

**2014**

Valentino Fashion Group

# **APEOs, PFCs, PHTHALATES, INVESTIGATION REPORT**

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# **APEOs INVESTIGATION REPORT**

## VALENTINO FASHION GROUP COMMITMENT

In line with its Detox Commitment, Valentino Fashion Group Spa (VFG) is taking action to achieve the elimination of APEOs<sup>1</sup> from its supply chain, both from processes and finished products.

Eight months after the publication of the first APEOs Investigation, in this second report VFG presents an update on progress towards this goal.

## THE CHEMICAL NATURE OF APEOs

The chemical nature of this group of substances means that they are particularly effective as dispersing agents, detergents and emulsifiers in textile industry wet processes. However, the release of APEOs into waste water represents a hazard for the environment, on account of their persistence, capacity for bio-accumulation and potential for endocrine disruption (causing the feminization of fish).

## VFG's ACTIONS

VGF is pursuing with determination its Detox commitment, monitoring and progressively reducing the cases of APEOs contamination detected during routine testing of raw materials and finished products.

In addition to ongoing screening of raw materials and finished products, VFG has initiated a programme of systematic inspections at production sites within its supply chain, enlisting the support of external specialists.

The factory audit programme is designed to identify and exclude all potential sources of APEOs contamination of raw materials, as well as to motivate the key actors in the VFG supply chain to take action upstream to ensure that the goal of total elimination is reached.

## APEOs ANALYSIS

For a number of years now, VFG has been conducting testing on raw materials and finished products within the context of its internal product safety procedures. In line with VFG's Detox commitment, RSL limit values were revised in November 2013, with the introduction of the best technology available for APEOs testing.

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<sup>1</sup> Alkylphenol ethoxylates

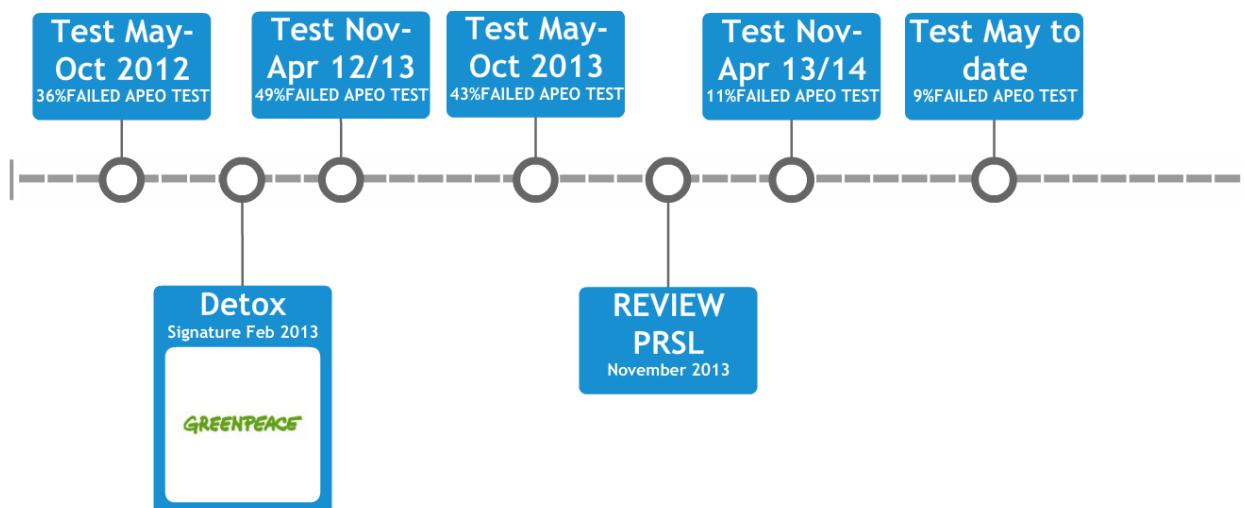
The APEOs investigation draws on test reports stored in company archives relating to raw material and finished product screening over a 2 year time horizon. Laboratory testing is based on liquid chromatography-mass spectrometry.

