



Itaclab Srl
APEOs Elimination Investigation Report

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The APEOs Elimination Investigation Report is in fulfillment of the [Itaclab Srl](#) Commitment to the DETOX solution which were made public on 15th March, 2016

Itaclab Srl supports the Detox solution to ban hazardous chemicals from fashion



This report was prepared on behalf of Itaclab Srl by Blumine Srl

Blumine Srl is an independent consulting company specialized in supporting textile and fashion companies in sustainability projects.



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Table of Contents

| | | |
|-------|--|----|
| 1 | APEOs in textile processes..... | 4 |
| 2 | Overview of Itaclab Srl processes | 5 |
| 3 | Risk of APEOs use and contaminations in the Itaclab Srl processes..... | 5 |
| 4 | The investigation plan | 6 |
| 5 | APEOs elimination in the Itaclab Srl internal processes | 7 |
| 5.1 | Method | 7 |
| 5.2 | Summary of results and action to be taken | 7 |
| 5.3 | Survey with Itaclab Srl suppliers..... | 8 |
| 5.3.1 | Method: survey frame | 8 |
| 5.3.2 | Suppliers' awareness of APEOs impact on human health..... | 8 |
| 5.3.3 | Cooperation in investigating APEOs in the supply chain | 9 |
| 6 | Conclusions from the investigation and Itaclab Srl next steps | 10 |

1 APEOs in textile processes

Alkylphenol ethoxylates (APEOs) are a group of nonionic surfactants, the most commonly used being nonylphenol ethoxylates (NPEOs) and octylphenol ethoxylates (OPEOs).

The chemical structure of these molecules has led to a widespread use in textile processes, especially in wet processes, owing to their dispersant, detergent and emulsifying action.

APEOs are hazardous for the environment and for aquatic organisms. Recent research confirms that APEOs are potential endocrine disruptors, as well as being highly bio-accumulative and persistent. APEOs contamination has been detected in riverbeds, water tables and even in the human food chain.

APEOs are already subject to restrictions in Europe since 2005. The EU 2003/53/EG directive has prohibited the use of the main group of APEOs, the NPEOs, in concentrations greater than 0.1% in chemical intermediates. The presence of this group of substances in the processes of European companies and the final products can however be induced by semi-finished and chemicals produced in countries where the use of APEOs is allowed.

Itaclab Srl understands that there are multiple supply-chain pathways for potential APEO contamination, including chemical formulations, and is committed to enhancing both training and auditing of our supply chain to ensure our suppliers have the latest information on APEOs, highlighting where there is a risk that APEOs may enter in the undocumented contamination of chemical supplier formulations.

To safeguard the health and safety of consumers, producers and local communities, **Itaclab Srl** starting from **March 2016** has introduced the ban on APEOs in the Manufacture Restricted Substances List (M-RSL) that suppliers are required to comply with.

2 Overview of Itaclab Srl processes

Itaclab Srl is a provider of finishings and special effects treatments - including washhouse and dye house treatments. The company offers a full range of services: from the conception, to the prototyping, the development and the industrialization of jeans wear collections.

Treatments implemented in the company's premises in Grottammare, AP, Italy, on denim jeans include wet and dry processes: tinting, stone washing, resin application, coating, sponging, dyeing and over dyeing, pigment and enzyme spraying, washing and stonewashing, grinding and tacking, whiskers and 3d whiskers making. Some of the processes use very intensively various chemicals and water.

Our commitment to ensure the best performances in terms of both style and sustainable quality is based on three pillars:

- the role of the internal laboratory for chemical and physical analysis that runs systematic compliance testing to the company's safety, environmental and performance standards of all the new chemicals used in the treatments. When a customer brand client asks for new special treatment, the lab tests the required chemicals for compliance to Itaclab standards. Itaclab policy is that short of lab approval the customer request is rejected.
- the role of the R&D department that systematically test products and chemical treatments with lower impact to replace those with higher impact and less technological.
- the partnership approach with our chemicals suppliers, with whom we establish a transparent relationship for complete information on chemical formulations.

