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Safety and efficacy of benzoic acid as a feed additive for pigs for fattening when used as acidity regulator and all animal species when used as flavouring

EFSA Panel on Additives and Products or Substances used in Animal Feed (FEEDAP)

Abstract

Following a request from the European Commission, the Panel on Additives and Products or Substances used in Animal Feed (FEEDAP) was asked to deliver a scientific opinion on the safety and efficacy of benzoic acid as a feed additive for pigs for fattening when used as a technological additive (acidity regulator) and for all animal species when used as a sensory additive (flavouring). The FEEDAP Panel reiterates its former conclusion that the use of benzoic acid at the maximum level of 125 mg/kg complete feed is safe for all animal species, but cannot conclude on the safety of benzoic for pigs for fattening at the proposed maximum use level (10,000 mg benzoic acid/kg complete feed). The FEEDAP Panel concludes that the use of benzoic acid as a feed additive at the proposed conditions of use is safe for the consumer. Benzoic acid is an irritant to skin and eyes, is not a skin sensitiser and may pose a risk to the users by inhalation. The use of benzoic acid in animal nutrition will not pose a risk for the environment. Since benzoic acid is authorised in food as flavouring and its function in feed is essentially the same as that in food, no further demonstration of efficacy of benzoic acid as flavouring is necessary. In the absence of data, the FEEDAP Panel is not in the position to conclude on the efficacy of benzoic acid when used as acidity regulator in feed.

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Keywords: benzoic acid, acidity regulator, safety, efficacy, fattening pigs, all animal species

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1. Introduction

1.1. Background and Terms of Reference

Regulation (EC) No 1831/2003¹ establishes the rules governing the Community authorisation of additives for use in animal nutrition. In particular, Article 10(2) of that Regulation also specifies that for existing products within the meaning of Article 10(1), an application shall be submitted in accordance with Article 7, at the latest 1 year before the expiry date of the authorisation given pursuant to Directive 70/524/EEC for additives with a limited authorisation period, and within a maximum of 7 years after the entry into force of this Regulation for additives authorised without a time limit or pursuant to Directive 82/471/EEC.

The European Commission received a request from JEMO Chemicals BV² for re-evaluation of the product benzoic acid, when used as a feed additive for pigs for fattening (category: technological additives; functional group: acidity regulators) and all animal species (category: sensory additives; functional group: flavouring compounds).

According to Article 7(1) of Regulation (EC) No 1831/2003, the Commission forwarded the application to the European Food Safety Authority (EFSA) as an application under Article 10(2) (re-evaluation of an authorised feed additive). EFSA received directly from the applicant the technical dossier in support of this application. The particulars and documents in support of the application were considered valid by EFSA as of 23 September 2014.

According to Article 8 of that Regulation, EFSA, after verifying the particulars and documents submitted by the applicant, shall undertake an assessment in order to determine whether the feed additive complies with the conditions laid down in Article 5. EFSA shall deliver an opinion on the safety for the target animals, consumer, user and the environment and on the efficacy of the product benzoic acid, when used under the proposed conditions of use (see Section 3.1.3).

1.2. Additional information

Benzoic acid (E 210) is authorised as technological additive (acidity regulator) for pigs for fattening,³ as zootechnical additive for weaned piglets⁴ and pigs for fattening⁵ and as a chemically defined flavouring.⁶ Benzoic acid is also authorised as food additive⁷ and registered as flavouring substance used in or on foodstuffs.⁸

The Panel on Additives and Products or Substances used in Animal Feed (FEEDAP) has delivered five opinions on the safety and efficacy of benzoic acid itself as a zootechnical additive (EFSA, 2005, 2007; EFSA FEEDAP Panel 2011a, 2012a, 2015). The FEEDAP Panel also delivered an opinion in 2012 on the safety and efficacy of Crina[®] Poultry Plus (a feed additive containing benzoic acid) for fattening (EFSA FEEDAP Panel, 2012b).

¹ Regulation (EC) No 1831/2003 of the European Parliament and of the Council of 22 September 2003 on additives for use in animal nutrition. OJ L 268, 18.10.2003, p. 29.

² JEMO Chemicals BV, Vlietskade 1013, 4241 WD Arkel, the Netherlands

³ Commission Regulation (EU) No 159/2013 concerning the authorisation of a preparation of sodium benzoate, propionic acid and sodium propionate as a feed additive for pigs, poultry, bovines, sheep, goats, rabbits and horses, and amending Regulations (EC) No 1876/2006 and (EC) No 757/2007, OJ L 49, 22.2.2013, pp. 47–49.

