

TEXCENE S.p.A.

Cap. Soc. € 5.400.000,00
24020 CENE (BG) - Via E. Capitanio, 9 - Tel. (035) 719210 - Telefax (035) 719415
R.E.A. BG n. 232845 - Registro Imprese n. 30575 - C.F. e P. IVA IT 01737060168
www.texcene.com - info@texcene.com



TEXCENE SPA

APEOs Elimination Investigation Report

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TEXCENE SPA

Email: info@texcene.com

Web : www.texcene.com

The APEOs Elimination Investigation Report is in fulfillment of the **TEXCENE SPA** commitment to the DETOX solution which was made public on 18th July, 2017.

TEXCENE SPA supports the Detox solution to ban hazardous chemicals from fashion



This report was prepared on behalf of TEXCENE SPA by **Blumine Srl**, an independent consulting company specialized in supporting textile and fashion companies in sustainability projects.



detoxleader@blumine.it

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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.

TEXCENE SPA 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 its supply chain to ensure that 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, **TEXCENE SPA** starting from **July 2017** has introduced the ban on APEOs in the Manufacture Restricted Substances List (M-RSL) that suppliers are required to comply with.

2 Overview of TEXCENE SPA processes

TEXCENE SPA, part of the Pezzoli Group, relies on over 35 years of experience in delivering high quality solutions for bleaching, dyeing and finishing on a complete range of textiles: yarns, fabrics and terry cloths. We can meet any of our customers' requirements with a flexible customer-oriented approach: high quality and fast service for tailored solutions.

In our 20,000 square meters plant in Cene (Bergamo, Italy) we implemented all our textile finishing processes in parallel, using machinery available only for a limited number of top players in the European textile industry.

Aware of our intense use of energy and water, every day we renew our commitment to protect the environment and improve people's wellbeing by integrating in our processes

energy saving technologies, such as a 450 KWh hydroelectric power station, 980 KWh solar panels and a co-generation plant fueled by natural gas to produce 2 MWh of electricity and 0.85 MWh of thermal power. We also employ heat recovery units, fume abatement equipment and purifiers.

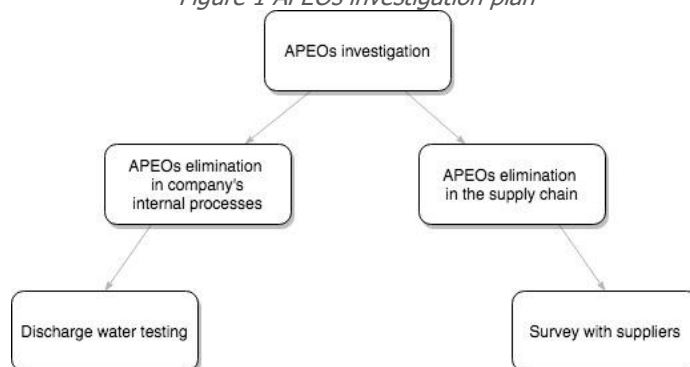
3 Risk of APEOs use in the *TEXCENE SPA* supply chain

Possible ways APEOs can find their way into the Company's products are chemical auxiliaries such as: lubricants, antistatic agents, dispersants, emulsifiers, silicon based softeners, leveling agents, surfactants, and other auxiliaries with high content of dispersants or emulsifiers that can be used by suppliers of grey yarns and fabrics and of finishing services. APEOs can also be found on fibers, especially when raw materials are sourced in Countries where the use of APEOs is allowed¹ as APEOs can be found in cotton growing chemicals (for foliar feeding and fertilization) and surfactants formulations used in different production stages and due to the large use of detergents for pulping wastes, leather tanning, silk and other natural fibers production.

4 The investigation plan

Consistent with the Detox commitments signed in **July 2017**, and as part of a program of work to eliminate APEOs and all hazardous chemicals, **TEXCENE SPA** carried out a fact-finding investigation about APEOs use in the supply chain.

Figure 1 APEOs investigation plan



A component of the investigation on suppliers was a questionnaire-based survey about the suppliers' awareness of the APEOs toxic features, the risk of APEOs. The survey was undertaken at individual supplier level and was based on suppliers' self-declaration and

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 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)

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 survey played also the role to inform the suppliers about the health risks relevant to APEOs and to reinforce information about **TEXCENE SPA's APEOs ban policy**.

5 APEOs elimination in the *TEXCENE SPA* supply chain

5.1 APEOs Testing

An APEOs testing campaign has been implemented on a sample of the Cene's company owned plant waste waters. The effluent water was sampled in **November 2016**.

