026**. The concentration limit for the sum of PFHxA and its salts is 0.025 mg/kg, and for related compounds as a whole 1 mg/kg.
R2 = REACH = Regulation (EC) No. 1907/2006, Annex XVII, No. 68: Linear and branched perfluorinated carboxylic acids, including their salts (C9-C14 PFCA) and related compounds, may no longer be used in products or placed on the market from February 25, 2023. The concentration limit for the sum of C9-C14 PFCA is 0.025 mg/kg, and for related compounds as a whole 0.26 mg/kg.
P =POP = Regulation (EU) 2019/1021 on persistent organic pollutants
S=SVHC = Regulation (EC) No. 1907/2006, Article 59, EU Candidate List of Substances of Very High Concern

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Parameter	CAS-No.	M 3487 FT-49.3 Base fabric with reinforced seams of sample raincoat set with reflective patches [mg/kg]	RL [mg/kg]	Restriction EU [mg/kg]
Perfluorinated carboxylic acids				
C4-C5-Carboxylic acids				
Perfluorobutanoic acid (PFBA)	375-22-4	< RL	0,010	-
Perfluoropentanoic acid (PFPA)	2706-90-3	< RL	0,010	-
Compounds related to C4-C5 carboxylic acids				
4:2 fluorotelomer alcohol (4:2 FTOH)	2043-47-2	**0,42**	0,10	-
C6: PFHxA				
Perfluorohexanoic acid (PFHxA)	307-24-4	< RL	0,010	$\Sigma \leq 0{,}025^{R1}$
C6: Compounds related to PFHxA				
6:2 fluorotelomer alcohol (6:2 FTOH)	647-42-7	**0,59**	0,10	$\Sigma < 1^{R1}$
6:2 fluorotelomer sulfonic acid (6:2-FTS)	27619-97-2	< RL	0,010	
C7: Carboxylic acids				
7H-Perfluoroheptanoic acid (7HPFHpA)	1446-95-8	< RL	0,010	-
Perfluoroheptanoic acid (PFHpA)	375-85-9	< RL	0,010	$< 1000^{S}$
C8: Carboxylic acids				
Perfluorooctanic acid (PFOA)	335-67-1	< RL	0,010	$\Sigma \leq 0{,}025^{P}$
C8: Compounds related to PFOA				
8:2 fluorotelomer alcohol (8:2 FTOH)	678-39-7	**130**	0,10	$\Sigma \leq 1^{P}$
8:2 fluorotelomer sulfonic acid (8:2-FTS)	39108-34-4	< RL	0,010	
C9-C14-Carboxylic acids				
Perfluorononanoic acid (PFNA)	375-95-1	< RL	0,010	
Perfluorodecanoic acid (PFDA)	335-76-2	< RL	0,015	
Perfluoroundecanoic acid (PFUnA)	2058-94-8	< RL	0,015	
Perfluorododecanoic acid (PFDoA)	307-55-1	< RL	0,015	$\Sigma < 0{,}025^{R2}$
Perfluorotridecanoic acid (PFTrA)	72629-94-8	< RL	0,015	
Perfluorotetradecanoic acid (PFTeA)	376-06-7	< RL	0,015	
Perfuoro(3,7dimethyloctanoic acid), (PF-3,7-DMOA)	172155-07-6	< RL	0,010	
Compounds related to C9-C14 carboxylic acids				
2H,2H,3H,3H-Heptadecafluoro-undecanoic acid (4HPFUnA)	34598-33-9	< RL	0,010	
8:2 fluorotelomer alcohol (8:2 FTOH)	678-39-7	**130**	0,10	
10:2 Fluorotelomer alcohol (10:2 FTOH)	865-86-1	**46**	0,10	$\Sigma < 0{,}260^{R2}$
10:2 fluorotelomer sulfonic acid (10:2-FTS)	120226-60-0	< RL	0,010	
Further carboxylic acids				
2,3,3,3-Tetrafluoro-2-(heptafluoropro-poxy)propionic acid (HPFO-DA)	13252-13-6	< RL	0,010	$< 1000^{S}$

