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**European Union Reference Laboratory for Feed Additives**

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**Evaluation Report on the Analytical Methods submitted  
in connection with the Application for Authorisation of a  
Feed Additive according to Regulation (EC) No 1831/2003**

**Perlite**

*(FAD-2010-0012; CRL/100017)*





**Evaluation Report on the Analytical Methods submitted  
in connection with the Application for Authorisation of a  
Feed Additive according to Regulation (EC) No 1831/2003**

Dossier related to: **FAD-2010-0012 - CRL/100017**

Name of Product / Feed Additive: ***Perlite***

Active Agent (s): **Sodium potassium aluminum silicate**

Rapporteur Laboratory: **European Union Reference Laboratory for  
Feed Additives (EURL-FA)  
Geel, Belgium**

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Date: **23/02/2015**

Report approved by: **Christoph von Holst**  
Date: **23/02/2015**

## EXECUTIVE SUMMARY

In the current application authorisation is sought under article 10(2) or 10 (7) for *Perlite* under the category / functional group 1(i) 'technological additives' / 'anticaking agents', according to Annex I of Regulation (EC) No 1831/2003. The authorisation is sought for the use of the *feed additive* for ruminants and poultry.

In its natural state *perlite* is an amorphous volcanic glass consisting essentially of fused sodium, potassium, aluminum, silica and combined water. The functional product is heated at high temperature and it expands to 20 or more times of its original volume to become a non-hygroscopic white powder "expanded perlite". Typically *perlite* contains 70-75 % SiO<sub>2</sub>, 12-15 % Al<sub>2</sub>O<sub>3</sub>, 3-4 % Na<sub>2</sub>O, 3-5 % of K<sub>2</sub>O, 0.5-2% Fe<sub>2</sub>O<sub>3</sub>, 0.2-0.7% MgO, 0.5-1.5 % CaO and 3-5% loss on ignition (chemical/combined water). The reference samples of the *feed additive* supplied to the EURL contain 100 % *Perlite*. The product is intended to be added to prevent caking of the *feedingstuffs*. The Applicant specified a maximum content of 4 % in *feedingstuffs* for ruminants and poultry.

For the characterisation of *Perlite (feed additive)*, the Applicant submitted the dedicated Food Chemicals Codex (FCC) monograph "expanded *Perlite*". Even though no performance characteristics were provided, the EURL recommends for official control the methods described in this FCC monograph to characterise *Perlite*.

The Applicant provided no experimental data nor method for the quantification of perlite in *feedingstuffs*. As the accurate quantification of perlite in this matrix is not achievable experimentally, the EURL cannot recommend any method for official control.

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.

## KEYWORDS

*perlite*, technological additives, anticaking agents, ruminants and poultry

## 1. BACKGROUND

In the current application authorisation is sought under article 10(2) for *Perlite* under the category / functional group 1(i) 'technological additives' / 'anticaking agents', according to Annex I of Regulation (EC) No 1831/2003 [1]. The authorisation is sought for the use of the *feed additive* for ruminants and poultry [1,2].

In its natural state *perlite* is an amorphous volcanic glass consisting essentially of fused sodium, potassium, aluminum, silica and combined water. The functional product is heated at high temperature and it expands to 20 or more times of its original volume to become a non-hygroscopic white powder "expanded perlite". Typically *perlite* contains 70-75 % SiO<sub>2</sub>, 12-15 % Al<sub>2</sub>O<sub>3</sub>, 3-4 % Na<sub>2</sub>O, 3-5 % of K<sub>2</sub>O, 0.5-2% Fe<sub>2</sub>O<sub>3</sub>, 0.2-0.7% MgO, 0.5-1.5 % CaO and 3-5% loss on ignition (chemical/combined water) [3].

The reference samples of the *feed additive* supplied to the EURL contain 100 % *Perlite* [4]. The product is intended to be added to prevent caking of the *feedingstuffs*. The Applicant specifies a maximum content of 4 % *feedingstuffs* for ruminants and poultry [4].