3 Risk of APEOs use and contaminations in the Itaclab Srl processes

Possible ways APEOs can find their way into **Itaclab Srl** products are chemical auxiliaries, namely in formulation of lubricants; antistatic agents; dispersants; emulsifiers; silicon based softeners; leveling agents; surfactants; and auxiliaries with high content of dispersants or emulsifiers.

Some of these auxiliaries where APEOs could potentially be used to improve the functional performances, are directly used in **Itaclab Srl** own processes, although **Itaclab Srl** selects these chemicals and its suppliers to avoid their use.

Chemicals auxiliaries used by the **Itaclab Srl** are all supplied in Italy, thus minimizing, but not excluding, the risk of unintentional use of APEOs.

Compliance with the APEO ban requirement is a key criterion currently adopted by **Itaclab Srl** to select chemicals suppliers. Constant monitoring and cooperation with suppliers must however complement the declarations of non-use of hazardous chemicals released by suppliers.

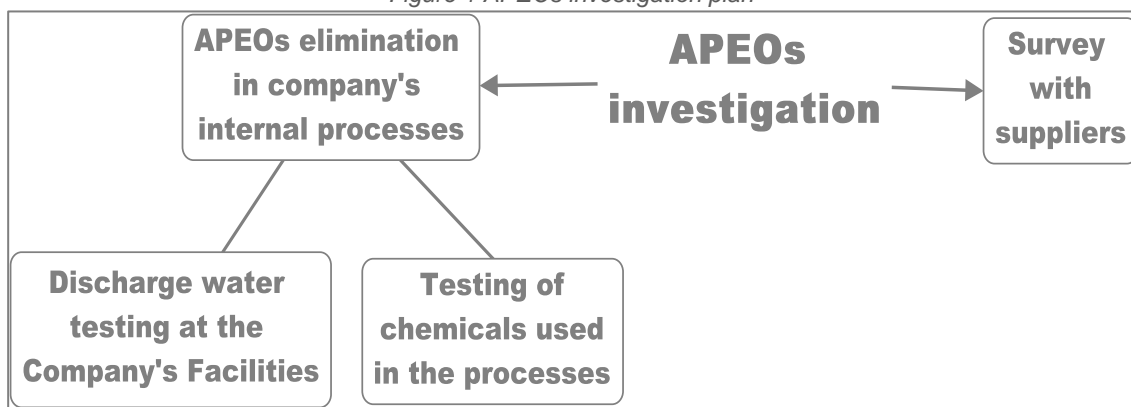
APEOs can however be found on semi-finished textiles and garments conferred by clients under processing agreements, especially in products sourced in Countries where the use of APEOs is allowed¹. The risk is especially high in the first stage of fiber production, as APEOs can be found in chemicals used for cotton growing (biocides and pesticides, for foliar feeding and fertilization) and yarn manufacturing. The risk is also high in finishings realized prior to ours under the responsibility of our clients: lubricants; antistatic agents; dispersants; emulsifiers; silicon based softeners; leveling agents; surfactants; and other auxiliaries with high content of dispersants or emulsifiers can also be used by suppliers namely of grey and dyed yarns, gray, dyed or printed fabrics and of dyeing, printing and finishing services.

4 The investigation plan

Consistent with the Detox commitments signed in **March 2016**, and as part of a program of work to eliminate from the supply chain the use of APEOs and all hazardous chemicals from its processes and supply chain, **Itaclab Srl** carried out a fact-finding investigation to check if any APEOs enters, or risk to enter, intentionally or unintentionally, in its processes and products.

A further component of the investigation was a questionnaire based survey with the suppliers to check their awareness about the APEOs toxic features and to assess the risk APEOs can enter manufacturing processes in the supply chain.

Figure 1 APEOs investigation plan



The survey was undertaken at an individual supplier level, and was based on suppliers' self-declaration, self-assessment. All the measures were taken to incentivize the supplier to provide an open and honest evaluation. It is however important to note that the self-assessment nature of the survey brings some limitations to survey results and ensuing conclusions.

