



# Bremer Umweltinstitut<sup>⊕</sup>

Gesellschaft für Schadstoffanalysen  
und Begutachtung mbH

Fahrenheitstr. 1  
D-28359 Bremen  
Fon +49(0)421 / 7 66 65  
Fax +49(0)421 / 7 14 04  
mail@bremer-umweltinstitut.de  
www.bremer-umweltinstitut.de



Bremer Umweltinstitut GmbH · Fahrenheitstr. 1 · D-28359 Bremen

Svoboda Zvířat  
to Mrs Lucie Moracová  
Koterovská 84

326 00 Plzeň  
Tschechien

AZ: K 2402 FL I

16.12.2015

Dear Mrs. Moracová,

enclosed you will find the evaluative report of the analysis of six fur samples.

For the assessment, data of noticeable parameters of the analysis report K 2402 FL from the 16th of December was used.

The results are structured as follows:

1. GENERAL DESCRIPTION OF THE ORDER
2. SUMMARY
3. EVALUATION

For any inquiries please don't hesitate to contact us.

With best regards,

Bremer Umweltinstitut

Ulrike Siemers,  
Grad. Engineer Chemical Technics

Attachment: REPORT



Deutsche  
Akkreditierungsstelle  
D-PL-18812-01-00

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## **REPORT**

### **1 Description of order**

<b>Client:</b>	Svoboda Zvířat to Mrs Lucie Moracová Koterovská 84 326 00 Plzeň
<b>Date of order:</b>	25-11-2015
<b>Agent:</b>	Bremer Umweltinstitut Gesellschaft für Schadstoffanalysen und Begutachtung mbH Fahrenheitstraße 1 28359 Bremen
<b>Number of report:</b>	K 2402 FL I
<b>Related analysis reports:</b>	K 2402 FL from 16-12-2015
<b>Creation date:</b>	16.12.2015
<b>Purpose / aim:</b>	Six fur samples as facing of various clothes ought to be determined for burden with formaldehyde, polycyclic aromatic hydrocarbons, hexavalent chromium, alkyl phenols and alkyl phenol ethoxylates.

### **2 Summary**

All six investigated fur patterns are loaded with formaldehyde (92-250 mg/kg), with nonylphenol ethoxylates (130-1400 mg/kg) and with nonylphenol (3-8 mg/kg). Hexavalent chromium was not detected in any of the furs. The total amount of load with PAK was 0,24 to 4,2 mg/kg.

### **3 Evaluation**

#### **3.1 Evaluation of formaldehyde**

Formaldehyde is a gas with a sweetish to pungent smell that exhibits cell damaging and mutagenic effects. For sensitive individuals already low ambient air concentrations cause irritation of the mucous membranes (from 12 to 60  $\mu\text{g}/\text{m}^3$  corresponds to 0.01 to 0.05 ppm) and high concentrations may elicit hypersensitivity in case of dermal contact.

In a statement from June 2007 by the German Federal Institute for Risk Assessment (BfR), a provocation of allergic reactions can not completely excluded with low levels of formaldehyde in textile. Formaldehyde was already classified as a human carcinogen in 2004 by the World Health Organization (WHO). In a toxicological reevaluation, also the BfR classified formaldehyde as human carcinogen in 2006.

With the regulation (EU) no. 605/2014 from the 5<sup>th</sup> of June 2014, the regulation (EC) no. 1272/2008 (CLP-V) was currently modified in Europe. Thus, formaldehyde is classified to the categories C1B and M2 (may cause cancer, suspected of causing genetic defects).

In Germany textiles with mass contents of more than 0.15 % (1500 mg/kg) of free formaldehyde that are in dermal contact within intended use, have to be labeled, concerning the German consumer goods ordinance (annex 9).

Basing on the Toy Safety Directive (Directive 2009/48/EC) and on relevant European standards of series EN 71, textile components of toys intended for children under 3 years, must not contain more than 30 mg/kg formaldehyde (free and hydrolysed).

Czech hygienic requirements according to decree No. 84/2001, Annex No. 11 also claim a maximum value of 30 mg/kg in natural leather and fur used for children products (leaching test).

Due to the harmful relevance of formaldehyde, critical organizations like the IVN (International Association of Natural Textile Industry) agreed in their demands for residues in goods for precautionary reasons, to a preferably low formaldehyde value. Concerning the IVN guideline for textiles, no more than 16 mg/kg of formaldehyde are allowed in prior sale (chemical analysis according to ISO 14184-1), for leather a maximum value of 50mg/kg is pretended (chemical analysis according to ISO 17226-1).

The SG quality label of the TÜV Rheinland GmbH, the Institute Fresenius GmbH and the Test and Research Institute Pirmasens eV (PFI) requires the compliance with max. 100 mg/kg for furs without dermal contact, max. 75 mg/kg for furs with dermal contact and not more than 20 mg/kg of formaldehyde for products for toddlers (about 36 months). The eco-label "Blauer Engel" also use these reference values (RAL-UZ 155 for shoes: 20 mg/kg for finished products for babies and toddlers, 75 mg/kg for other products).