## SCREENING RESULTS

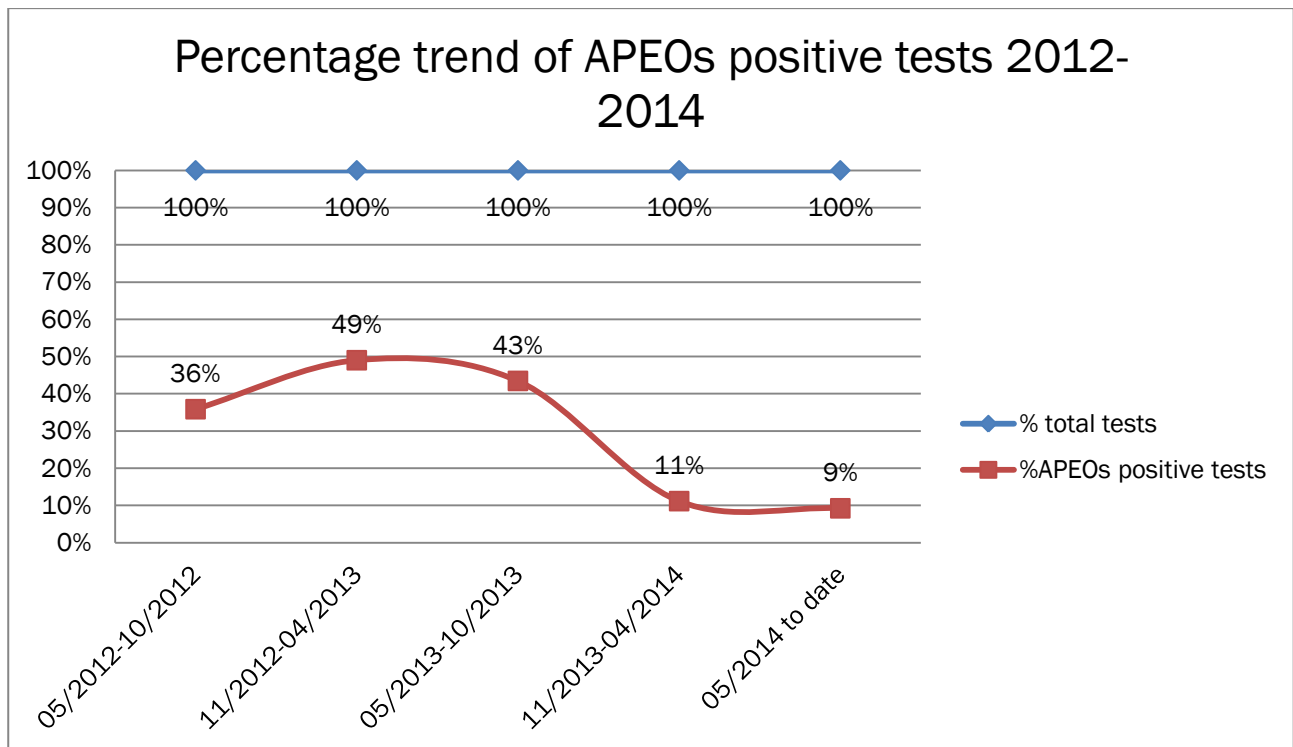
### ANALYSIS OF APEOs CONTAMINATION IN RAW MATERIALS AND FINISHED PRODUCTS 2012-2014

The timeline below presents the sequence of actions undertaken by VFG to raise awareness of the goal of total APEOs elimination within its supply chain, highlighting key stages and outcomes along this pathway.

## TIMELINE



The following graph presents the percentage values of positive APEOs tests in relation to the total number of tests conducted over the two year time horizon.



The graph highlights how, following a peak in APEOs positive tests in early 2013 (49%), cases of APEOs contamination diminished progressively during the course of 2014 (9% positive tests to date). This outcome reflects the efficacy of VFG's communication within the supply chain, the readiness of suppliers to adapt to VFG's new goals, and the careful selection of raw materials during the product design phase.

Of the 9% APEOs positive tests reported in the last semester, more than half refer to concentrations below 50 ppm. APEOs contamination is more frequent in synthetic textiles, followed by leather and fur, and finally natural textiles such as wool, silk and cotton.

VFG's experience to date highlights how APEOs are found both in surfactants used to clean hides, as well as in tensides used for reeling and silk degumming, in detergents generally, and in lubricants that facilitate synthetic fiber processing.

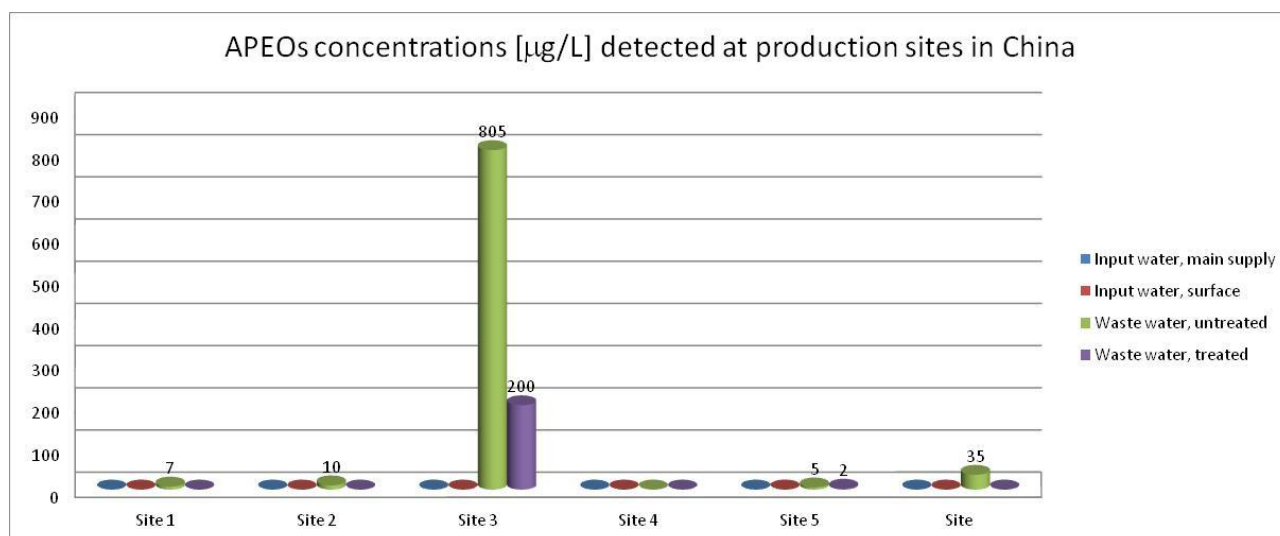
### FACTORY AUDITS: APEOs IN INPUT AND WASTE WATER

During the course of 2013, VFG established a factory auditing programme to monitor input and waste waters at production sites within its supply chain. This initiative represented the first step towards a complete and conscious view of VFG's production processes.

Chemical analysis of waters at production sites in Italy and China excludes any APEO contamination of incoming waters, whereas APEOs contamination was detected in waste waters at a number of sites, both in Italy and in China.