¹ In Europe, the use of NPEO has been banned or voluntarily restricted since 1986. Since 1998, the use of APEO in detergents has been forbidden in Germany – and since [month] 2005 the EU directive 2003/53/ EG has forbidden the use of NPEO in higher concentrations than 0.1% in product formulations.
See: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:178:0024:0027:en:PDF> (last seen Nov. 2016)

Further to evaluate awareness and risk, the survey played also the role to inform the suppliers about the health risks relevant to APEOs and to reinforce information about the APEOs ban policy of **Itaclab Srl**.

5 APEOs elimination in the Itaclab Srl internal processes

The basis of the investigation was an initial exploration of the company' s internal processes through the testing of discharge waters - pre- water effluent treatment - at company' s facilities.

5.1 Method

First step was to implement water testing at the **Itaclab Srl** main facilities by an independent certified lab, to check the presence of the 11 DETOX priority chemical groups, including APEOs, in the facilities' effluent water.

A test is considered "Pass" if the substance is "not detectable" at the specific method LOD. Best testing methods available at independent certified laboratories were used. For all APEOs the LOD is set at 0,01 µg/l. LODs of the other 10 priority groups can be found in the full test reports at [this link](#) in the **Itaclab Srl** website.

The test was made in **January 2016**.

Results of the APEOs testing are summarized in the table below.

Table 1 - Test results by product

| Sample Type | Substance name | Cas n. | LOD | Pass/ Fail |
|-------------|------------------|--|-----------|------------------|
| Waste water | All other APEOs | various | 0,01 µg/l | Pass |
| Waste water | Nonylphenol - NP | 25154-53-3 / 140-40-5 / 110066-49-2 / 84852-15-3 | 0,01 µg/l | Fail (2,10 µg/l) |

5.2 Summary of results and action to be taken

Test were Pass for all APEOs except a multiple group of Nonylphenol - NP that were found with a concentration higher than the LOD– 2,10 µg/l (2,1 parts per billion).

While the very low level of NPEOs and the absence of other APEOs found by the tests confirm that no systematic or intentional use of APEOs is carried out by the company, a supplement of investigation is due to spot the source of contamination:

- the high number of different types of garment conferred for treatment by customers makes practically not doable verifying if the garments themselves are the contamination source. Moreover in case of contamination detection the responsibility and the possibility to take action would be up to the clients and no effective action could be taken by Itaclab.

- A supplement of investigation on the elimination of APEOs in our internal processes will thus be carried focusing on the possible sources of contamination different from the garment conferred by clients, especially the input water that can be contaminated before entering the Itaclab processes and the chemicals used in the processes that can randomly be unintentionally contaminated. Starting from December 2016 we will conduct specific testing on APEOs on our input water, to verify if it is contaminated. Meanwhile, we will conduct specific testing on chemicals, focusing on the products with a highest risk of potential unintentional use of APEOs. In our purchases there are around 20 of such products, which can be divided in two main categories: process auxiliaries (cationic softeners; sequestering, leveling and dispersing agents; surfactants) and indoor cleaners, which are used to deterge, degrease and deodorize our premises and could generate aerial contamination, traceable at extremely low LODs.

5.3 Survey with Itaclab Srl suppliers

Itaclab Srl recognizes that all suppliers must be involved in the process of the substitution of APEOs from the supply chain. Therefore, an investigation on the use of APEOs by suppliers was launched in October 2016.

5.3.1 Method: survey frame

In **October 2016**, **Itaclab Srl** conducted a global survey with our chemicals' suppliers to assess:

- the suppliers' awareness of APEOs impact on human health
- the cooperation willingness of suppliers to investigate the presence of APEOs in the supply chain

A survey questionnaire was sent to 4 suppliers accounting for 80% of relevant **Itaclab Srl** supplies. The survey redemption rate was 100%.

The survey was based on suppliers' self-declaration, self-assessment. All the measures were taken to incentivize the supplier to provide an open and honest evaluation. It is however important to note that the self-assessment nature of the survey brings some limitations to survey results and ensuing conclusions.

The answers helped in the assessment of suppliers' M-RSL non-compliance in APEO use risk assessment, including an assessment of the awareness and the monitoring capacity of the suppliers.