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Parameter	CAS-No.	M 3487 FT-49.3 Base fabric with reinforced seams of sample raincoat set with reflective patches [mg/kg]	RL [mg/kg]	Restriction EU [mg/kg]
Perfluorinated sulfonic acids (PFSA)				
C6: Perfluorinated sulfonic acids				
Perfluorohexane sulphonic acid (PFHxS)	355-46-4	< RL	0,010	$\Sigma \leq 0{,}025^{P}$
C8: Perfluorooctane sulphonic acid and derivatives				
Perfluorooctane sulphonic acid (PFOS)	1763-23-1	< RL	0,010	
Perfluoroctansulfonamid (PFOSA)	754-91-6	< RL	0,010	
N-Methylperfluor-1-octansulfonamid (N-MeFOSA)	31506-32-8	< RL	0,010	
N-Ethylperfluor-1-octansulfonamid (N-EtFOSA)	4151-50-2	< RL	0,010	$\Sigma < 1000^{P}$ ($\Sigma < 1\ \mu g/m^{2)P}$
2-(N-methylperfluoro-1-octanesulfonamide)-ethanol (N-MeFOSE)	24448-09-7	< RL	0,010	
2-(N-ethylperfluoro-1-octanesulfonamide)-ethanol (N-EtFOSE)	1691-99-2	< RL	0,010	
Further perfluorinated sulfonic acids				
Perfluorobutane sulphonic acid (PFBS)	375-73-5	< RL	0,010	$< 1000^{S}$
Perfluoropentane sulphonic acid (PFPS)	2706-91-4	< RL	0,010	-
Perfluoroheptane sulphonic acid (PFHpS)	375-92-8	< RL	0,010	-
Perfluorononane sulphonic acid (PFNS)	68259-12-1	< RL	0,010	-
Perfluorodecane sulphonic acid (PFDS)	335-77-3	< RL	0,010	-
Perfluorododecane sulphonic acid (PFDoS)	79780-39-5	< RL	0,010	-
4:2 fluorotelomer sulfonic acid (4:2-FTS)	757124-72-4	< RL	0,010	-

mg/kg = milligram per kilogram RL = reporting limit
[3] calculated in $\mu g/m^2$, area-related
R1 = REACH = Regulation (EC) No. 1907/2006, Annex XVII, No. 79: Undecafluorohexanoic acid (PFHxA), its salts, and PFHxA-related substances, may no longer be used in products or placed on the market **from October 10, 2026**. The concentration limit for the sum of PFHxA and its salts is 0.025 mg/kg, and for related compounds as a whole 1 mg/kg.
R2 = REACH = Regulation (EC) No. 1907/2006, Annex XVII, No. 68: Linear and branched perfluorinated carboxylic acids, including their salts (C9-C14 PFCA) and related compounds, may no longer be used in products or placed on the market from February 25, 2023. The concentration limit for the sum of C9-C14 PFCA is 0.025 mg/kg, and for related compounds as a whole 0.26 mg/kg.
P =POP = Regulation (EU) 2019/1021 on persistent organic pollutants
S=SVHC = Regulation (EC) No. 1907/2006, Article 59, EU Candidate List of Substances of Very High Concern

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3.10 Aromatic amines

Sample Number	Article	Aromatic amines[1] [mg/kg]
M 3487 FT – 2.1	Nubuck leather-like upper material of sample snow boots	*2,4-toluoylenediamine[2]: 6,* all others < RL
M 3487 FT – 14.2	Base fabric of sample black t-shirt with print	each < RL
M 3487 FT – 18.1	Blue petticoat of sample sequinned blouse	each < RL
M 3487 FT – 22.1	Black petticoat fabric of sample leopard-print party dress	*p-phenylenediamine[3],: 15* all others < RL
M 3487 FT – 23.2	Product care label, black print of sample sequinned cocktail dress	each < RL
M 3487 FT – 26.1	Composite sample of base fabric and petticoat of sequinned jumpsuit green	each < RL
M 3487 FT – 52.1	Base fabric of sample red t-shirt	*Aniline[3]: 53,* all others < RL
RL		**each 5**
Requirements REACH		**each and sum ≤ 30**

mg/kg = milligram per kilogram RL = reporting limit
REACH = Regulation (EG) No. 1907/2006, annex XVII, no. 43 for textiles and shoes
[1] individual parameters see listing below
[2]Note: 2,4-toluoylenediamine can also be formed by cleavage of polyurethane polymers based on TDI or crosslinking agents.
[3]Note: The aromatic amines aniline and p-phenylenediamine **are not subsect** to the regulations of **REACH Regulation** Annex XVII No. 43.

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Tested individual parameters:

Parameter	CAS-No.
4-Aminoazobenzene[1]	60-09-3
4-Aminobiphenyl	92-67-1
Benzidine	92-87-5
4-Chlorotoluidine	95-69-2
2-Naphthylamine	91-59-8
o-Toluidine	95-53-4
4-Chloroaniline	106-47-8
2,4-Diaminoanisole	615-05-4
4,4`-Diaminodiphenylmethane (4,4-DADPM)	101-77-9
3,3`-Dichlorobenzidine	91-94-1
3,3`-Dimethoxybenzidine	119-90-4
3,3`-Dimethylbenzidine	119-93-7
3,3`-Dimethyl-4,4`-diaminodiphenylmethane	838-88-0
p-Cresidine	120-71-8
2-Methoxyaniline	90-04-0
4,4`-Methylene-bis(2-chloroaniline)	101-14-4
4,4`-Oxydianiline	101-80-4
4,4`-Thiodianiline	139-65-1
2,4-Toluylenediamine	95-80-7
2,4,5-Trimethylaniline	137-17-7
2,4-Xylidine	95-68-1
2,6-Xylidine	87-62-7
Aniline	62-53-3
p-Phenylenediamine (p-PDA)[2], orienting, method for this compound only inadequately	106-50-3

o-aminoazotoluene [97-56-3] analytically detected as o-toluidine
2-amino-4-nitrotoluene [99-55-8] analytically detected as 2,4-toluylenediamine
[1]4-aminoazobenzene [60-09-3] analytically detected as aniline und p-phenylenediamine. In this case a test according to DIN EN ISO 14362-3:2017-05 occurs.
[2] non-accredited parameter