The Oeko-Tex Standard 100 describes an upper limit for formaldehyde in textile products of 16 mg/kg for babies, 75 mg/kg for fabrics with physical contact and 300 mg/kg without physical contact.

Overall, the proven formaldehyde concentrations in the determined furs are not subjected to labeling in Germany yet, but classified as remarkably high in most of the cases.

According to the evaluation criteria of the GOTS, none of the investigated furs would be allowed to receive the quality label of the association, concerning formaldehyde. Only one fur complies with the requirements of the SG-label (without dermal contact).

Formaldehyde is a compound with carcinogenic potential. The Bremer Umweltinstitut recommends a minimization of this compound in children's clothing in order to avoid health hazards, as even at low concentrations allergenic effects of formaldehyde can not be safely excluded.

### **3.2 Evaluation of alkylphenols and alkylphenol ethoxylates**

Alkylphenol ethoxylates (APEO) belong to the group of the non ionic tensides with emulsifying resp. dispersing effects (surfactant effects). They consist of an isomeric mixture of alkylphenols with substituted ethoxylate units of different chain lengths. They are frequently used as detergent substances in textile or leather auxiliaries (as well as in softeners, color fixations, drying agents, binders, oils,...). They are also used as a tool for the production of plastics, lacquers or colors.

The most relevant compounds considering the production volume and the toxicology are the nonyl- and octylphenol ethoxylates which can degraded in the sewage to the fish toxic compounds nonylphenol and octylphenol. Nonylphenol is considered readily biodegradable and has hormonal effects. It can accumulate in the tissue of fish and further organisms and finally reach the food chain. According to the CLP-VO (EG 1272/2008, table 3.1) it has been classified as toxic for reproduction in category R2.

The industrial use of APEO is not permitted in the European union. According to the German "Gefahrstoffverordnung" and REACH regulation (EG 1907/2006) nonylphenol ethoxylates are neither allowed as a substance nor as a preparation for the textile and leather processing with a content of above 0,1% (1000 mg/kg).

The use of pesticides or biocides containing nonylphenol ethoxylates as co-formulant is, however, permitted without any restrictions in their content if registered before 17<sup>th</sup> of June 2003.

Since 20<sup>th</sup> of June 2013 nonylphenol ethoxylates are listed in the candidate list of the ECHA (European Chemicals agency) for substances of very high concern (SVHC). The SVHC list includes health or environmentally hazardous substances which can be supplied for later admission procedure or limitation proce-

dure. If a product contains more than 1000 mg/kg of one or more of the listed substances all suppliers and producers from the EU have to inform both their commercial customers as well as the consumer about the use and the potential hazard. In addition, the ECHA has to be informed if the production volume is above one ton per year with a content of more than 1%.

In their directives for textile and leather, the IVN (International Association of Natural Textile Industry) and the international working group from the Global Organic Textile Standard (GOTS) claim the exclusion of nonyl- and octylphenols and the corresponding ethoxylates for textile and leather production. In the latest GOTS version the total limit value for residues of alkylphenols (AP) and alkylphenol ethoxylates (APEO) in textiles is 20 mg/kg. The IVN sets this value in their leather directive to 100 mg/kg. The SG quality label states a limit value for alkylphenols and alkylphenoethoxylates in fur of 500 mg/kg each.

The limit mentioned in Oeko-Tex standard 100 is set to 10 mg/kg for the sum of octylphenol and nonylphenol and 100 mg/kg for the sum of octyl- and nonylphenol ethoxylates and octylphenols and nonylphenols. Further labels demand a restriction of these compounds in their products too (e.g. bluesign: Consumer safety limit for OP, NP, NPEO and OPEO each 10 mg/kg).

In their detox campaign, the environmental organization Greenpeace even states the complete abandonment of the use of hazardous substances (this includes AP and APEO) and sets a zero limit for the final product.

All six furs are burdened with nonylphenol ethoxylates (between 130 mg/kg and 1400 mg/kg). The industrial use of these compounds is prohibited within the European union, however, imported products are not statutorily regulated. Customers and users only have a right of information on request for the substances included in the candidate list and with a proven content in the product of more than 1000 mg/kg. None of the investigated samples meets the criteria of the IVN or GOTS.

The investigations show clear to very high concentration of APEO which do not indicate a good manufacturing practice compared with the criteria catalogs of critical commercial organizations. The renunciation of the manufacturer concerning the use of APEO like it is demanded from greenpeace and several organizations (IVN, GOTS) is not recognizable in the fur industry.

If you have any further questions please do not hesitate to contact us.

This examination is only valid to the tested material mentioned in report K 2402 FL. This report must not be published partially, only completely.

With best regards  
Bremer Umweltinstitut

Ulrike Siemers,  
Dipl.-Ing. Chemietechnik (FH)