

Performances of the Italian official control laboratories for the content of cadmium in infant formula in view of new European Union legislation

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COMMISSION REGULATION (EU) No 488/2014 of 12 May 2014

amending Regulation (EC) No 1881/2006 as regards maximum levels of cadmium in foodstuffs

	Foodstuffs (1)	Maximum level (mg/kg wet weight)
3.2	Cadmium	
	[f]	
3.2.19	Infant formulae and follow on-formulae (8) (29)	
	δ powdered formulae manufactured from cows' milk proteins or protein hydrolysates	0,010 as from 1 January 2015
	δ liquid formulae manufactured from cows' milk proteins or protein hydrolysates	0,005 as from 1 January 2015
	δ powdered formulae manufactured from soya protein isolates, alone or in a mixture with cows' milk proteins	0,020 as from 1 January 2015
	δ liquid formulae manufactured from soya protein isolates, alone or in a mixture with cows' milk proteins	0,010 as from 1 January 2015

Materials and methods

EURL-CEFAO PT for Cd and Pb in infant formula - 2012



On request and financial support of the Italian NRL-HM, the EURL-CEFAO produced a larger number of test materials for PT. The Italian NRL distributed them to the Italian official control laboratories in 2013.

- Analytical performance was assessed by z-scores.

$$z\text{-score} = \frac{x_{lab} - X_{A.V.}}{\sigma_p}$$

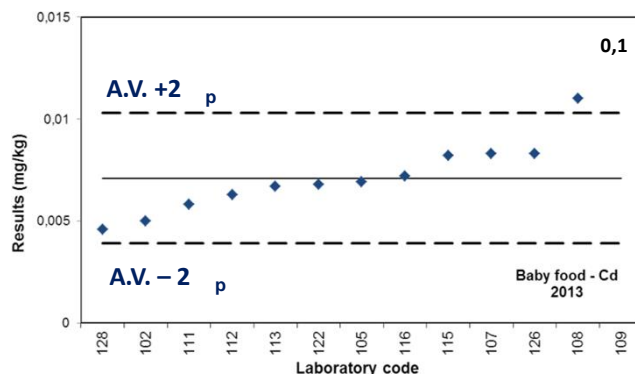
- $X_{A.V.}$ was the assigned value (A.V.) estimated by EURL-CEFAO.

- The standard deviation for proficiency assessment (σ_p) was derived from the Horwitz equation.

$$\sigma_p = 0,22 c \quad \text{if } c < 1,2 \sim 10^{-7}$$

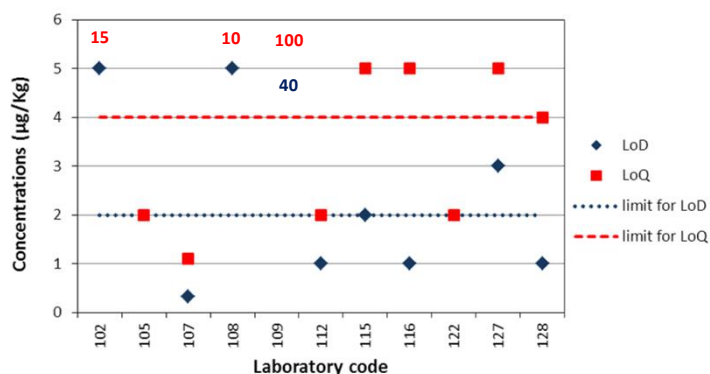
c is the A.V. expressed as mass fraction (1 ppm = 10^{-6})

Results and discussion



All but two of the participant laboratories achieved acceptable z-scores.

Limits of detection (LOD) and quantification (LOQ) reported by participants were compared to the requirements stated in EC Regulation 333/2007 (amended by EC Regulation 836/2011).



39% of laboratories reported LOQ and LOD in compliance with EC Regulation 333/2007

Conclusions

Almost all participant laboratories obtained acceptable results. A critical point in the implementation of the new EU legislation is the improvement of analytical methods, since, in many case, LOD and LOQ are not suitable for the analysis of samples with low concentration of Cd.