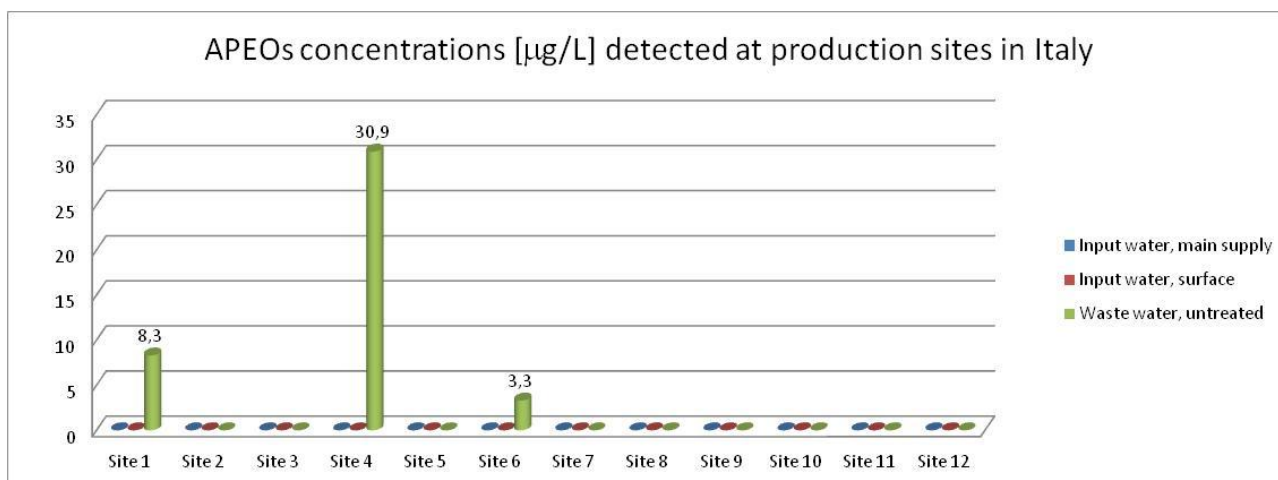
In China, five of the six sites audited in 2013 were found to be discharging APEO into the environment.

The following graph reports the concentrations [ $\mu\text{g/L}$ ] of APEOs detected at production sites in China:



At the only two production sites where it was possible to analyze waste water after treatment, APEOs were detected even in treated waters. At the other four sites, analysis of waste waters after treatment was not possible given that waste waters are discharged into co-owned treatment facilities.

In Italy, over the last two years three out of twelve sites were found to be discharging APEOs into the environment. The graph below reports the concentrations [ $\mu\text{g/L}$ ] of APEOs detected at production sites in Italy.



\* \* \*

The factory auditing programme, through assessment of onsite chemical management and input and waste water sampling, and the chemical screening of raw materials and finished products, are key environmental performance indicators (KPI) that enable VFG to define priorities for intervention and corrective actions, as well as to identify high-risk product categories and the chemical hazards inherent within its supply chain.

Wherever APEOs contamination is detected, even in trace amounts, VFG takes action in partnership with suppliers to identify the causes, to source APEOs-free alternatives and to raise awareness among raw material suppliers of VFG's environmental goals.

## CONCLUSIONS

This APEOs Investigation update highlights VFG's steady progress towards its goal of achieving total elimination of APEO from the supply chain, through two lines of action: input and waste water sampling at production sites, and raw material and finished product screening.

Through factory audits, chemical screening, proactive communication of VFG's environmental goals and the active involvement of suppliers, VFG is firmly committed to achieving its goal of total elimination of APEO from its supply chain.

A number of significant initiatives are already in progress, including:

- the adoption of detection limits in line with best available technology, both in finished products through the RSL and in processes through the MRSL;
- the reformulation of supply contracts to ensure full supply chain compliance with defined limits;
- the implementation of chemical audits at all facilities in the supply chain where wet processes are carried out.

Furthermore, the active involvement of actors in the VFG supply chain has made it possible to:

- identify chemical formulations containing APEOs still in use;
- source alternative substances with comparable performance in industrial processing;
- begin systematic substitution of APEOs to reach the goal of total elimination;
- raise awareness throughout the supply chain, up to and including raw material suppliers, of the need to manufacture APEOs free products, focusing specifically on suppliers in the Global South;

Significantly, VFG's experience to date has made it possible to identify the following sources of APEOs contamination that currently jeopardize the fulfillment of the Detox goal:

- reeling of silk cocoons (APEOs are used as tensides);
- silk degumming (use of substances containing APEOs above all in the Global South);
- lubrication of spinning machines;
- cleaning of hides and fur pelts in the initial stages of tanning;



- wet processes carried out in general purpose vats that may contain traces of APEO originating from processing of materials belonging to other industry players who are less sensitive to environmental issues.

The specific case of contamination of VFG raw materials during wet processing in general purpose vats used previously to wash textiles coming from other countries and not belonging to VFG underscores both the fundamental role of the Detox campaign in raising public awareness and the need to reach out to actors beyond VFG's sphere of influence.

VFG is fully aware that only with the active participation of the entire fashion industry it is possible to deliver the desired outcomes on a global scale. VFG is closely monitoring initiatives undertaken by other firms within the context of the Fashion Duel, and is willing to take part in all collective efforts and to share its experiences with others.

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**PFCs INVESTIGATION REPORT**

## VALENTINO FASHION GROUP COMMITMENT

Valentino Fashion Group (VFG) is pursuing, on an ongoing basis, the elimination of PFCs<sup>1</sup> (specifically PFOS<sup>2</sup> and PFOA<sup>3</sup>) from the global supply chain. In this PFCs Investigation Report VFG presents an update on the elimination process and on results achieved to date.