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3.11 VOC Screening

Sample Number	Article	VOC calibrated[1] [mg/kg]	VOC estimated by response of ethylbenzene [mg/kg]
M 3487 FT – 1.4	Insole of sample Slippers	**N,N-Dimethylformamide (DMF): 29**	4-t-Amylphenol: 31
M 3487 FT – 3.1	Composite outer and insole polymer sample of childrens garden shoes	Cyclohexanone: 23	1,4-Diacetylbenzene: 76 1,3-Bis(2-hydroxy-2-propyl)benzene: 27 2-(4-Acetylphenyl)-2-propanol: 130 ∑ other aromatic compounds: 210 ∑ other aliphatic compounds : 13
M 3487 FT – 5.3	Insole of black sandals	Acetophenone: 16 2-Phenyl-2-propanol: 41 **DMF: 38**	Ethylene glycol diphenyl ether: 23
M 3487 FT – 7.1	Cross-section of shoe upper from sample combat boots	**DMF: 23**	**Dibutyl phthalate (DBP): 23** 2-Ethyl toluene: 9 Acetonanil: 15 ∑ other aromatic compounds: 56 ∑ other esters: 97
M 3487 FT – 8.1	Shoe upper of wine red boots	**DMF: 180**	1,4-Butylene adipate: 11
M 3487 FT – 9.2	Shoe upper of sample flat summer sandals	-	Diethylhexyl terephthalate (DEHtP): 14
M 3487 FT – 10.2	Shoe upper of low-rise snow boots	**Formamide: 79** **DMF: 1100**	**Diethyl phthalate (DEP): 26** Ethylene glycol diphenyl ether: 11 **Dibutyl phthalate (DBP): 29** ∑ other esters: 16
M 3487 FT – 12.1	Outer sole from sports/ running shoes	Acethophenone: 140 2-Ethyl-1-hexanol: 25 2-Phenyl-2-propanol: 380 **DMF: 13**	o-Xylene: 14 2-Phenyl-2-propyl methyl ether: 15 1,3-Diacetylbenzene: 31 1,4-Diacetylbenzene: 14 1,3-Bis(2-hydroxy-2-propyl)benzene: 22 2-(4-Acetylphenyl)-2-propanol: 68 1,4-Bis(2-hydroxy-2-propyl)benzene: 11 ∑ other aliphatic compounds : 200
M 3487 FT – 20.1	Base fabric of silver jacket	Cyclohexanone: 15 **DMF: 150**	-
M 3487 FT – 25.1	Base fabric of golden metallic set "long sleeve top and pants"	**DMF: 230**	-
M 3487 FT – 28.1	Base fabric of rainbow set "zip-up long sleeve top and pant"	Cyclohexanone: 40 **DMF: 160**	∑ other aliphatic compounds: 10 ∑ other esters: 14
M 3487 FT – 31.1	Base fabric of sample „Spiderman" jumpsuit	-	Diethylhexyl terephthalate (DEHtP): 12 ∑ Siloxanes: 24
M 3487 FT – 32.1	Composite sample from rubber shoe collar details, outer sole and velcro strap area of sample pink LED-childrens shoe	Cyclohexanone: 30 **DMF: 150**	Dimethyl carbonate: 21 Diethylene glycol monobutyl ether: 16 TXIB: 310 ∑ other aliphatic compounds: 1100
M 3487 FT – 36.2	White shoe upper of sample black and white high-heel shoes	**Formamide: 420**	**Dibutyl phthalate (DBP): 120** ∑ Alkyldioxolanes: 13 1,4-Butylene adipate: 12
M 3487 FT – 37.1	Shoe upper of sample childrens snow boots	**DMF: 13**	∑ other aliphatic compounds: 2200 ∑ other propylene glycol derivatives: 14
M 3487 FT – 44.1	Base fabric of PU leather jacket "Manfinity Homme"	**DMF: 590** **N,N-Dimethylacetamide: 16**	1.4-Butandiol: 18 ∑ other esters: 12