5.3.2 Suppliers' awareness of APEOs impact on human health

The **Itaclab Srl** suppliers' level of awareness about APEOs impact on human health was surveyed with two specific questions:

- Q20. Do You know or have You heard about the presence of surfactants like Alkylphenol, Nonylphenol or Octylphenol Ethoxylates (APEOs) in cleansing detergents?

- Q25. Do You know that the EU will introduce a ban to market any product with traces of APEOs in the European market (included imported items)?

The three respondents supplying chemical formulations declared knowing about APEOs and the coming UE ban on them. The fourth supplier answered No to both questions. It can be explained by the fact that it is supplying basic chemicals, simple products where APEOs have no reason to enter or even contaminate.

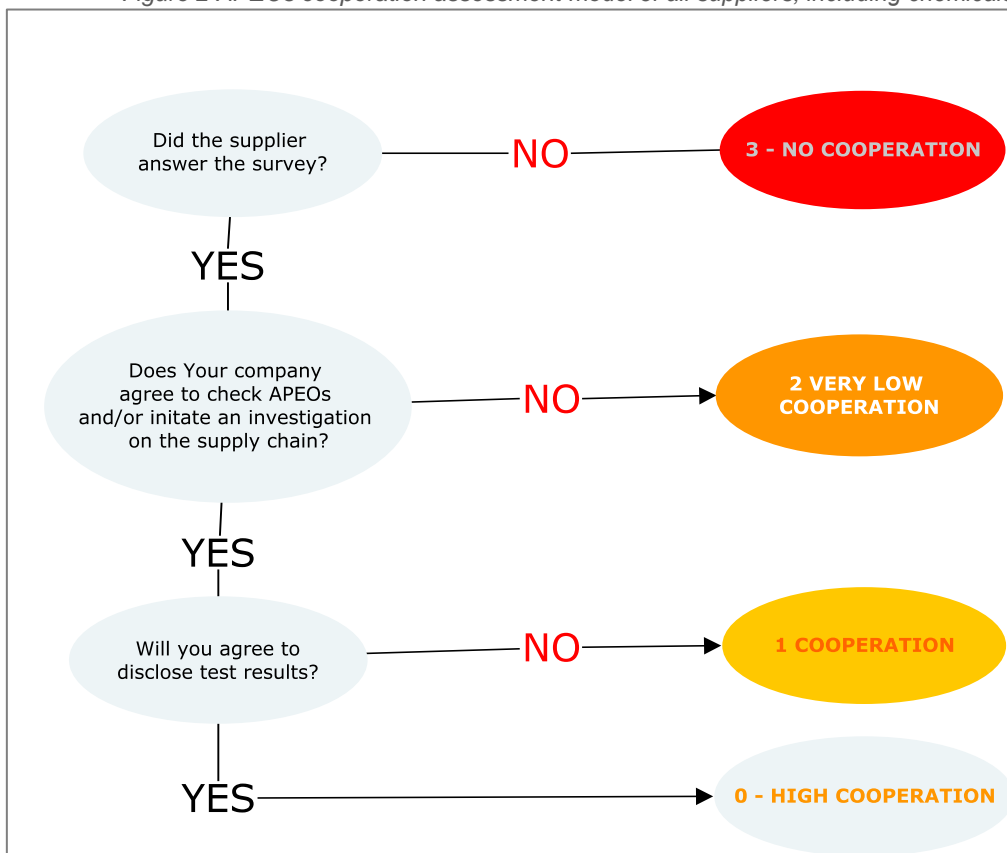
An information action to improve its awareness on APEOs will be taken anyway.

5.3.3 Cooperation in investigating APEOs in the supply chain

The suppliers' level of cooperation was surveyed with two specific questions:

- Q26. Will You agree to initiate an investigation on the presence of APEOs in the cleansing detergents consumed by Your Company and/or by your suppliers?
- Q27. In case APEOs are detected on the products You sell to our company will You agree to initiate an investigation to eliminate them and to have APEOs based detergents substituted with environmentally friendly ones (in your processes and/or by your suppliers)?

Figure 2 APEOs cooperation assessment model of all suppliers, including chemicals'



The 4 suppliers involved in the survey participated and agreed to initiate an investigation for elimination and substitution with their suppliers in case APEOs were to be found in their products in the future.