✓ Pass / Fail threshold

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. The LOD is set at 1,0 µg/l for NPEOs, OPEOs, NPs and OPs. LODs of the other 10 priority groups can be found in the full test reports at [this link](#) in the **TEXCENE SPA** website.

✓ Results

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

Table 1 - Test results by product

Substance tested	Cas n.	Sample	LOD	Pass/ Fail
NPEO (1-20)	Various	16LA19109	1,0 µg/l	Pass
OPEO (1-20)	Various	16LA19109	1,0 µg/l	Pass
Nonylphenol (NP)	90481-04-2	16LA19109	1,0 µg/l	Pass
4-Nonylphenol (branched) (NP)	84852-15-3	16LA19109	1,0 µg/l	Pass
Octylphenol (OP)	27193-28-8	16LA19109	1,0 µg/l	Pass
4-Nonylphenol (NP)	25154-52-3	16LA19109	1,0 µg/l	Pass
4-Octylphenol (OP)	1806-26-4	16LA19109	1,0 µg/l	Pass

Test were Pass for all APEOs in all samples, providing no evidence of APEOs used in the company's processes/supply chain.

5.2 Survey with **TEXCENE SPA's** suppliers

TEXCENE SPA recognizes that all suppliers must be involved in the process of elimination of APEOs from the supply chain. Therefore, an investigation on the use of APEOs by suppliers was launched in **March 2018**.

5.2.1 *Method: survey frame*

In March 2018, **TEXCENE SPA** conducted a survey with suppliers to assess:

- the risk of APEOs (intentional) use
- the cooperation of all suppliers, including chemicals', to investigate the presence of APEOs in the supply chain

A survey questionnaire was sent to 25 chemicals' suppliers accounting for 40% of relevant **TEXCENE SPA's** suppliers, 21 of the involved suppliers participated: 1 respondent is from Switzerland, 1 from Japan and 19 are from Italy. The survey redemption rate was around 84%, corresponding to 34% of relevant company's purchases.

The survey was based on suppliers' self-declaration and 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.

5.2.2 *Risk of APEOs Intentional use by suppliers*

The intentional use of APEOs by suppliers was investigated with a funnel questioning approach:

For all Fiber, Yarn or Raw material producer/reseller/exporter/importer or Dyeing, Finishing, Ennobling or any other Wet Processing Unit

- Q7. Does Your Company use water in any manufacturing stage?
- Q9. (if yes to Q7) Does Your Company use cleansing detergents?
- Q10. (If yes to Q9) Does Your Company use surfactants?
- Q11. (If yes to Q10) Does Your Company use APEO based cleansing detergents?

For all Chemicals producer/reseller

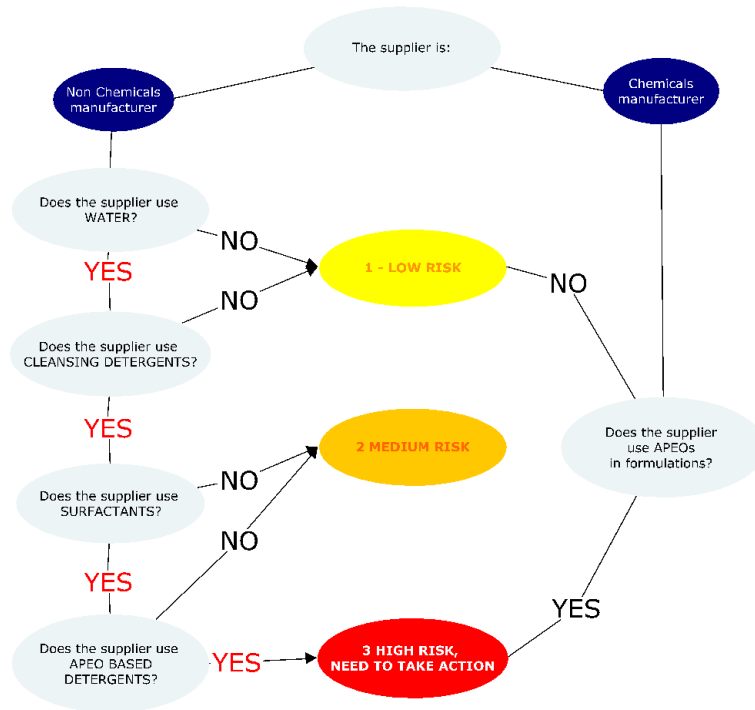
- Q17. Does Your company use APEOs in the formulation of Colorants, Lubricants, Emulsifiers, Detergents and/or of any other product?