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Sample Number	Article	VOC calibrated[1] [mg/kg]	VOC estimated by response of ethylbenzene [mg/kg]
M 3487 FT – 45.2	Base fabric of black motorcycle leather jacket	2-Ethyl-1-hexanol: 49	**Diethylhexyl phthalate (DEHP): 3900** Diethylhexyl terephthalate (DEHtP): 1900 ∑ other aliphatic compounds: 21 ∑ other esters: 18 ∑ other phthalates: 41
M 3487 FT – 47.1	Outer material of sample shiny golden winter jacket	Cyclohexanone: 42 **DMF: 22**	**Diethylhexyl phthalate (DEHP): >4600** Diethylhexyl terephthalate (DEHtP): >1600 ∑ other phthalates: 34
M 3487 FT – 50.1	Leopard-print shoe upper of sample leopard-print sandals	Cyclohexanone: 200 2-Phenyl-2-propanol: 16 Formamide: 610 **DMF: 95**	**Diethylhexyl phthalate (DEHP): >4200** Diethylhexyl terephthalate (DEHtP): >1600 ∑ other phthalates: 43 ∑ other aromatic compounds: 15
M 3487 FT – 50.3	Cross-section of insole and outer sole from leopard-print sandals	Cyclohexanone: 820 2-Ethyl-1-hexanol: 34 2-Phenyl-2-propanol: 12 **Formamide: 160** **DMF: 38**	Urea: 11 **Dibutyl phthalate (DBP): >1400** **Diethylhexyl phthalate (DEHP): >3800** Diethylhexyl isophthalate (DEHIP): 17 Diethylhexyl terephthalate (DEHtP): >1800 ∑ other phthalates: 34 ∑ other aromatic compounds: 620 ∑ other fatty acid alkyl esters: 40 ∑ other alcohols: 51 ∑ other esters: 38
RL		**each compound 10**	**each compound 10**
Requirements REACH [2] *N,N-Dimethylformamide, N,N-Dimethylacetamid*		**< 3000**	
SVHC-List *N,N-Dimethylformamide, N,N-Dimethylacetamid, Formamid*		**< 1000**	
Requirements REACH [3] **DEHP, DBP, BBP, DIBP**			**each or ∑< 1000**

mg/kg = milligram per kilogram RL = Reporting Limit >
[1] individual parameters see listing below
[2] REACH = Regulation (EG) No. 1907/2006, annex XVII, no. 72 for textiles, accessories and shoes
[3] REACH = Regulation (EG) No. 1907/2006, annex XVII, no. 51
SVHC -List = Regulation (EC) No. 1907/2006, Article 59, EU Candidate List of Substances of Very High Concern
> = greater than: The concentration of the analyte exceeds the measuring range of the mass spectrometer for the quantification mass (overload). An accurate measurement result cannot therefore be specified.

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Calibrated substances:

Parameter	CAS-No.
Alkanes, aliphatics	
Triisobutene (mixture)	7756-94-7
Aromatics	
Naphthalene	91-20-3
1-Methylnaphthalene	90-12-0
2-Methylnaphthalene	91-57-6
Dimethylnaphthalenes (mixture)	-
Terpenes	
d^3-Carene	13466-78-9
Halogenated compounds	
2-Chloro-1,3-butadiene	126-99-8
1,2-Dichloroethane	107-06-2
Trichloroethylene	79-01-6
Tetrachloroethene (PER)	127-18-4
1,1,2,2-Tetrachloroethane	79-34-5
1,3-Dichloro-2-propanol	96-23-1
(±)-Epichlorhydrin	106-89-8
4-Chloro-3-methylphenol	59-50-7
Ketones	
Diacetone alcohol	123-42-2
Cyclohexanone	108-94-1
Isophorone	78-59-1
Acetophenone	98-86-2
Benzophenone	119-61-9
Ether	
Tetrahydrofuran	109-99-9
Ester	
Methyl benzoate	93-58-3
4-tert-Butylcyclohexyl acetate	32210-23-4
Dimethylsuccinat (DMS)	106-65-0
Dimethylglutarate(DMG)	1119-40-0
Dibutylmaleat (DBM)	105-76-0
Dibutylfumarat (DBF)	105-75-9
Tris(1-chloro-2-propyl) phosphate (TCPP)	13674-84-5
Tris(2-ethylhexyl) phosphate (TEHP)	78-42-2
Glycol derivatives	
Ethylene glycol monomethyl ether (EGMM)	109-86-4
Ethylene glycol monoethyl ether (EGME)	110-80-5
Ethylene glycol monomethyl ether acetate (EGMMA)	110-49-6
Ethylene glycol monoethyl ether acetate (EGMEA)	111-15-9
Ethylene glycol dimethyl ether (EGDM)	110-71-4
Diethylene glycol dimethyl ether(DEGDM)	111-96-6
Aldehydes	
Furfural	98-01-1
alpha-Hexylcinnamal	101-86-0
Siloxanes	
Octamethylcyclotetrasiloxane (siloxane D4)	556-67-2
Decamethylcyclopentasiloxane (siloxane D5)	541-02-6
Dodecmethylcyclohexasiloxane (siloxane D6)	540-97-6

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Parameter	CAS-No.
Alcohols, phenols	
2-Ethyl-1-hexanol	104-76-7
Benzyl alcohol	100-51-6
2-Methyl-2,4-pentanediol (Hexylene glycol)	107-41-5
3,5,5-Trimethyl-1-hexanol	3452-97-9
2-Phenyl-2-propanol	617-94-7
Phenol	108-95-2
2-Methylphenol	108-39-4
3-Methylphenol	95-48-7
4-Methylphenol	106-44-5
2,4-Dimethylphenol	105-67-9
2,4-Di-tBu-phenol	96-76-4
Butylated hydroxytoluene (BHT)	128-37-0
2-Phenylphenol	90-43-7
Nitrogen compounds	
Formamide	75-12-7
Acetamide	60-35-5
N,N-Dimethylformamide (DMF)	68-12-2
N,N-Diethylformamide	617-84-5
N,N-Dibutylformamide	761-65-9
N-Methylacetamide	79-16-3
N,N-Dimethylacetamide	127-19-5
N-Methylpyrrolidone	872-50-4
N-Ethylpyrrolidone	2687-91-4
N-Methylaniline	100-61-8
Cyclohexylamine	108-91-8
ε-Caprolactam	105-60-2
Triethylene diamine (DABCO)	280-57-9