Since the ratio of high cooperation is 100%, it is not necessary to undertake further actions on present suppliers.

6 Conclusions from the investigation and Itaclab Srl next steps

Itaclab Srl understands that there are multiple supply-chain pathways for potential APEO contamination (including chemical formulations) and is committed to enhancing both training and auditing of the supply chain to ensure suppliers have the latest information on APEOs, highlighting where there is a risk that APEOs may enter the undocumented contamination of chemical supplier formulations.

The elimination of APEOs across the supply chain is a key success metric for the individual action plans of **Itaclab Srl and Itaclab Srl**.

A number of initiatives are already in progress or implemented to ensure no APEOs can enter **Itaclab Srl** products at different stages in the supply chain:

- According to the **Itaclab Srl** public M-RSLs, which set detection limits in line with best available technology, APEOs are banned since **March 2016**.
- Supply contracts are being reformulated to reinforce full supply chain compliance with **Itaclab Srl** APEOs elimination commitment;
- A focused testing program was implemented in **January 2016** on **Itaclab Srl** waste water;
- A questionnaire survey was delivered to relevant suppliers in October 2016, to investigate:
 - o the suppliers' awareness of APEOs impact on human health
 - o the cooperation willingness of suppliers to investigate the presence of APEOs in the supply chain

Main findings

- Fail – 2,10 µg/l on a multiple group of Nonylphenol - NP and “Non detectable” for all other APEOs in the sample.
- Traces of APEOs – 2,10 µg/l on a multiple group of Nonylphenol - NP - were found on **Itaclab Srl** output water. A very low result that does not depend on intentional use, as per the collected chemicals suppliers' declarations.
- APEOs presence in output water can depend on unintentional use of APEOs by chemicals suppliers or on contamination of input water or originated by processes carried over garments conferred by clients under processing agreements.
- The supplier survey was answered by 100% of the 4 suppliers involved in the survey by the **Itaclab Srl**, all located in Italy - thus minimizing, but not

excluding, the risk of unintentional use of APEOs - and accounting for 80% of the supplies.

- The survey found that awareness about APEOs issue is good with just one supplier (of basic chemical products) unaware, which will be addressed with an information action.
- The survey found that cooperation for APEOs elimination is very satisfactory, with an overall 100% of high cooperation and no action needed to be taken on this issue at present.
- The survey found all suppliers open to disclose full information about APEOs related water testing to **Itaclab Srl** and to initiate further investigations with the supply chain if necessary, and no further action needed to be taken on this issue at present.

Actions

A supplement of investigation on the elimination of APEOs in our internal processes will be carried out as part of our ongoing testing activities. Testing will focus on the following possible sources of contamination: the input water and the chemicals used in our premises. Starting from December 2016 we will conduct specific testing on APEOs on our input water, to verify if it is contaminated. Meanwhile, we will conduct specific testing on chemicals, focusing on the products with a highest risk of potential unintentional use of APEOs. In our purchases there are around 20 of such products, which can be divided in two main categories: process auxiliaries (cationic softeners; sequestering, leveling and dispersing agents; surfactants) and indoor cleaners, which are used to deterge, degrease and deodorize our premises and could generate aerial contamination, traceable at extremely low LODs.

More in general, **Itaclab Srl** is working to achieve active involvement across the supply chain in order to:

- Disseminate information about APEOs substitutes;
- Identify chemical formulations containing APEOs still in use;
- Identify alternative formulations or substances that guarantee equivalent results in industrial processing;
- Undertake systematic substitution to achieve total elimination across the supply chain.

Itaclab Srl, as part of the Italian DETOXLeader Group together with Canepa Spa, Miroglio Group, Italdenim Spa, Berbrand Srl, Tessitura Attilio Imperiali Spa, Zip Gfd Spa, Ditta Gaetano Lanfranchi Spa, Ongetta Group, Taroni Spa, Fellicolor Spa, Mabo Spa, Cotonificio Olcese Spa, Filmar Spa, Filmar Nile Textile S.A.E., Dienpi Srl, Maglificio Ripa Spa, Monticolor Spa, Imbotex Srl, Alesilk Sas 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.