⁴ Commission Regulation (EC) No 1730/2006 of 23 November 2006 concerning the authorisation of benzoic acid (VevoVital) as a feed additive. OJ L 325, 24.11.2006, p. 9.

⁵ Commission Regulation (EC) No 1138/2007 of 1 October 2007 concerning the authorisation of a new use of benzoic acid (VevoVital) as a feed additive. OJ L 256, 2.10.2007, p. 8.

⁶ Council Directive 70/524/EEC of 23 November 1970 concerning additives in feedstuffs. OJ L 270, 14.12.1970, p. 1.

⁷ Commission Regulation (EU) No 1129/2011 of 11 November 2011 amending Annex II to Regulation (EC) No 1333/2008 of the European Parliament and of the Council by establishing a Union list of food additives, OJ L 295, 12.11.2011, p. 1.

⁸ Commission Decision 1999/217/EC of 23 February 1999 adopting a register of flavouring substances used in or on foodstuffs drawn up in application of Regulation (EC) No 2232/96 of the European Parliament and of the Council of 28 October 1996. OJ L 084, 27.3.1999, p. 1.

2. Data and Methodologies

2.1. Data

The present assessment is based on data submitted by the applicant in the form of a technical dossier⁹ in support of the authorisation request for the use of benzoic acid as a feed additive. The technical dossier was prepared following the provisions of Article 7 of Regulation (EC) No 1831/2003 and the applicable EFSA guidance documents.

The FEEDAP Panel used the data provided by the applicant together with data from other sources, such as peer-reviewed scientific papers or other scientific reports, to deliver the present output.

EFSA has verified the European Union Reference Laboratory (EURL) report as it relates to the methods used for the control of benzoic acid in animal feed. The Executive Summary of the EURL report can be found in Annex A.¹⁰

2.2. Methodologies

The approach followed by the FEEDAP Panel to assess the safety and the efficacy of benzoic acid is in line with the principles laid down in Regulation (EC) No 429/2008¹¹ and the relevant guidance documents: Guidance on technological additives (EFSA FEEDAP Panel, 2012c), Guidance for the preparation of dossiers for sensory additives (EFSA FEEDAP Panel, 2012d), Guidance for the preparation of dossiers for the re-evaluation of certain additives already authorised under Directive 70/524/EEC (EFSA, 2008a, revised in 2009), Technical guidance: Tolerance and efficacy studies in target animals (EFSA FEEDAP Panel, 2011b), Technical Guidance for assessing the safety of feed additives for the environment (EFSA, 2008b; revised in 2009), Guidance for establishing the safety of additives for the consumer (EFSA FEEDAP Panel, 2012e), Guidance on studies concerning the safety of use of the additive for users/workers (EFSA FEEDAP Panel, 2012f).

3. Assessment

The application is for the re-evaluation of benzoic acid, when used as a feed additive for pigs for fattening (category: technological additives; functional group: acidity regulators) and for all animal species (category: sensory additives; functional group: flavourings).

3.1. Characterisation

3.1.1. Characterisation of the product

Benzoic acid (benzene carboxylic acid, C₆H₅COOH) is a white or almost white crystalline powder or a colourless solid with crystal structure, with a molecular weight of 122.12 g/mol. It is slightly soluble in water (2.9 g/L at 20°C) and soluble in organic solvents, with a density of 1.3 g/cm³ at 20°C and a pK_a of 4.19 at 25°C.

The additive is essentially benzoic acid (Chemical Abstracts Service (CAS) No 65-85-0, European Inventory of Existing Commercial Chemical Substances (EINECS) No 200-168-2). The structural formula of benzoic acid is shown in Figure 1.

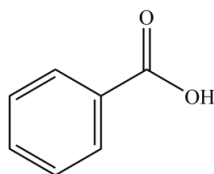


Figure 1: Structural formula of benzoic acid

⁹ FEED dossier reference: FAD-2010-0147.

¹⁰ The full report is available on the EURL website: https://ec.europa.eu/jrc/sites/default/files/finrep-fad-2010-0147-benzoic_acid_corr.pdf

¹¹ Commission Regulation (EC) No 429/2008 of 25 April 2008 on detailed rules for the implementation of Regulation (EC) No 1831/2003 of the European Parliament and of the Council as regards the preparation and the presentation of applications and the assessment and the authorisation of feed additives. OJ L 133, 22.5.2008, p. 1.