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3.12 Phthalates

Sample Number	Article	Phthalates/Plasticizer[1] [mg/kg]
M 3487 FT – 3.2	Transparent plastic portions of accessoires (cloud and crown), childrens garden shoes	DBP: 55000 DEHP: 240 DEHtP: 2200
M 3487 FT – 5.1	Criss-cross straps of sample black sandals	DBP: 4200 DEHP: 39000 DEHtP: 43000
M 3487 FT – 6.1	Composite sample of shoe upper and outer sole of sample glittering black wellies	DBP: 71000 DEHtP: 140
M 3487 FT – 7.3	Badge applied to shoe tongue of sample combat boots	DBP: 390 DEHP: 7200 DEHtP: 240000
M 3487 FT – 9.1	Outer sole of sample flat summer sandals	DBP: 150 DEHP: 28000 DINP: 1500 DnDP: 15000 DEHtP: 98000
M 3487 FT – 10.1	Outer sole of sample low-rise snow boots	DBP: 134000 DEHP: 660 DEHtP: 11000
M 3487 FT – 11.1	Outer sole of sample white sneakers	DBP: 110000 DEHP: 220 DEHtP: 950
M 3487 FT – 12.2	Badge applied to shoe tongue of sample sports/running shoes	DBP: 5000 DEHP: 110000 DEHtP: 10000
M 3487 FT – 13.1	Printed areas, all colours of sample black t-shirt with rainbow print	DEHP: 100 DEHtP: 210
M 3487 FT – 15	Metallic-look buttoned short-sleeve shirt	DEHtP: 210
M 3487 FT – 21.1	Printed areas of sample „Santa Claus" t-shirt	DEHP: 220 DEHtP: 240
M 3487 FT – 30.1	Printed areas, all colours of sample t-shirt with dinosaur	DEHtP: 190
M 3487 FT – 32.2	Shoe quarter and eyestay area rubber components of sample pink LED-childrens shoe	DEHP: 130 DEHtP: 230000
M 3487 FT – 32.3	White plastic on/off switch from pink LED-childrens shoe	DEHP: 120 DEHtP: 220000
M 3487 FT – 34.1	Pink base material of sample unicorn childrens pink wellies	DEHtP: 150000
M 3487 FT – 34.2	Rubberized applied shapes "unicorn" and „rainbow" of sample unicorn childrens pink wellies	DEHP: 130 DEHtP: 340000
M 3487 FT – 36.1	Black outer sole of sample black and white high-heel shoes	DBP: 1100 DEHP: 110000 DEHtP: 66000
RL		**each 100**
Requirements REACH[2] *DPP, DMEP, DIPP, DnHP, single or in combination with DIBP, DBP, BBP, DEHP,*		**< 1000**
Requirements REACH[3] *DIBP, DBP, BBP, DEHP, single or in combination*		**< 1000**
Requirements REACH[4] *DINP, DIDP, DNOP*		**each ≤ 1000**

mg/kg = milligram per kilogram RL = Reporting Limit
[1] individual parameters see listing below
[2] REACH = Regulation (EG) No. 1907/2006, annex XVII, no. 72 for textiles, accessories and shoes
[3] REACH = Regulation (EG) No. 1907/2006, annex XVII, no. 51
[4] REACH = Regulation (EG) No. 1907/2006, annex XVII, no. 52 for plasticized material in toys and articles for babies, that can be put in the mouth by children.