## THE NATURE OF PFCs

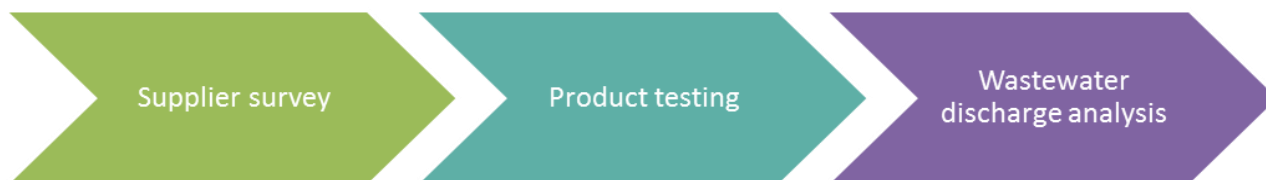
PFCs are a group of fluorinated organic compounds characterized by their high stability with respect to chemical reagents, heat and UV radiation. PFCs are therefore extremely persistent, with a half-life of around 4 years, and a tendency to accumulate in the environment and in living organisms, with the detrimental effects reported in the literature.

The most common PFCs are PFOS<sup>2</sup>, and PFOA<sup>3</sup> and its salts. Long chain PFCs are used extensively in numerous industry sectors; in the textile industry, they are found commonly in oil, water and stain repellent treatments. The half-life and hazardous nature of PFCs decreases in proportion to the carbon chain length; nevertheless, pilot projects using short-chain PFCs have reported less satisfactory performance with respect to the longer chains.

Certain studies have detected PFCs at Arctic locations, implying that these substances may be airborne, with devastating effects on aquatic organisms and mammals.

## VFG's ACTIONS

The PFCs Investigation departed from the supplier survey, a self-assessment questionnaire on PFCs usage in production processes that all suppliers were invited to complete. At the same time, VFG intensified chemical screening for PFCs in raw materials and finished products. Subsequently, VFG initiated a programme of factory audits and waste water discharge analysis at production sites where wet processes are carried out, to detect specific use of this group of substances.



Through intensive supply chain monitoring and supplier involvement, VFG has gained increased awareness of the current state of its global supply chain, building partnerships with suppliers to ensure effective fulfilment of the new environmental compliance goals.

<sup>1</sup> Perfluorocarbon/Polyfluorinated Compounds

<sup>2</sup> Perfluorooctane sulfonate

<sup>3</sup> Perfluorooctanoic acid

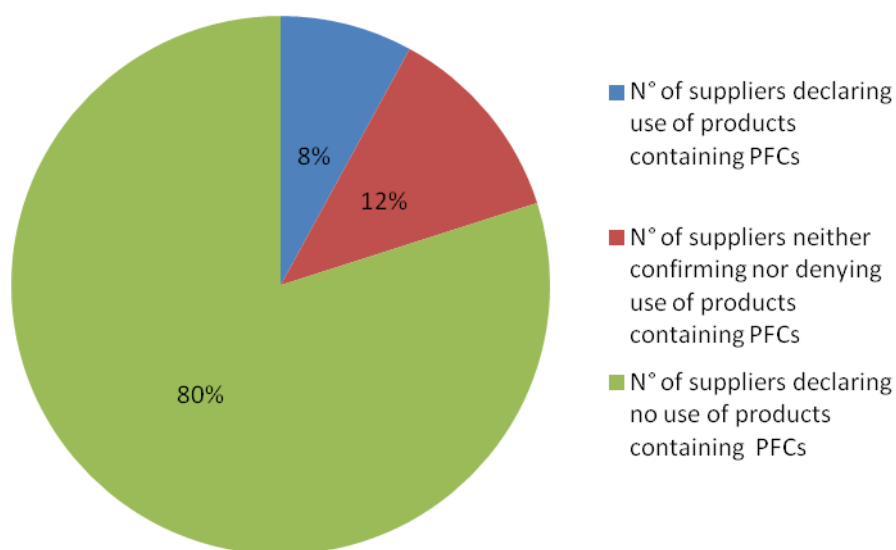
## SUPPLIER QUESTIONNAIRES

The supplier survey was implemented shortly after VFG signed the Detox Commitment and concluded in late September 2013. Questions were designed to evaluate various performance indicators such as the environmental impact of chemical substances used in production processes, the efficacy of chemical management procedures, chemical risk management and discharges of hazardous substances in to waste water and the environment.

The supplier survey provided an initial overview of the supply chain, allowing preliminary assessment of VFG's chemical risk exposure. While the questionnaire undoubtedly offered the advantage of collecting data on the specific aspects described above, results must be assessed in the light of certain limitations, including partial or misleading responses from some suppliers, or no response at all from others.

The results show that only 8% of respondents confirmed the use of products containing PFCs.

### Supplier Survey results: PFCs use



## PRODUCT TESTING

From November 2013 until now, following the introduction of the revised RSL, and through the Liquid Chromotography–Mass Spectrometry analysis, VFG has identified only one case of PFCs contamination during routine finished product testing. VFG took prompt action with the supplier to identify an alternative finishing treatment not containing PFOS and PFOA. Finished product screening focuses on garments with stain and/or water repellency treatments, and suppliers are explicitly required to use PFCs-free formulations in garment processing.

In the near future, VFG intends to extend the list of PFCs for elimination from the supply chain, to offer even higher protection to the health of consumers and the environment.

