Appendix 1 to the Basic Criteria pursuant to RAL-UZ 177

Method for Determining Organotin Compounds in Toners

(according to the criteria catalogue TÜV Rheinland LGA Products GmbH: Kriterienkatalog "LGA-schadstoffgeprüft" / "TÜVRheinland Zertifiziert", Produktgruppe: Tonermodule (Criteria catalogue „LGA tested“/TÜV Rheinland Certified“, product group: toner modules), as of August 2013)

Weigh 0.3 to 0.5 grams of toner powder into an extraction vessel. Mix the toner powder with 30 ml of extractant, an acetic acid, methanol buffer solution as well as internal standards [tributyltin (d 27), tetrapropyltin (d 7), butyltin (d 9)]. The extraction shall be performed at room temperature in an ultrasonic bath for 1 hour. Decant the extract into a 100 ml volumetric flask. For the purpose of derivatization, add 5ml of n-hexane and 100 µl of sodium tetraethylborate solution (2 g sodium tetraethylborate in 10 ml tetrahydrofuran) with stirring to the filtrate and stir for 1 hour.

Mix the remaining toner powder for a second time with 30 ml of acetic acid, methanol buffer solution and extract it for 1 hour in an ultrasonic bath at room temperature. Decant the extract into another 100 ml volumetric flask. For the purpose of derivatization, add 5ml of n-hexane and 100 µl of sodium tetraethylborate solution with stirring to the filtrate and stir for 1 hour.

Fill both volumetric flasks with distilled water, isolate the n-hexane phases and put them together. Then, evaporate the n-hexane solution and fill it up to 1ml in the volumetric flask.

The organotin compounds in the n-hexane extract shall be determined by gas chromatography with mass selective detection in SIM mode.