



PFC
Investigation Report
May 2016

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- MIROGLIO S.P.A. GREENPEACE COMMITMENT DETOX -

PFCs JULY 2016

Miroglio Fashion, accordingly to the deadline as per Greenpeace DETOX commitment is following a path to eliminate PFC from all production processes and supply chain.

Perfluorinated compounds (PFCs)

Perfluorinated compounds are synthetic substances largely used by industry for their well-known waterproof and oilproof properties.

In textile/clothing industry they are mainly used to provide waterproof properties to external fabrics in outdoor garments.

Despite their wide scale use by industries, some studies pointed out that many PFCs are difficult to dispose of, because they remain in the environment and can increase their level due to food chain contamination.

Moreover, some PFCs, once absorbed by the organism, become endocrine disruptors and may affect growth levels and hormonal reproduction.

The most known PFC is Perfluorooctane sulfonic (PFOS), a compound which is highly resistant to degradation and can be enduring into the environment for a very long time.

That compound has been included in persistent organic compounds list (POP) within Stockholm Convention.

All countries that signed DETOX commitment, including the European ones and China, are compelled to take measures in order to limit production and use of this substance.

Use and commerce of PFOS are also forbidden in some application of REACH regulation and Canadian Environmental Protection Act.

SCREENING RESULT

In 2015 Miroglio Fashion, which is not a producer or distributor of waterproof garments, included in its collection only 4 of those styles (3 waterproof jackets and one k-way).

In order to comply to DETOX commitment and respect the roadmap having July 2016 as a deadline to erase PFCs, Miroglio Fashion informed all its suppliers, through written notice, about the deadline.

Later on, a social and environmental audit program has been started, with analysis about inside water and not treated wastewater, done in production sites, where wet process takes place.

We also checked samples coming from suppliers whose fibres could have caused problems, especially Polyester and Polyamide.

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We are talking about 8 companies based in Middle/Far East from which we bought 280 styles for a total amount of 450.000 garments.

The next test has been done sample checking 49 items from the same productions, which confirmed a limited contamination of raw materials and finished product.

Below you can find the results of certified test that we did at BuzziLab in Prato (Italy):

LEATHER JACKET

SAMPLE	COMPOSITION	COUNTRY OF ORIGIN	SUBSTANCE	VALUE ($\mu\text{g}/\text{m}^2$)
1	ZP100	INDIA		ND
2	ZP100	INDIA		ND
3	ZP100	INDIA		ND
4	ZP100	INDIA		ND

FABRIC JACKET

SAMPLE	COMPOSITION	COUNTRY OF ORIGIN	SUBSTANCE	VALUE ($\mu\text{g}/\text{m}^2$)
5	PL100	CHINA	PFNA	3,92
6	PL100	CHINA		ND
7	PA087EA13	CHINA		ND
8	PL100	CHINA		ND
9	PL100	CHINA		ND
10	PL100	CHINA		ND
11	PL100	CHINA		ND
12	PL100	CHINA	FTA	17,33
13	PL100	CHINA		ND
14	PL100	CHINA		ND

FABRIC COAT

SAMPLE	COMPOSITION	COUNTRY OF ORIGIN	SUBSTANCE	VALUE ($\mu\text{g}/\text{m}^2$)
15	PC068CO21	KOREA		ND
16	PC068CO21	KOREA		ND
17	PC068CO21	KOREA		ND

FABRIC VEST

SAMPLE	COMPOSITION	COUNTRY OF ORIGIN	SUBSTANCE	VALUE ($\mu\text{g}/\text{m}^2$)
18	PL100	CHINA		ND

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FABRIC PADDED JACKET

SAMPLE	COMPOSITION	COUNTRY OF ORIGIN	SUBSTANCE	VALUE ($\mu\text{g}/\text{m}^2$)
19	PA100	CHINA		ND
20	PA100	CHINA	FTA	9,74
21	PA100	CHINA	FTA	2,17
22	PA100	CHINA	FTA	15,05
23	PL057PA43	CHINA		ND
24	PL057PA43	CHINA		ND
25	PA100	CHINA		ND
26	PA100	CHINA	FTA	2,85
27	PL100	CHINA		ND
28	PL058PA42	CHINA		ND
29	PL059PA41	CHINA		ND
30	PL058PA42	CHINA		ND
31	PL100	CHINA		ND
32	PA100	CHINA		ND
33	PA100	CHINA		ND
34	PA100	CHINA		ND
35	PA100	CHINA		ND