The manufacturing process of benzoic acid is based on the partial oxidation of toluene. Toluene is kept at high pressure and temperature and sprayed with air. Toluene is converted to benzoic acid (including small amounts of impurities), which is purified in a two-stage distillation under vacuum. Final high quality benzoic is crystallised, flaked and packaged.¹²

The additive is specified to contain $\geq 99.8\%$ of benzoic acid with a low moisture concentration ($< 0.1\%$). The analysis of 11 batches of the product showed concentrations of benzoic acid of 99.8% in 10 batches and 99.9% in one batch,¹³ which is in agreement with the specifications.

Three commercial batches were analysed for impurities.¹⁴ Analysed values of arsenic (< 0.1 mg/kg), cadmium (< 0.01 mg/kg), mercury (< 0.01 mg/kg) and lead (< 0.05 mg/kg) were below the limit of detection (LOD). The analysis of dioxins resulted in < 0.25 ng toxic equivalent (TEQ)/kg feed in the three batches.

Dusting potential determined in three commercial batches by Stauber-Heubach test was < 0.1 g/m³. The particle size distribution of three commercial batches of benzoic acid was determined by sieve analysis, showing that between 30.9 and 36.4% (w/w) of the particles were < 200 μm diameter.¹⁵ No data have been provided on the percentage of particles of inhalable size (< 100 μm diameter).

3.1.2. Stability and homogeneity

The proposed shelf-life of benzoic acid is at least 12 months. This proposal was supported by the analysis of five commercial batches of benzoic acid stored for 1 year at 25°C and 40% relative humidity. After the storage period, no loss of benzoic acid was observed.¹⁶

The stability of the additive was assessed in closed packages (99.6–100.2% benzoic acid) stored at room temperature (three batches) and at 40°C (three batches) during 6 months. Stability in premixtures (three batches, average 48.3 g benzoic acid/kg), mash (three batches, average 430 mg benzoic acid/kg feed) and pelleted feed (three batches, average 390 mg benzoic acid/kg feed) was also assessed during 6 months. No information on the pelleting temperature and on the potential loss during pelleting was provided. The average recovery of benzoic acid after 6 months was 96.4% at room temperature and 97.1% at 40°C.¹⁷ No losses of benzoic acid in a premixture, mash and pelleted feeds were observed after 6 months of storage.

The capacity of the additive to distribute homogeneously was tested in 10 subsamples from one batch of the pelleted feed used in the stability studies. Benzoic acid was measured in each of the samples and the calculated coefficient of variation (CV) was 4.9%.¹⁸

3.1.3. Conditions of use

Benzoic acid is proposed to be used as acidity regulator in feedingstuffs for pigs for fattening with a minimum content of 5,000 mg/kg complete feed and a maximum content of 10,000 mg/kg complete feed.

It is also proposed for use as flavouring in feedingstuffs for all animal species and categories without limitations.

3.2. Safety

3.2.1. Safety for the target species

According to the EFSA Guidance (EFSA, 2011b), a tolerance study is normally not required for additives already authorised for use in food if the use level of the feed additive is less than or similar to that used in food (expressed as daily intake per metabolic body weight).

¹² Technical dossier/Section II/ Annex_II.3.01

¹³ Technical dossier/Section II/ Annex_II.1.01 to II.1.07

¹⁴ Technical dossier/Supplementary information July 2015/Annex 1.a, 1.b, 1.c

¹⁵ Technical dossier/Supplementary information July 2015/Annex 1.a, 1.b, 1.c

¹⁶ Technical dossier/Section II/ Annex II_16

¹⁷ Technical dossier/Supplementary information July 2015/Annex 3.11 to 3.20

¹⁸ Technical dossier/Supplementary information July 2015/Annex 3.1 to Annex 3.10

Benzoic acid is a food additive authorised for use in a variety of foods. However, the expected exposure of animals when benzoic acid is used in complete feed at the maximum use level would be greater than that of humans. Therefore, the assessment of the safety of benzoic acid for the target species has been performed.

Safety for pigs for fattening

Tolerance studies in the target species were not provided. The applicant instead provided a number of published studies, in which the effects of benzoic acid on the zootechnical parameters of different pig categories were reported. Most of the studies did not meet the minimum requirements requested for the assessment of the safety for the target species (i.e. inclusion of the additive at the use level and overdose, sufficient number of animals/replicates and minimum duration of the study) and were therefore excluded.