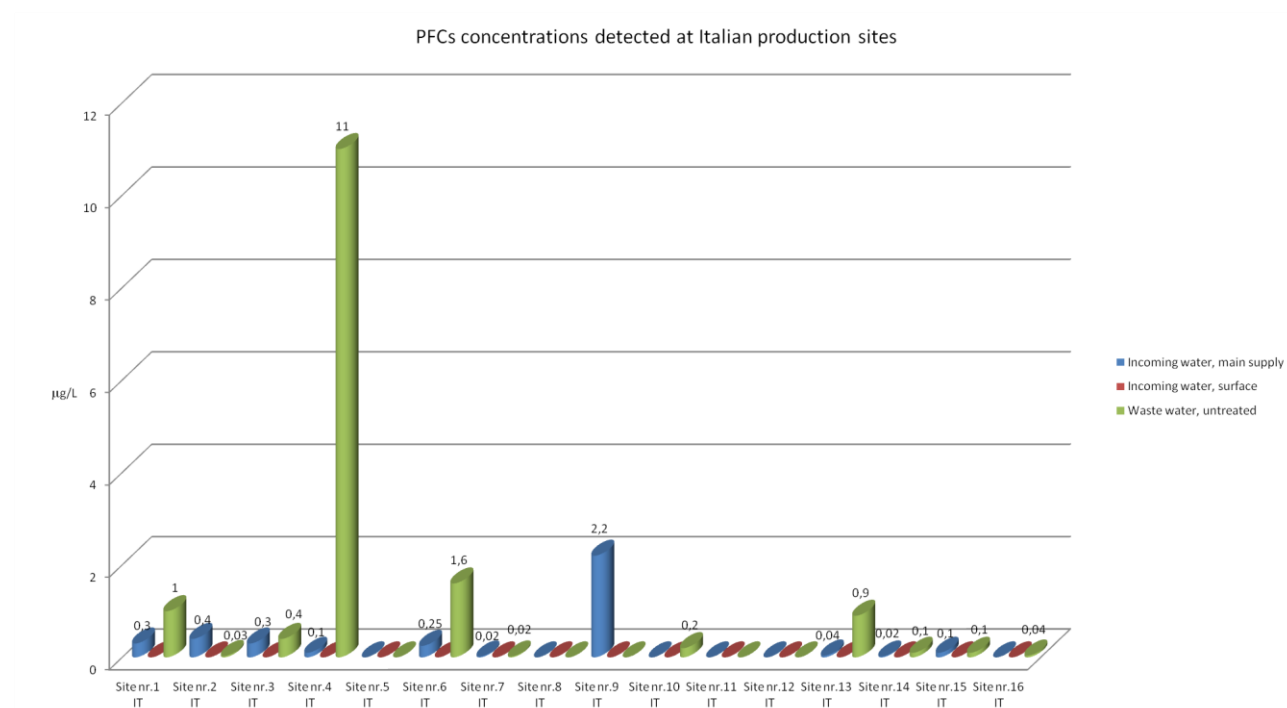
## SUPPLIER FACILITY AUDITS: FOCUS ON PFCs IN INCOMING AND WASTE WATER

During 2013, VFG embarked on a programme of water sampling at supply chain sites, monitoring both incoming and waste water. This initiative contributed to a complete and conscious vision of VFG's supply chain.

Water sampling results show that at 10 out of 16 sites in Italy PFCs were detected in incoming water and 11 out of 16 sites were detected in untreated waste water.

Treated waste water were not available to test because all facilities discharge in a common treatment plant.

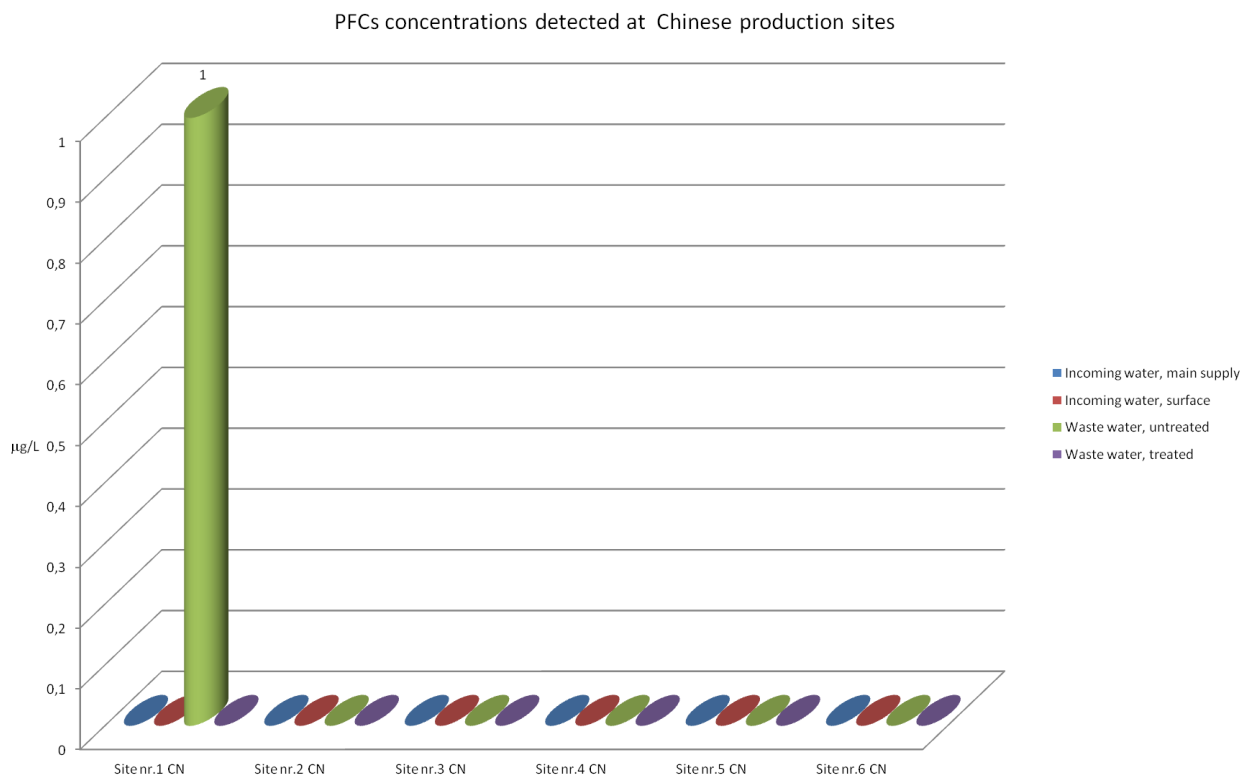
The following graph reports PFCs concentrations [ $\mu\text{g/L}$ ] detected at Italian production facilities.