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Sample Number	Article	Phthalates/Plasticizer[1] [mg/kg]
M 3487 FT – 39.2	Printed areas with "UNICORN" label + „bow" motif of sample unicorn rain coat	DBP: 120 DEHtP: 3000
M 3487 FT – 41.2	Hidden rubber material beneath velcro patch applications of sample soft shell hooded jacket	DBP: 1100 DEHP: 120000 DEHtP: 1500
M 3487 FT – 45.2	Black base fabric of sample leather motorbike jacket with collar	DEHP: 200000 DEHtP: 39000
M 3487 FT – 45.3	Transparent coating inside pockets of sample leather motorbike jacket with collar	DEHP: 78000 DEHtP: 6300
M 3487 FT – 47.1	Outer material of sample shiny golden winter jacket	DEHP: 7200 DEHtP: 9000
M 3487 FT – 49.3	Base fabric with reinforced seams of sample raincoat set with reflective patches	DEHP: 20000 DEHtP: 100000
M 3487 FT – 50.3	Cross-section of insole and outer sole of sample leopard-print sandals	DBP: 19000 DEHP: 33000 DEHtP: 25000 DINP: 1400
M 3487 FT – 53.1	Base material of childrens 3D duck yellow wellies	DBP: 150 DEHP: 520 DEHtP: 10000
M 3487 FT – 53.2	Rubberised polymer shapes "duck and wing" applied to sample childrens 3D duck yellow wellies	DEHtP: 100000
M 3487 FT – 54.2	Printed areas of "Penguin" motif *(Plastisol)* t-shirt	DEHP: 140 DEHtP: 41000
M 3487 FT – 55.1	Printed areas of sample t-shirt with „tortoise" design	DBP: 180 DEHP: 110 DEHtP: 3500
RL		**each 100**
Requirements REACH[2] *DPP, DMEP, DIPP, DnHP, single or in combination with DIBP, DBP, BBP, DEHP,*		**< 1000**
Requirements REACH[3] *DIBP, DBP, BBP, DEHP, single or in combination*		**< 1000**
Requirements REACH[4] *DINP, DIDP, DNOP*		**each ≤ 1000**

mg/kg = milligram RL = Reporting Limit
[1] individual parameters see listing below
[2] REACH = Regulation (EG) No. 1907/2006, annex XVII, no. 72 for textiles, accessories and shoes
[3] REACH = Regulation (EG) No. 1907/2006, annex XVII, no. 51
[4] REACH = Regulation (EG) No. 1907/2006, annex XVII, no. 52 for plasticized material in toys and articles for babies, that can be put in the mouth by children.

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Tested individual parameters:

Parameter	CAS-No.
Phthalates	
Diethyl phthalate (DEP)	84-66-2
Dimethyl phthalate (DMP)	131-11-3
Di-n-propyl phthalate (DPrP)	131-16-8
Benzyl butyl phthalate (BBP)	85-68-7
Di-iso-butyl phthalate (DiBP)	84-69-5
Di-n-butyl phthalate (DBP)	84-74-2
Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7
Di-iso-pentyl phthalate (DiPP)	605-50-5
N-Pentyl-isopentyl phthalate (PiPP)	776297-69-9
Di-n-hexyl phthalate (DnHxP)	84-75-3
Di-C_{6-8} branched alkyl phthalates, C_7 rich- (DiHP)	71888-89-6
Di-iso-octyl phthalate (DiOP)	27554-26-3
Di-n-octyl phthalate (DnOP)	117-84-0
Di-iso-nonyl phthalate (DiNP)	28553-12-0
Di-n-nonyl phthalate (DnNP)	84-76-4
Di-iso-decyl phthalate (DiDP)	26761-40-0
Di-n-decyl phthalate (DnDP)	84-77-5
Bis-methyl glycol phthalate (DMEP)	117-82-8
Bis(4-methyl-2-pentyl) phthalate (DMPP)	84-63-9
Dicyclohexyl phthalate (DCHP)	84-61-7
Di-n-pentyl phthalate (DPP)	131-18-0
other plasticizers	
Cyclohexane-1,2-dicarbonic acid diisononyl ester (DINCH)	166412-78-8
Di-(2-ethylhexyl) terephthalate (DEHtP)	6422-86-2
Di-(2-ethylhexyl) isophthalate (DEHiP)	137-89-3

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3.13 Quinoline

Sample Number	Article	Quinoline CAS-No 91-22-5 [mg/kg]
M 3487 FT – 7.4	Brown inner lining of sample „combat boots"	**6**
M 3487 FT – 8.3	Brown inner lining of sample „wine red boots"	< RL
M 3487 FT – 13.3	Black base fabric of sample „black t-shirt with rainbow print"	< RL
M 3487 FT – 14.2	Black base fabric of sample „black t-shirt with print"	**3**
M 3487 FT – 15	„Manfinity" metallic-look mens buttoned short-sleeve shirt	< RL
M 3487 FT – 16.1	Compound sample of fabrics in green/ black/ red colour of sample „mens christmas shirt"	< RL
M 3487 FT – 17	„Manfinity" glittering buttoned shirt	< RL
M 3487 FT – 19.1	Printed areas, yellow/ pink/ black coloured fabric sections of sample „graffiti printed shirt"	< RL
M 3487 FT – 21.1	Printed areas of sample „Santa Claus" t-shirt	< RL
M 3487 FT – 22.1	Black petticoat fabric of sample „leopard-print party dress"	< RL
M 3487 FT – 24.1	Base fabric of sample „Hawaiian A-line style skirt"	< RL
M 3487 FT – 26.1	Composite sample of base fabric and petticoat of sequinned jumpsuit	< RL
M 3487 FT – 27.1	Ribbons and suspenders of sample mermaid dress	< RL
M 3487 FT – 30.3	Sleeve area, gray base fabric of sample „t-shirt with dinosaur"	< RL
M 3487 FT – 31.1	Base fabric of sample „Spiderman" jumpsuit	< RL
M 3487 FT – 33.2	Printed areas of sample „three-piece bathing suit"	< RL
M 3487 FT – 35.1	Printed areas of top, "unicorn mane" section, of sample childrens „unicorn" pyjama set	< RL
M 3487 FT – 38.1	Printed areas of sample „hooded raincoat"	< RL
M 3487 FT – 41.1	Base fabric of sample „soft shell hooded jacket"	< RL
M 3487 FT – 45.4	Inner lining in collar area of sample „leather motorbike jacket with collar"	< RL
M 3487 FT – 46.1	Printed areas of sample „jacket with printed slogan designs"	< RL
M 3487 FT – 48.1	Black base fabric of sample „hiking jacket"	< RL
M 3487 FT – 51.1	Printed areas of sample „chiffon blouse"	< RL
M 3487 FT – 55.3	Lilac base fabric of sample t-shirt with „tortoise" design	< RL
RL		3
Requirements REACH		**50**