The Panel considered the remaining studies which are described below.

The use of benzoic acid in growing-finishing pigs (van der Peet-Schwering et al., 1999) was tested at 0, 10,000 and 20,000 mg/kg complete feed. The experiment was carried out with 60 pigs housed in individual pens, 10 barrows and 10 gilts per each experimental treatment. The study lasted 97 days (from average initial bw of 24.3 kg to an average final bw of 108.9 kg), but was not set up as a standard tolerance study. Data on the occurrence of diseases and/or lesions, therapeutic treatments and culling (date and weight of animal withdrawn and cause) were recorded for each animal. Individual weight and feed intake were recorded periodically, and growth rate and feed to gain ratio were calculated. No adverse effects on pig health or performance were observed in both treatment groups. Pigs supplemented with 10,000 and 20,000 mg benzoic acid/kg complete feed had less diarrhoea problems than control pigs.

In another study, the addition of 10,000 mg benzoic acid/kg feed to low and high protein diets was investigated (Buhler et al., 2006). Treatments were arranged in a 2 levels of protein × 2 rates of benzoic acid (0 vs 10 000 mg/kg feed) factorial design. A total of 24 crossbred barrows (26–106 kg body weight (bw), for 12 weeks) were included in the study, giving six pigs (replicates) per experimental group. The animals were fed restrictively grower and finisher diets, and effects on performance, nitrogen balance and urinary pH were investigated. The addition of benzoic acid did not influence weight gain, feed to gain ratio, nitrogen digestibility or nitrogen balance, reduced the urinary pH and increased the concentration of hippuric acid in urine.

Kluge et al. (2006) investigated the effects of benzoic acid on growth performance, nutrient digestibility, nitrogen balance and gastrointestinal microbiota of piglets. In a performance trial, piglets (28 days of age, 7.5 kg) were fed diets containing 0, 10,000 or 20,000 mg benzoic acid/kg complete feed for 35 days. Each dietary treatment was assigned to nine replicate groups, each consisting of two piglets. Body weight, daily weight gain, feed intake and feed conversion ratio were monitored. Supplementation of the diet with benzoic acid resulted in a dose-dependent increase in feed intake and body weight gain and an improved feed conversion ratio.

Considering the results of the published studies in which benzoic acid has been fed to pigs at concentrations equal to or greater than the maximum concentration proposed by the applicant, it appears that benzoic acid could be tolerated by pigs for fattening at the maximum proposed concentration of 10,000 mg/kg complete feed. However, in previous assessments of benzoic acid as feed additive (EFSA 2005, 2007; EFSA FEEDAP Panel, 2012a), it was shown that the ingestion of diets containing benzoic acid at or above 10,000 mg/kg feed could result in the occurrence of ulcers and mucosal lesions in the stomach. The FEEDAP Panel considers that these are critical endpoints for the evaluation of the safety of this additive for pigs. No data on these endpoints were available in any of the published studies mentioned above, and therefore, in the absence of data, the FEEDAP Panel is not in a position to conclude on the safety of benzoic for pigs for fattening at the maximum proposed use level (10,000 mg benzoic acid/kg complete feed).

Safety for all animal species

Although benzoic acid was also proposed to be used as a flavouring additive for all animal species without limitations, no information on the safety of benzoic acid for any target animal species was provided.

In its opinion on the safety and efficacy of benzyl alcohols, aldehydes, acids, esters and acetals (EFSA FEEDAP Panel, 2012g), the FEEDAP Panel already concluded that the use of benzoic acid as flavouring for all animal species is safe at the maximum level of 125 mg/kg complete feed.

The Panel recognises that for some target species the safe level may be higher than 125 mg/kg complete feed. In the context of the application for the use of benzoic acid as flavouring for all animal species without limitation, in order to extrapolate the safety to all animal species, safe levels would have to be established for at least three major species (pigs, ruminants, poultry or salmonids). As relevant information in the form of literature or tolerance studies was not available, the FEEDAP Panel reiterates its former conclusion that the use of benzoic acid at the maximum level of 125 mg/kg complete feed is safe for all animal species.

3.2.2. Safety for the consumer

The FEEDAP Panel already concluded that the use of benzoic acid as flavouring for all animal species is safe for the consumer when used at 125 mg/kg complete feed (EFSA FEEDAP Panel, 2012g). However, since the applicant is requesting a higher use level for pigs for fattening (10,000 mg/kg feed), further assessment is considered necessary.

