



Migration of polycyclic aromatic hydrocarbons (PAHs) from plastic and rubber articles containing carbon black and the STANPAHs Project

Polycyclic aromatic hydrocarbons (PAHs) are impurities inherent to carbon black, and PAHs are regulated by various pieces of EU legislation in order to limit their presence in food products, various environmental media, and consumer products. Commission Regulation (EU) No 1272/2013 was published as an amendment to the REACH regulation EC 1907/2006 Annex XVII, Entry 50. This amendment established content limits for 8 PAHs for plastic and rubber components of toys and childcare articles, as well as other consumer articles that are in direct and prolonged, or short-term repetitive contact with the skin or oral cavity.

In response to the amendments to Annex XVII, the European Commission's Joint Research Centre (JRC) and DG Grow signed an Administrative Agreement known as the STANPAHs project. The purpose of the agreement and subsequent work was two-fold: 1) to gain a better understanding of the migration behaviour of certain PAHs in plastic and rubber components of articles, and 2) to develop a reliable methodology to determine PAH migration from plastic and rubber articles under conditions that simulated dermal contact and contact with the oral cavity.

The experimental studies undertaken as part of the Administrative Agreement were performed on a variety of materials (both plastic and rubber). The results of the work showed that there was no migration of PAHs into artificial sweat or saliva, based on the selected test conditions¹. These results are consistent with previous research that has demonstrated that PAHs associated with carbon black are not bioavailable² and that they are firmly bound to the surface of carbon black and can only be extracted under rigorous laboratory conditions using strong solvents and elevated temperatures.

In accordance with Birla Carbon's commitment to product safety, sustainability, health, and the environment and to our customers, we will continue to monitor new scientific developments for any impact on Commission Regulation (EU) No 1272/2013 as it relates to the restriction of PAHs in plastic and rubber articles.

For additional information or for updates to this information, please email bc.hse@adityabirla.com or visit www.birlacarbon.com

1. Barrero-Moreno, J.; Senaldi C.; Biachi, I.; Geiss, O.; Tiredi, S.; Folgado de Lucena, A.; Barahona, F.; Mainardi, G.; Leva, P.; Aguar-Fernandez, P. *Migration of Polycyclic Aromatic Hydrocarbons (PAHs) from plastic and rubber articles: Final report on the development of a migration measurement method*. European Commission. JRC Technical Reports. 2018.
2. Borm, P.J., Cakmak, G., Jermann, E., Weishaupt, C., Kempers, P., van Schooten, F.J., Oberdorster, G., Schins, R.P. Formation of PAH-DNA adducts after in vivo and vitro exposure of rats and lung cells to different commercial carbon black. *Toxicol. Appl. Pharmacol.*, 2004 June, 1:205(2):157-67.

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