mg/kg = milligram per kilogram RL = Reporting Limit
REACH = Regulation (EG) No. 1907/2006, annex XVII, no. 72 for textiles and shoes,

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3.14 PAH

Parameter (CAS-No.	CAS-No.	M 3487 FT –4.1 Base material of sample black „bubble Form Clogs" [mg/kg]	M 3487 FT –5.2 Outer sole of sample „Criss Cross Slides" sandals [mg/kg]	M 3487 FT–7.2 Black outer sole of samp-le combat boots [mg/kg]	M 3487 FT –8.2 Black outer sole of samp-le red wine boots [mg/kg]	Requirement REACH [mg/kg]
Naphthalene	91-20-3	0,6	< RL	15	0,4	-
Acenaphthalene	208-96-8	< RL	< RL	0,6	0,3	-
Acenaphthene	83-32-9	< RL	< RL	1,4	0,2	-
Fluorene	86-73-7	< RL	< RL	6,4	0,3	-
Phenanthrene	85-01-8	< RL	0,2	20	0,6	-
Anthracene	120-12-7	< RL	< RL	7,9	0,2	-
Fluoranthene	206-44-0	< RL	0,1	10	0,6	-
Pyrene	129-00-0	< RL	0,9	27	2,7	-
Chrysene	218-01-9	< RL	**0,3**	**13**	**0,3**	≤ 1
Benz(a)anthracene	56-55-3	< RL	< RL	**7,9**	**0,1**	≤ 1
Benzo(b)fluoranthene	205-99-2	< RL	< RL	**4,8**	< RL	≤ 1
Benzo(j)fluoranthene	205-82-3	< RL	< RL	**0,5**	< RL	≤ 1
Benzo(k)fluoranthene	207-08-9	< RL	< RL	**0,9**	< RL	≤ 1
Benzo(a)pyrene	50-32-8	< RL	< RL	**9,7**	**0,3**	≤ 1
Benzo(e)pyrene	192-97-2	< RL	< RL	**7,8**	**0,2**	≤ 1
Indeno(1,2,3-cd)pyrene	193-39-5	< RL	< RL	4,6	< RL	-
Dibenzo(a,h)anthracene	53-70-3	< RL	< RL	**1,9**	< RL	≤ 1
Benzo(g,h,i)perylene	191-24-2	< RL	< RL	14	0,7	-

Parameter (CAS-No.	CAS-No.	M 3487 FT – 9.1 Outer sole of sample flat summer sandals [mg/kg]	M 3487 FT – 36.1 Black outer sole of samp-le „ high-heel shoes" [mg/kg]	M 3487 FT – 50.2 Black outer sole of, leo-pard-print sandals [mg/kg]	Requirement REACH [mg/kg]
Naphthalene	91-20-3	0,1	1,7	< RL	-
Acenaphthalene	208-96-8	< RL	0,8	< RL	-
Acenaphthene	83-32-9	< RL	1,1	< RL	-
Fluorene	86-73-7	0,2	14	0,2	-
Phenanthrene	85-01-8	1,0	48	1,0	-
Anthracene	120-12-7	0,3	21	0,3	-
Fluoranthene	206-44-0	0,8	3,4	0,4	-
Pyrene	129-00-0	1,1	1,8	2,5	-
Chrysene	218-01-9	**0,6**	**0,4**	< RL	≤ 1
Benz(a)anthracene	56-55-3	**0,8**	**0,3**	< RL	≤ 1
Benzo(b)fluoranthene	205-99-2	**0,2**	< RL	< RL	≤ 1
Benzo(j)fluoranthene	205-82-3	< RL	< RL	< RL	≤ 1
Benzo(k)fluoranthene	207-08-9	< RL	< RL	< RL	≤ 1
Benzo(a)pyrene	50-32-8	**0,5**	**0,2**	< RL	≤ 1
Benzo(e)pyrene	192-97-2	**0,4**	**0,2**	**0,2**	≤ 1
Indeno(1,2,3-cd)pyrene	193-39-5	0,3	0,1	< RL	-
Dibenzo(a,h)anthracene	53-70-3	< RL	< RL	< RL	≤ 1
Benzo(g,h,i)perylene	191-24-2	0,3	0,3	0,5	-

mg/kg = milligram per kilogram RL = Reporting Limit = 0,1 mg/kg for each parameter
REACH = Regulation (EG) No. 1907/2006, annex XVII, no. 72 for textiles, accessories and shoes
REACH = Regulation (EG) No. 1907/2006, annex XVII, no. 50: Articles shall not be placed on the market for supply to the general public, if any of their rubber or plastic components that **come into direct as well as prolonged or short-term repetitive contact with the human skin or the oral cavity**, under normal or reason- ably foreseeable conditions of use, contain more than 1

mg/kg (0,0001 % by weight of this component) of any of the listed PAHs: Chrysene, Benz(a)anthracene, Benzo(b)fluoranthene, Benzo(j)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Benzo(e)pyrene, Dibenzo(a,h)anthracene.