The safety of benzoic acid has been previously assessed by IPCS (IPCS, 2000), JECFA (JECFA, 1996), the Scientific Committee of Food (SCF) (EC, 2002a) and the Scientific Committee for Animal Nutrition (EC, 2002b). The SCF set up a group acceptable daily intake (ADI) of 0–5 mg benzoic acid/kg bw. The range of estimated total intake of benzoic acid by consumers, expressed as percentage intake of the ADI, varies from 6% to 84% for adults and from 17% to 96% for young children (EC, 2002a). Therefore, the contribution of benzoic acid as feed additive to the additional exposure of consumers should be assessed.

No data on residues of benzoic acid or its metabolites in animal tissues were provided. However, it is known that after ingestion, benzoic acid is rapidly absorbed from the gastrointestinal tract and metabolised in the liver by conjugation with glycine, resulting in the formation of hippuric acid, which is rapidly excreted via the urine, as shown in different pharmacokinetic studies in laboratory animals, growing pigs and sows (Bridges et al., 1970; Kristensen et al., 2009). As reviewed by IPCS (IPCS, 2000), in animals, the daily rate of transformation of benzoic acid to hippuric acid is about 500 mg of benzoic acid/kg bw.

Considering its rapid metabolism and excretion, the use of benzoic acid as feed additive up to 10,000 mg/kg complete feed is not expected to result in the accumulation of benzoic acid or its metabolites in animal tissues and products. In a previous assessment of benzoic acid by SCAN (EC, 2002b), it was calculated that at the highest recommended concentration of benzoic acid in feed (10,000 mg/kg), the residues of benzoic acid equivalents in tissues would represent 0.25% of the ADI.

Therefore, the proposed use of benzoic acid as a feed additive would not increase consumer exposure to the compound or any of its metabolites and consequently would not pose an additional risk for the consumer.

The FEEDAP Panel concludes that the use of benzoic acid as a feed additive at the proposed conditions of use is safe for the consumer.

3.2.3. Safety for the user

No studies on user safety for benzoic acid were provided. The assessment is mainly based on the conclusions from SCAN (EC, 2002a) and the IPCS INCHEM Report on benzoic acid (IPCS, 2000).

Both SCAN and IPSC concluded that benzoic acid is considered to be a skin and eye irritant but not a skin sensitizer (EC, 2002a; IPCS, 2000).

No specific data on inhalation toxicity were provided. Analysed dusting potential ($< 0.1 \text{ g/m}^3$) is very low. The particle size distribution showed that up to 36.4% of the particles were $< 200 \text{ }\mu\text{m}$ diameter, and no data were provided on the percentage of particles of inhalable size ($< 100 \text{ }\mu\text{m}$ diameter). Thus, a potential of exposure by inhalation cannot be excluded.

As no new data are available that would require a revision of the SCAN conclusions, the FEEDAP Panel concludes that benzoic acid is an irritant to skin and eyes, is not a skin sensitiser and may pose a risk to the users by inhalation.

3.2.4. Safety for the environment

Benzoic acid administered to farm animals will be mainly excreted as urinary hippuric acid, an endogenous metabolic by-product. Consequently, the FEEDAP Panel concludes that the use of benzoic acid in animal nutrition will not pose a risk for the environment.

3.3. Efficacy

As benzoic acid is authorised in food as flavouring (Flavis No 08.021), and its function in feed is essentially the same as that in food, no further demonstration of efficacy of benzoic acid as flavouring in feed is necessary.

When information on the efficacy of benzoic acid as acidity regulator was requested, data reported in the literature were provided showing the efficacy of this compound as preservative (IPCS, 2000; EC, 2002b). However, no information on the efficacy of benzoic acid as acidity regulator was provided. According to the Regulation (EC) No 429/2008¹⁹ and the Guidance for the preparation of dossiers for technological additives (EFSA FEEDAP Panel, 2012a), the demonstration of the efficacy as acidity regulator should be based on the effects on pH or buffering capacity in feedingstuffs. No data were available on these specific end-points, and therefore the evaluation of the efficacy of benzoic acid when used in feed as an acidity regulator was not possible.

In the absence of data, the FEEDAP Panel is not in the position to conclude on the efficacy of benzoic acid when used as acidity regulator in feed.