The tests carried out at the suppliers facilities show that many of them discharge untreated waste waters containing PFCs. Therefore VFG is going to deeply investigate the reasons also in collaboration with the suppliers, analyzing chemical formulations in order to identify hazardous chemicals not reported into MSDS.

In China, waste water sampling highlighted only 1 case of PFCs contamination of untreated waste water at the 6 audited sites.

The following graph reports PFCs concentrations in [ $\mu\text{g/L}$ ] at the 6 Chinese facilities.



The factory auditing programme, through assessment of chemical risks and water sampling at production sites, in conjunction with the chemical screening of raw materials and finished products, represent key environmental performance indicators (KPI) that enable VFG to definite priorities for intervention and corrective actions, as well as to identify high risk product categories and chemical risks within in the supply chain.

In all cases where PFCs have been detected, even in trace amounts, VFG has taken action in partnership with suppliers to identify the causes, to source PFCs-free products and to raise awareness among raw material suppliers of VFG's environmental goals.

## CONCLUSIONS

The PFCs Investigation confirms very limited PFCs contamination of raw materials and finished products; conversely, it highlights a widespread presence of PFCs in incoming and waste water.

Through factory audits, screening of raw materials and finished products, incisive communication of environmental goals and direct supplier involvement, VFG has made measurable progress towards the goal of total PFCs elimination from the global supply chain.

Specifically, VFG has implemented the following actions:

- the introduction of detection limits in line with best available technology, both in finished products through the RSL and in processes through the MRSL;
- the reformulation of supply contracts to ensure full supply chain compliance with defined limits;
- the programme of chemical audits at all facilities in the supply chain where wet processes are carried out.

Furthermore, the active involvement of the entire supply chain has facilitated:

- the identification of chemical formulations containing PFCs still in current use;
- the identification of alternative formulations or substances that guarantee equivalent results in industrial processes;
- systematic substitution of PFCs to achieve total elimination across the supply chain;
- raise chemical awareness throughout the whole VFG supply chain, to ensure only PFCs-free products.

Further to the Detox Commitment, VFG can reasonably claim that no finished products contain above mentioned PFCs, thereby assuring that consumers receive products with outstanding style and quality that also guarantee a very high level of chemical safety.

VFG is fully aware that only with the active participation of the entire fashion industry it is possible to deliver the desired outcomes on a global scale, for example the chemical industry plays a key role on elimination of hazardous chemicals from their formulations. VFG is closely monitoring initiatives undertaken by other firms within the context of the Detox Commitment, ready to take part in all collective efforts and to share its experiences with others.

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## PHTHALATES INVESTIGATION REPORT



## VALENTINO FASHION GROUP COMMITMENT

Valentino Fashion Group (VFG) is pursuing, on an ongoing basis, the elimination of phthalates from the global supply chain. In this Phthalates Investigation Report VFG presents an update on the elimination process and on results achieved to date.

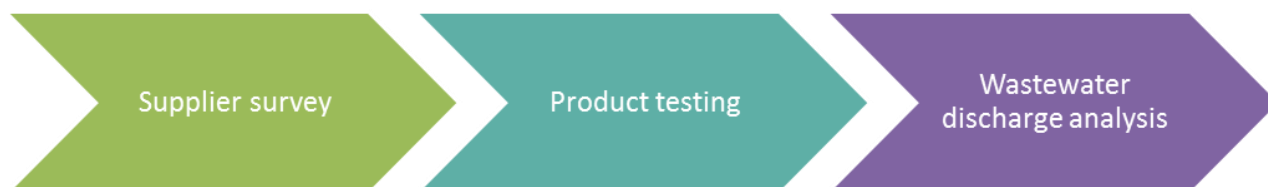
## THE NATURE OF PHTHALATES

Phthalates, or phthalate esters, are a group of compounds used mainly as plasticisers in the plastics industry. Key applications include the production of soft polyvinyl chloride (PVC) articles, plastisol prints and high pressure polyester dyeing; phthalates are also used in numerous other applications, such as cosmetics additives, adhesive tapes, erasers, tubes, paints, lubricants and carpets.

This group of molecules is considered particularly harmful to both man and to fauna, owing to structural similarities with human and animal cells that foster phthalate absorption; phthalates are also considered allergens and endocrine disruptors.

## VFG's ACTIONS

The Phthalates Investigation departed from the supplier survey, a self-assessment questionnaire on phthalates usage in production processes that all suppliers were invited to complete. At the same time, VFG intensified chemical screening for phthalates in raw materials and finished products. Subsequently, VFG initiated a programme of factory audits and waste water discharge analysis at supply chain facilities where wet processes are carried out, to detect specific use of this group of substances.



Through intensive supply chain monitoring and increased supplier involvement, VFG has gained greater awareness of the current state of the global supply chain, building partnerships with suppliers to ensure effective fulfilment of the new environmental compliance goals.

