

# SAFEGUARDS

SGS CONSUMER TESTING SERVICES

SOFTLINES

NO. 204/11 NOV 2011

## PAHS IN TEXTILE AND FOOTWEAR PRODUCTS CAUSE GREAT CONCERN IN EU COUNTRIES

From the regulatory perspective, human health risk assessment is now playing a major role in the management of chemicals. Finding high levels of polycyclic aromatic hydrocarbons (PAHs) in commodities and products of daily use is one of the concerns that has recently led to the EU NGOs recommending recalls on these products.

Consumer products containing one or more PAHs are generally considered to cause several health problems due to their carcinogenic and genotoxic properties. There is reasonable suspicion that human exposure to PAHs may cause cancer. Some migration tests show that materials highly contaminated with PAHs can release those PAHs when in close contact with the skin and the PAHs may then be absorbed by or migrated through the skin and into the human body. Hence, a health risk via direct skin contact cannot be neglected, depending on the concentration and form of contact. Usually, PAHs are formed during the incomplete combustion of organic materials such as wood, oil and animal fats. The causes of PAH contamination may be due to using contaminated plasticizer oils in rubber and plastics or contaminated soot as black pigment. Rubber and plastics are at most risk of containing PAHs. Public awareness is growing and more concern is being expressed not only in Germany, but also in other EU countries.

In view of this, in June 2010 Germany proposed to the ECHA that the restriction of 8 PAHs in tyres and extender oils should extend to [other consumer products](#). Although there are no legal limits with regards to the use of PAHs within consumer products for textile and footwear articles, some in the industry apply "voluntary" requirements to control the presence of PAHs in applicable products. These are often based on [the list of 16 PAHs](#) quoted in the United States Environmental Protection Agency (EPA) specifications as carcinogenic. The list also is currently applied for the voluntary German GS Mark certification. Most recently, the German Board for Technical Work Equipment and Consumer Products (AtAV) has further extended the list of mandatory PAHs to 18 PAHs for the GS-certification process, where Benzo[*j*]fluoranthene and Benzo[*e*]pyrene are added<sup>1</sup>. The tables on the following page summarise the list of PAH substances and their recommended limits.



<sup>1</sup> [Safeguards No. 184/11, Two New PAHs To Be Added To GS Mark Substance List](#)

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TABLE 1. SUMMARY ON THE LISTED PAH SUBSTANCES

|    | SUBSTANCE             | CAS No.  | US – EPA | GERMAN PROPOSAL UNDER REACH | NEW GERMAN PROPOSED GS-CERTIFICATION |
|----|-----------------------|----------|----------|-----------------------------|--------------------------------------|
| 1  | Acenaphthen           | 82-32-9  | x        |                             | x                                    |
| 2  | Acenaphthylen         | 208-96-8 | x        |                             | x                                    |
| 3  | Anthracen             | 120-12-7 | x        |                             | x                                    |
| 4  | Benzo[a]anthracen     | 56-55-3  | x        | x                           | x                                    |
| 5  | Benzo[b]fluoranthen   | 205-99-2 | x        | x                           | x                                    |
| 6  | Benzo[j]fluoranthen   | 205-82-3 |          | x                           | x                                    |
| 7  | Benzo[k]fluoranthen   | 207-08-9 | x        | x                           | x                                    |
| 8  | Benzo[ghi]perylen     | 191-24-2 | x        |                             | x                                    |
| 9  | Benzo[a]pyren         | 50-32-8  | x        | x                           | x                                    |
| 10 | Benzo[e]pyren         | 192-97-2 |          | x                           | x                                    |
| 11 | Chrysen               | 219-01-9 | x        | x                           | x                                    |
| 12 | Dibenzo[a,h]anthracen | 53-70-3  | x        | x                           | x                                    |
| 13 | Fluoranthen           | 206-44-0 | x        |                             | x                                    |
| 14 | Fluoren               | 86-73-7  | x        |                             | x                                    |
| 15 | Indeno[1,2,3-cd]pyren | 193-39-5 | x        |                             | x                                    |
| 16 | Naphthalin            | 91-20-3  | x        |                             | x                                    |
| 17 | Phenanthren           | 85-01-8  | x        |                             | x                                    |
| 18 | Pyren                 | 129-00-0 | x        |                             | x                                    |



TABLE 2. SUMMARY ON THE PAH REQUIREMENT

| REQUIREMENTS  |                                       |   |
|---|---------------------------------------|---|
| US – EPA  | GERMAN PROPOSAL UNDER REACH           | NEW GERMAN PROPOSED GS-CERTIFICATION  |
| (i) Materials with foreseeable contact to skin for longer than 30 seconds (long-term skin contact):<br>Benzo(a)pyrene: 1 mg/kg<br>Sum 16 PAH (mg/kg): 10mg/kg | 0.2 mg/kg (each) in consumer products | (i) Materials with foreseeable contact to skin for longer than 30 seconds (long-term skin contact):<br>Benzo(a)pyrene: 1 mg/kg<br>Sum 18 PAH (mg/kg): 10mg/kg |
| (ii) Material with foreseeable contact to skin up to 30 seconds (short term skin contact):<br>Benzo(a)pyrene: 20 mg/kg<br>Sum 16 PAH (mg/kg): 200mg/kg        |                                       | (ii) Material with foreseeable contact to skin up to 30 seconds (short term skin contact):<br>Benzo(a)pyrene: 20 mg/kg<br>Sum 18 PAH (mg/kg): 200mg/kg        |

SGS will further follow-up and inform about the regulations and policies update in consumer products to interested parties once enacted. Throughout our global network of laboratories and offices, we offer high quality testing and consultancy services for textile, footwear and accessories. For more information, please feel free to contact us or visit our website at [www.softlines.sgs.com](http://www.softlines.sgs.com).

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