4. Conclusions

The FEEDAP Panel reiterates its former conclusion that the use of benzoic acid at the maximum level of 125 mg/kg complete feed is safe for all animal species, but cannot conclude on the safety of benzoic for pigs for fattening at the proposed maximum use level (10,000 mg benzoic acid/kg complete feed).

The FEEDAP Panel concludes that the use of benzoic acid as a feed additive at the proposed conditions of use is safe for the consumer.

Benzoic acid is an irritant to skin and eyes, is not a skin sensitiser and may pose a risk to the users by inhalation.

The use of benzoic acid in animal nutrition will not pose a risk for the environment.

As benzoic acid is authorised in food as flavouring and its function in feed is essentially the same as that in food, no further demonstration of efficacy of benzoic acid as flavouring is necessary. In the absence of data, the FEEDAP Panel is not in the position to conclude on the efficacy of benzoic acid when used as acidity regulator in feed.

¹⁹ Commission Regulation (EC) No 429/2008 of 25 April 2008 on detailed rules for the implementation of Regulation (EC) No 1831/2003 of the European Parliament and of the Council as regards the preparation and the presentation of applications and the assessment and the authorisation of feed additives. OJ L 133, 22.5.2008, p. 1.

Documentation provided to EFSA

1. Benzoic Acid. September 2010. Submitted by JEMO Chemical BV.
2. Benzoic Acid. Supplementary information. July 2015. Submitted by JEMO Chemical BV.
3. Evaluation report of the European Union Reference Laboratory for Feed Additives on the Methods(s) of Analysis for Benzoic Acid.
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Abbreviations

ADI	acceptable daily intake
CAS	Chemical Abstracts Service
CV	coefficient of variation
EC	European Commission
EINECS	European Inventory of Existing Commercial Chemical Substances
EURL	European Union Reference Laboratory
FEEDAP	EFSA Scientific Panel on Additives and Products or Substances used in Animal Feed
IPCS/INCHEM	International Programme on Chemical Safety
LOD	limit of detection
SCAN	Scientific Committee on Animal Nutrition
SCF	Scientific Committee on Food
TEQ	Toxic Equivalent
WHO	World Health Organization

Annex A – Executive Summary of the Evaluation Report of the European Union Reference Laboratory for feed additives on the method(s) of analysis for benzoic acid

In the current application, authorisation is sought under article 10(2) for benzoic acid under the 'category' / 'functional groups' 1(j) 'technological additives' / acidity regulators and 2(b) 'sensory additives' / 'flavourings' according to the classification system of Annex I of Regulation (EC) No 1831/2003. Specifically, authorisation is sought for the use of the feed additive for pigs for fattening as a technological additive, and for all animal species as a sensory additive. The feed additive is found as a white crystalline powder or as colourless crystals, and consists of benzoic acid, with minimum purity of 99.8%. The feed additive is intended to be incorporated directly in feedingstuffs or through premixtures with no recommended minimum or maximum inclusion levels when used as a sensory additive, or with concentration levels ranging from 5 to 10 g/kg feedingstuffs when used as technological additive.

For the characterisation of benzoic acid (feed additive), the Applicant submitted the European Pharmacopoeia method, where identification is based on melting point and solubility tests, while quantification is based on acid/base titration with 0.1 M sodium hydroxide. Even though no performance characteristics are provided, the EURL recommends this method for official control of benzoic acid (feed additive).

For the quantification of benzoic acid in premixtures and feedingstuffs, the Applicant submitted a method based on ion exchange high performance liquid chromatography with UV detection (HPLC-UV). The proposed method does not include benzoic acid or feedingstuffs/premixtures in its scope. In addition, no validation or verification data was provided. However, the EURL already evaluated several dossiers where the feed additives contained (or consisted of) benzoic acid (cf. FAD-2010-0029, FAD-2012-0037 or FAD-2013- 0052). In all these dossiers, reverse phase (RP)-HPLC-UV method was the fit-for-purpose method selected. The experimental data provided in the frame of FAD-2010-0029 demonstrated the applicability of the ISO 9231:2008 standard method for the analyses of concern. Hence, the EURL recommends again for official control the RP-HPLC-UV method described in the ISO standard mentioned above for the quantification of benzoic acid in premixtures and feedingstuffs.

Further testing or validation of the methods to be performed through the consortium of National Reference Laboratories as specified by Article 10 (Commission Regulation (EC) No 378/2005) is not considered necessary.