

Reference Material Bisphenols BPA, BPB, BPF, and BPS in canned pea soup

P2504-RMCs



Summary

Reference material P2504-RMCs is validated in the ring test P2504-RT, which is organised, performed, and evaluated according to the requirements of DIN EN ISO/IEC 17043 and the “International Harmonized Protocol”. ISO 13528 is considered during the evaluation of the submitted results and during homogeneity testing. Details related to the applied statistics are summarised in the full specification, which is provided after purchase of the reference material.

Reference material P2504-RMCs consists of 50 g of a commercially available pea soup, which is spiked with four bisphenols, bisphenol A, bisphenol B, bisphenol F, and bisphenol S (see table 1). The bisphenol derivatives BADGE, BADGE.H₂O, BADGE.HCl.H₂O, and BFDGE are spiked as well. The bisphenol derivatives are not included in the specification as transformation of BADGE and BFDGE to other derivatives was observed. The spiked levels are provided for information only.

The corresponding unspiked pea soup (50 g) is available as blank material P2504-BLCs. The blank material is free from BPA, BPB, BPE, BPF, BPS, BADGE, BADGE.H₂O, BADGE.2H₂O, BADGE.HCl.H₂O, BADGE.HCl, BADGE.2HCl, BFDGE, BFDGE.2HCl, and cyclo-di-BADGE at a level of 10 µg/kg (LOQ of the lab).

The reference material is validated in ring test P2504-RT with 7 laboratories. The spiked levels as well as the assigned values, which are calculated of the results of the participants of the ring test P2504-RT, are summarised in table 1. An assigned value is available for bisphenol A only. Due to the limited number of reported results in P2504-RT, the comparability criterion was not applicable to the other bisphenols and derivatives thereof in P2504-RT. The spiked levels as well as an accepted range of 70 to 120 % of the spiked level are considered for evaluation of the other bisphenols.

Table 1. Spiked levels and assigned values

Parameter	Spiked level [µg/kg]	Assigned value [µg/kg]	Total number of results
Bisphenol A (BPA)	26	27.6	7
Bisphenol B (BPB)	45	-	5
Bisphenol F (BPF)	34	-	5
Bisphenol S (BPS)	75	-	7
BADGE	320**	-	2
BADGE.H ₂ O	56**	-	2
BADGE.HCl.H ₂ O	140**	-	2
BFDGE (sum)*	130**	-	2

* An isomeric mixture of o,p-BFDGE and p,p-BFDGE is spiked. The sum of the isomers is considered for evaluation.

** The data is provided for information only. Slight degradation is observed for BADGE and BADGE.H₂O, and BADGE.HCl is formed. Degradation resp. transformation is also observed for BFDGE to BFDGE.H₂O, BFDGE.2H₂O, and BFDGE.HCl (see stability testing).