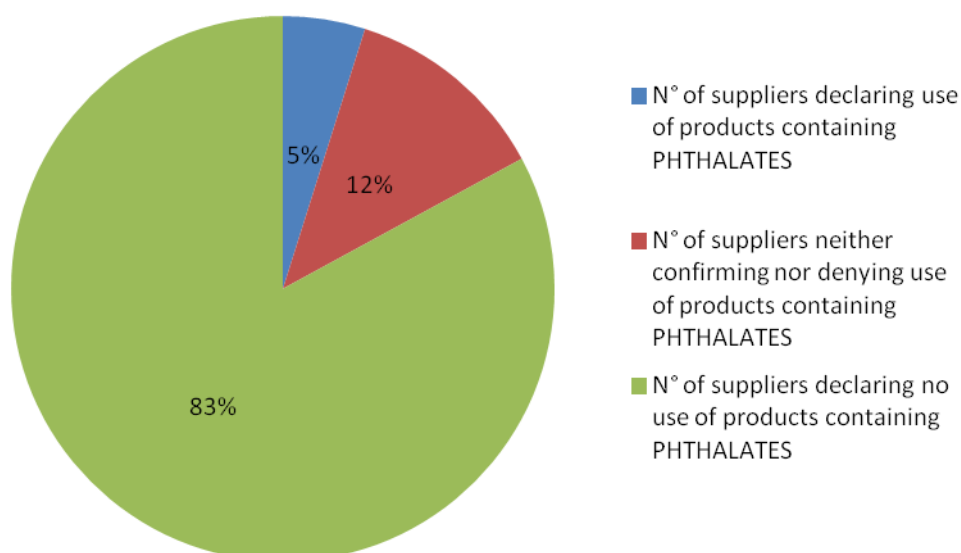
## SUPPLIER SURVEY

The supplier survey was implemented shortly after VFG signed the Detox Commitment and concluded in late September 2013. Questions were designed to evaluate various performance indicators such as the environmental impact of chemical substances used in processing, the efficacy of chemical management procedures, chemical risk management and discharges of hazardous substances into waste water and the environment.

The supplier survey provided an initial overview of the supply chain, allowing preliminary assessment of VFG's chemical risk exposure.

The results show that only 5% of respondents confirmed use of products containing phthalates.

### Supplier Survey results: PHTHALATES use



## PRODUCT TESTING

During raw material screening conducted throughout this period, VFG has detected only a minimal presence of phthalates in finished products. While no contamination was found in synthetic fabrics and prints, one instance of phthalate use emerged in PVC, through substitution with a phthalate-free alternative.

Owing to their high migration capacity, the risk of phthalates contamination is significant; VFG therefore extended chemical screening to garment bags; fortunately no positive results were recorded.

The inherent characteristics of phthalates which encourage their use in a wide range of applications make them very difficult to control: contamination may arise at any stage of production, resulting from use of unsuitable chemical products, but also during product warehousing and packaging operations.

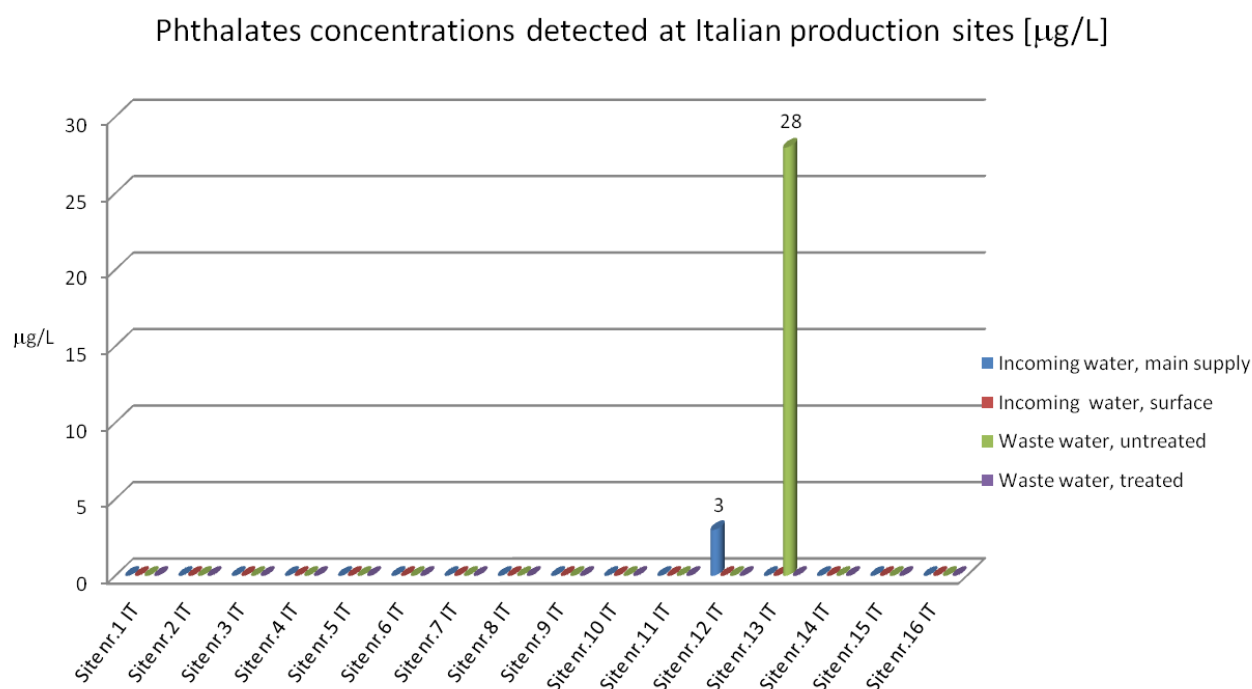
# SUPPLIER FACILITY AUDITS: FOCUS ON PHthalates IN INCOMING AND WASTE WATER

During the year 2013, VFG initiated a programme of water sampling, monitoring incoming and waste water at production chain sites. This initiative helped to build a complete and conscious vision of VFG's supply chain.