3.15 Organotin compounds

Parameter	**M 2291 FT – 14.1** Compound sample of Printed areas of black t-shirt with print **[mg/kg]**	**M 2291 FT – 16.1** Compound sample of fabrics in green/ black/ red colour from mens christmas shirt **[mg/kg]**	**M 2291 FT – 19.1** Printed areas, yellow/ pink/ black coloured fabric sections of sample „graffiti printed shirt" **[mg/kg]**	**M 2291 FT – 50.1** Leopard-print shoe upper of sample leopard-print sandals **[mg/kg]**
Monomethylzinn (MMT)	< BG	< BG	< BG	< BG
Monobutylzinn (MBT)	< BG	< BG	< BG	< BG
Monooctylzinn (MOT)	< BG	< BG	< BG	< BG
Monophenylzinn (MPhT)	< BG	< BG	< BG	< BG
Dimethylzinn (DMT)	< BG	< BG	< BG	< BG
Dibutylzinn(DBT)	< BG	< BG	< BG	< BG
Dioctylzinn (DOT)	< BG	< BG	< BG	< BG
Diphenylzinn (DPhT)	< BG	< BG	< BG	< BG
Tetrabutylzinn (TeBT)	< BG	< BG	< BG	< BG
Trimethylzinn (TMT)	< BG	< BG	< BG	< BG
Tributylzinn (TBT)	< BG	< BG	< BG	< BG
Trioctylzinn (TOT)	< BG	< BG	< BG	< BG
Triphenylzinn (TPhT)	< BG	< BG	< BG	< BG
Tricyclohexylzinn	< BG	< BG	< BG	< BG
Requirements REACH[2] *DBT, DOT, TBT, TPhT, TMT, TOT*				**≤ 1000**

Parameter	**M 2291 FT – 54.2** Printed areas of "Penguin" motif *(Plastisol)* t-shirt **[mg/kg]**	**M 2291 FT – 56.1** Printed areas in all colours of leggings with colorful pattern print **[mg/kg]**	**M 2291 FT – 57.1** Printed areas with "penguin", "panda" and "fox" motifs of childrens pullover with animal pattern **[mg/kg]**
Monomethylzinn (MMT)	< BG	< BG	< BG
Monobutylzinn (MBT)	< BG	< BG	< BG
Monooctylzinn (MOT)	< BG	< BG	< BG
Monophenylzinn (MPhT)	< BG	< BG	< BG
Dimethylzinn (DMT)	< BG	< BG	< BG
Dibutylzinn(DBT)	< BG	< BG	< BG
Dioctylzinn (DOT)	< BG	< BG	< BG
Diphenylzinn (DPhT)	< BG	< BG	< BG
Tetrabutylzinn (TeBT)	< BG	< BG	< BG
Trimethylzinn (TMT)	< BG	< BG	< BG
Tributylzinn (TBT)	< BG	< BG	< BG
Trioctylzinn (TOT)	< BG	< BG	< BG
Triphenylzinn (TPhT)	< BG	< BG	< BG
Tricyclohexylzinn	< BG	< BG	< BG
Requirements REACH[2] *DBT, DOT, TBT, TPhT, TMT, TOT*			**≤ 1000**

mg/kg = milligram per kilogram RL = Reporting Limit = 0,05 mg/kg for each parameter

REACH = Regulation (EG) No. 1907/2006, annex XVII, no. 20: Dioctyltin compounds (DOT), dibutyltin compounds (DBT)trisubstituted organotin compounds such as tributyltin compounds (TBT) and triphenyltin compounds (TPT) may no longer be used in textiles intended for supply to or use by the general public if the concentration of tin in the product or parts thereof exceeds 0.1% by weight:

Bremer Umweltinstitut

Bremen, 22-10-2025

[redacted]

This examination is only valid in relation to the tested material. Measurement uncertainties can be provided on request. This report must not be published partially, only completely. The basis of assessment is the measured value without consideration of measurement inaccuracies.

ilac-MRA DAkkS Deutsche Akkreditierungsstelle D-PL-18812-01-00

Bremer Umweltinstitut GmbH is a testing laboratory accredited by DAkkS in accordance with DIN EN ISO/IEC 17025: 2018. Chapter 2 of this analysis report describes the accreditation status of the testing methods used.

- End of the ANALYTICAL REPORT -