FABRIC DOWN JACKET REAL DOWN

SAMPLE	COMPOSITION	COUNTRY OF ORIGIN	SUBSTANCE	VALUE ($\mu\text{g}/\text{m}^2$)
36	PL100	CHINA		ND
37	PL054PA46	CHINA		ND
38	PA100	CHINA		ND
39	PA100	CHINA		ND
40	PA100	CHINA		ND
41	PL059PA41	KOREA		ND
42	PL059PA41	KOREA		ND
43	PL059PA41	KOREA		ND
44	PA100	CHINA		ND

OVERCOAT

SAMPLE	COMPOSITION	COUNTRY OF ORIGIN	SUBSTANCE	VALUE ($\mu\text{g}/\text{m}^2$)
45	PL100	CHINA		ND
46	PL100	CHINA	PFNA	1,53
47	PL100	CHINA		ND
48	PL100	CHINA	PFOA	5,79
49	PL100	CHINA		ND

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Most critical issues are found on the items of Chinese origin and, in particular, long chain perfluorinated compound (FTA).

Failed results are found in small contamination quantities.

We implement a modification path about substances used in all processes, in cooperation with the companies involved.

SA MP LE	SUBSTANCE	CAS N.	LOD ($\mu\text{g}/\text{m}^2$)	VALUE ($\mu\text{g}/\text{m}^2$)
5	<i>Perfluoro n-octanoic acid (PFOA)</i>	335-67-1 / 3825-26-1	1,00	1,31
	<i>Perfluoro n-nonanoic acid (PFNA)</i>	375-95-1	1,00	2,61
12	<i>1H,1H,2H,2H-Perfluorodecyl acrylate (FTA 8-2)</i>	27905-45-9	1,00	12,40
	<i>1H,1H,2H,2H-Perfluorododecyl acrylate (FTA 10-2)</i>	17741-60-5	1,00	4,93
20	<i>1H,1H,2H,2H-Perfluorododecyl acrylate (FTA 10-2)</i>	17741-60-5	1,00	9,74
21	<i>1H,1H,2H,2H-Perfluorododecyl acrylate (FTA 10-2)</i>	17741-60-5	1,00	2,17
22	<i>1H,1H,2H,2H-Perfluorodecyl acrylate (FTA 8-2)</i>	27905-45-9	1,00	11,50
	<i>1H,1H,2H,2H-Perfluorododecyl acrylate (FTA 10-2)</i>	17741-60-5	1,00	3,55
26	<i>1H,1H,2H,2H-Perfluorodecyl acrylate (FTA 8-2)</i>	27905-45-9	1,00	2,85
46	<i>Perfluoro n-nonanoic acid (PFNA)</i>	375-95-1	1,00	1,53
48	<i>Perfluoro n-octanoic acid (PFOA)</i>	335-67-1 / 3825-26-1	1,00	5,79

CONCLUSIONS:

Following the investigation, Miroglio Fashion has taken the following measures:

- Suppliers training and consequent review of all supplying contracts in order to guarantee full respect of limits as per M-RSL;
- Enforcement of audit program in places where wet process take place and water analysis;
- Tests on inside water and wastewater for all companies where wet process has not been analyzed, publishing the results on IPE platform at the address : http://www.ipe.org.cn/En/pollution/discharge_detox.aspx
- Introduction and check with related labs about detection limits according to the best available technologies, for all groups of substances present in products and process.

Miroglio Fashion, thanks to case study result, can say that the items brought onto the market don't contain PFCs and guarantee to consumers a high quality standard in terms of chemical security.

Miroglio Fashion is also aware that, taking actively part with all its Supply Chain and fashion industry, through sharing and training, will be able to achieve common goals stated in Greenpeace DETOX commitment.