

PAK - polycyclic aromatic hydro carbons

Testing and evaluation at the GS-Mark Certification

basis

Consumer products must comply with legal requirements to avoid health risks. Regarding the content of PAHs in products the Committee for Technical Work Equipment and Consumer Products (AtAV) decided in November 2007, the mandatory inclusion of testing of PAH in the GS mark award (CEC 01.2-08).

In the recognition of the GS mark for products, the following PAH maximum levels are specified from April 2008:

parameter	category 1	category 2	category 3
	Materials in contact with food or Materials that are intended to be placed in the mouth and Toys for children under 36 months	Materials with foreseeable contact with skin longer than 30 sec. (long-term skin contact) and toys not covered by category 1	Materials with foreseeable contact with skin up to 30 sec. (short-term skin contact) or without skin contact
Benzo[a]pyrene	not detectable (under 0,2 mg/kg)	1 mg/kg	20 mg/kg
Sum of 16 PAHs (EPA)	not detectable (under 0,2 mg/kg)	10 mg/kg	200 mg/kg

If the maximum values of the Category 1 are exceeded and the limits of category 2 are still met, the evidence of the suitability for contact with food or the oral mucosa can be proved by additional specific migration testing of the PAH components according to DIN EN 1186 and § 64 LFGB 80.30-1. The results of the migration should be evaluated by food regulatory standards.

The main cause of PAH contamination in materials is the use of:

- PAH contaminated plasticizer oils in rubber and flexible plastics
- PAH contaminated carbon black as a black pigment in rubber and plastics
- PAH-contaminated paint
- Naphthalene as a transport preservation or storage preservation

Based on this knowledge FreiLacke filed the qualities listed below for review and evaluation by an external testing laboratory. The qualities listed below are on behalf of the entire product portfolio.

The tests revealed the following values of PAH (excerpt from the report):

Powder coatings - Quality FREIOTHERM/ FREOPOX	Benzo[a]pyrene mg/kg	Sum of 16 PAHs mg/kg	category
⇒ STOCK QUALITY			
PB1002ARA735, light grey Base: epoxid-polyester-resin	< 0,05	Not determinable	1
PL1033ARA735, light grey Base: polyester-resin	< 0,05	Not determinable	1
PP1004ARG743, traffic grey Base: polyester-resin	< 0,05	Not determinable	1
⇒ FURTHER			
PB1005ARA999, transparent Base: epoxid-polyester-resin	< 0,05	Not determinable	1
PB1021ARA905, jet black Base: epoxid-polyester-resin	< 0,05	Not determinable	1
PB1031ARA735, light grey Base: epoxid-polyester-resin	< 0,05	Not determinable	1
PB1204ARA735, light grey Base: epoxid-polyester-resin	< 0,05	Not determinable	1
PB1252ARA911, graphite black Base: epoxid-polyester-resin	< 0,05	Not determinable	1
PB2503HS2225, silver metallic Base: epoxid-polyester-resin	< 0,05	Not determinable	1
PB3003ARA814, sepia brown Base: epoxid-polyester-resin	< 0,05	Not determinable	1
PB4601CRA911, graphite black Base: epoxid-polyester-resin	< 0,05	Not determinable	1
PL1103AS2202, grey Base: polyester-resin	< 0,05	Not determinable	1
PP5001CRA905, jet black Base: polyester-resin	< 0,05	Not determinable	1

Electrodeposition coatings - Quality ATL + KTL	Benzo[a]pyrene mg/kg	Sum of 16 PAHs mg/kg	category
WA4153HRU910, pure white ATL	< 0,05	Not determinable	1
WK4035HRU999 : WK4968HRU905 transparent/ black MV 4:1 KTL	< 0,05	Not determinable	1

Liquid coatings - Quality solvent-based + water dilutable	Benzo[a]pyrene mg/kg	Sum of 16 PAHs mg/kg	category
ER1912MRU905, black MV 5:1 Härter HE0052 Primer, solvent-based	< 0,05	Not determinable	1
GS9141HT2027, blue MV 10:1 Härter HU0010 System-Structurecoat, solvent-based	< 0,05	Not determinable	1
UR1943HRA510, gentian blue MV 10:0,6 Härter HU0343 HighSolid-Coating, solvent-based	< 0,05	Not determinable	1
WE1932MRU100, green beige MV 6:1 Härter HU0208 Primer, water dilutable	< 0,05	Not determinable	1
WU1008HRA113, oyster white MV 10:1 Härter HU0010 Structurecoat, water dilutable	< 0,05	Not determinable	1
WU1451GRA502, ultramarine blue MV 5:1 Härter HU0150 Structurecoat, water dilutable	< 0,05	Not determinable	1

It is evident that all the tested grades fall into the category 1.

Therefore we put aside further test

Further information contains our technical data sheets and safety data sheets.