The risk assessment model assumes that supplier not using water in the industrial processes makes the potential risk of intentional use of APEOs very low. The model however suffers from a limitation: the supplier (1st tier) can be unaware of APEOs use by its own suppliers (2nd or 3^d tiers), short of information about suppliers' own supply chain the limitation cannot be overcome. The assessment model, shown in Figure 2 suppliers' APEOs intentional use risk assessment model, identifies three levels of risk and the relevant actions to implement:

- **Low risk (for Fiber, Yarn or Raw material producer/reseller/exporter/importer or Dyeing, Finishing, Ennobling or any other Wet**

- Processing Unit).** Action: ask supplier to investigate its own wet processes suppliers
- **Low risk (for Chemicals producer/reseller).** Action: set monitoring plan
 - **Medium risk (only for Fiber, Yarn or Raw material producer/reseller/exporter/importer or Dyeing, Finishing, Ennobling or any other Wet Processing Unit).** Action: check supplier APEOs awareness, set monitoring plan
 - **High risk.** Action: request the supplier to eliminate APEOs or change supplier

Figure 2 suppliers' APEOs intentional use risk assessment model



✓ Results

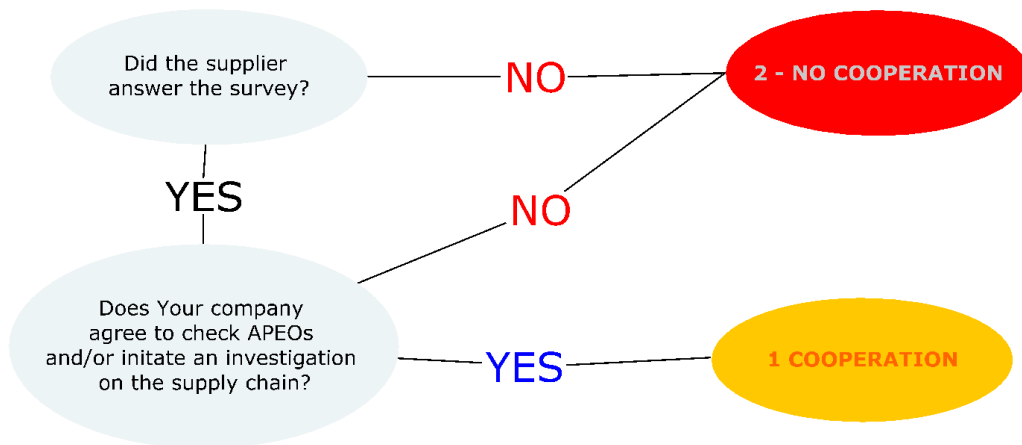
- 21 suppliers were classified LOW RISK because not using APEOs. The products purchased from these suppliers will be monitored for the presence of APEOs

5.2.3 Cooperation in investigating APEOs in the supply chain

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

- Q27. 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?
- Q28. 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?

Figure 3 APEOs cooperation assessment model of all suppliers



✓ Results

- 5 suppliers involved in the survey were classified as "NO COOPERATION" as 4 did not participate and 1 did not agree to initiate an investigation, monitoring will be strengthened for these suppliers
- 20 suppliers agreed to initiate an investigation on APEOs and 18 in case APEOs were found in their products, all of them were classified as "COOPERATION" and do not need any further action.

6 Conclusions from the investigation and *TEXCENE SPA* next steps

TEXCENE SPA understands that there are multiple supply-chain pathways for potential APEOs 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 the company. Initiatives are already in progress or implemented to ensure no APEOs can

enter **TEXCENE SPA** products at different stages in the supply chain:

- The public M-RSL bans the use of APEOs since **July 2017**.
- Supply contracts have been reformulated to reinforce full supply chain compliance with APEOs elimination commitment.
- An APEOs focused testing program was implemented in **November 2016** on a sample of effluent waters.
- A questionnaire survey was delivered to relevant suppliers in **March 2018**, to investigate:
 - o the risk of APEOs (intentional) use
 - o the cooperation willingness of all suppliers, including chemicals', to investigate the presence of APEOs in the supply chain.

Main findings

- Tests provided no evidence of APEOs being used in **TEXCENE SPA** processes.
- The survey was answered by 21 of the 25 involved suppliers in the survey
- The survey highlighted an overall low risk of APEOs intentional use in the supply chain, with 21 LOW RISK suppliers
- The survey found that cooperation for APEOs elimination is satisfactory, with 20 suppliers classified "COOPERATION", and 5 "NO COOPERATION". An action aimed to improve cooperation of the latter will be set up in 2018 to foster risk prevention.

TEXCENE SPA 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.

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