Water sampling at facilities in Italy detected phthalates contamination in incoming water at only 1 site out of 16, and at only 1 different site in untreated waste water.

Treated waste water were not available to test because all facilities discharge in a common treatment plant.

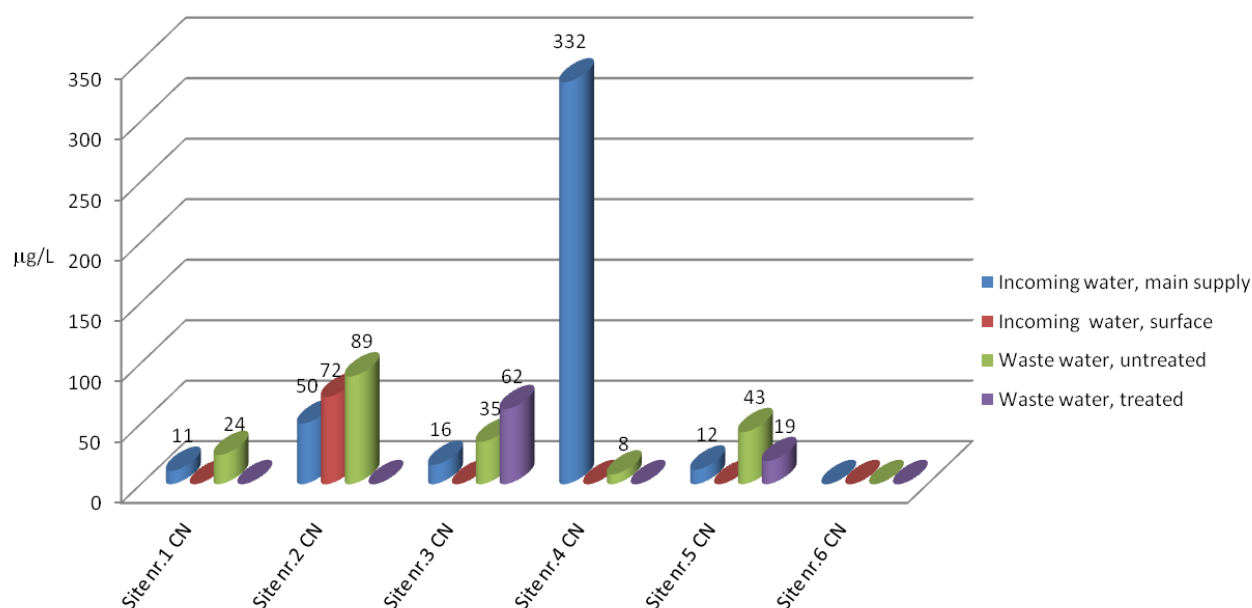
The following graph reports the phthalates concentrations detected at supply chain facilities in Italy.



An entirely different picture emerged from water sampling activities in China. At 5 out of 6 facilities, significant phthalates contamination was detected both in incoming and waste water. Concentrations were lower in incoming water than in waste water, confirming phthalates use at 4 out of 6 facilities. In one particular case, phthalates contamination was higher in incoming water than in waste water.

The following graph reports the phthalates concentrations detected at supply chain facilities in China.

Phthalates concentrations detected at Chinese production sites [ $\mu\text{g/L}$ ]



At facilities where it was possible to sample waste water both before and after treatment, phthalates were detected even after treatment, suggesting that water treatment does not totally eliminate hazardous chemicals.

\* \* \*

The factory auditing programme, through assessment of chemical risks and water sampling at production sites, in conjunction with the chemical screening of raw materials and finished products, represent key environmental performance indicators (KPI) that enable VFG to definite priorities for intervention and corrective actions, as well as to identify high risk product categories and chemical risks within in the supply chain.

In all cases where phthalates have been detected, by EN 15777 test method, VFG has taken action in partnership with suppliers to identify the causes, to source phthalate-free products and to raise awareness among raw material suppliers of VFG's environmental goals.

## CONCLUSIONS

The Phthalates Investigation confirms very limited phthalates contamination of raw materials and finished products; conversely, it highlights a widespread presence of phthalates in incoming and waste water.

Through factory audits, screening of raw materials and finished products, incisive communication of environmental goals and direct supplier involvement, VFG has made measurable progress towards the goal of total phthalate elimination from the global supply chain.

Specifically, VFG has implemented the following actions:

- the introduction of detection limits in line with best available technology, both in finished products through the RSL and in processes through the MRSL;
- the reformulation of supply contracts to ensure full supply chain compliance with defined limits;
- the programme of chemical audits at all facilities in the supply chain where wet processes are carried out.

Furthermore, the active involvement of the entire supply chain has facilitated:

- the identification of chemical formulations containing phthalates still in current use;
- the identification of alternative formulations or substances that guarantee equivalent results in industrial processes;
- systematic substitution of phthalates to achieve total elimination across the supply chain;
- raise chemical awareness throughout the whole VFG supply chain, to ensure only phthalates-free products;

Further to the Detox Commitment, VFG can reasonably claim that no finished products contain phthalates, thereby assuring that consumers receive products with outstanding style and quality that also guarantee a very high level of chemical safety.

VFG is fully aware that only with the active participation of the entire fashion industry it is possible to deliver the desired outcomes on a global scale, for example the chemical industry plays a key role on elimination of hazardous chemicals from their formulations. VFG is closely monitoring initiatives undertaken by other firms within the context of the Detox Commitment, ready to take part in all collective efforts and to share its experiences with others.