## 2. TERMS OF REFERENCE

In accordance with Article 5 of Regulation (EC) No 378/2005, as last amended by Regulation (EC) No 885/2009, on detailed rules for the implementation of Regulation (EC) No 1831/2003 of the European Parliament and of the Council as regards the duties and the tasks of the European Union Reference Laboratory concerning applications for authorisations of feed additives, the EURL is requested to submit a full evaluation report to the European Food Safety Authority for each application or group of applications. For this particular dossier, the methods of analysis submitted in connection with *Perlite* and their suitability to be used for official controls in the frame of the authorisation were evaluated.

## 3. EVALUATION

### *Identification /Characterisation of the feed additive*

#### *Qualitative and quantitative composition of impurities in the additive*

When required by EU legislation, analytical methods for official control of undesirable substances in the additive (e.g. arsenic, cadmium, lead, mercury, and dioxins) are available from the respective European Union Reference Laboratories [5].

#### *Description of the analytical methods for the determination of the active substance in feed additive and feedingstuffs*

For the characterisation of *Perlite* (*feed additive*), the Applicant submitted the dedicated Food Chemicals Codex (FCC) monograph "expanded *Perlite*" [6], describing the test for identification of aluminium, potassium, sodium and silica.

The sample solution is prepared by mixing 1 g of the sample with 25 ml of 2.7 N hydrochloric acid, heating it on a steam bath for 15 minutes and letting it cool to room temperature. The solution is then filtered and neutralized with 6N ammonium hydroxide. Qualitative tests are then performed on this sample solution for the identification of aluminum, potassium and sodium according to the FCC Appendix IIIA. For silica, the analysis consists on preparing a bead by fusing a few crystals of sodium ammonium phosphate on a platinum loop in the flame of a burner. The hot transparent bead is then placed in contact with the perlite sample, and fused. Silica floats about in the bead, producing upon cooling an opaque layer with a weblike structure [6].

Furthermore, the Applicant stated checking three additional physical properties of "*expanded perlite*": (i) the white colour of the non-hygroscopic powder; (ii) its bulk density (to range between 80 and 100 g/L) and (iii) the typical "pop-corn/alveolar" structure visible by microscope.

Even though no performance characteristics are provided, the EURL recommends for official control the test described in the Food Chemicals Codex (FCC) monograph for *expanded Perlite*.

The Applicant provided no experimental data nor analytical methods for the quantification of *perlite* in *premixtures* or *feedingstuffs*. Since the accurate quantification of added *perlite* in *premixtures* or *feedingstuffs* is not achievable experimentally, the EURL cannot recommend any methods for official control for the quantification of *perlite* in these two matrices.

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.

#### **4. CONCLUSIONS AND RECOMMENDATIONS**

In the frame of this authorisation the EURL recommends for official control the methods described in Food Chemicals Codex (FCC) monograph for "*expanded Perlite*".

The Applicant provided no experimental data nor analytical methods for the quantification of *perlite* in *premixtures* or *feedingstuffs*. Since the accurate quantification of added *perlite* in *premixtures* or *feedingstuffs* is not achievable experimentally, the EURL cannot recommend any methods for official control for the quantification of *perlite* in these two matrices.

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***Recommended text for the register entry (analytical method)***

For the characterisation of *Perlite* (feed additive):

- Food Chemicals Codex (FCC) monograph for "expanded *Perlite*"

**5. DOCUMENTATION AND SAMPLES PROVIDED TO EURL**

In accordance with the requirements of Regulation (EC) No 1831/2003, reference samples of *Perlite* have been sent to the European Union Reference Laboratory for Feed Additives. The dossier has been made available to the EURL by EFSA.

**6. REFERENCES**

- [1] \*Application, Reference SANCO/G1: Forw. Appl. 1831/0032-2014
- [2] \*Application, Proposal for Register Entry, Annex A
- [3] Technical dossier, Section I: Description
- [4] Technical dossier, Section II: Identity, characterisation and conditions of use of the additive; methods of analysis
- [5] Commission Regulation (EC) No 776/2006 amending Annex VII to Regulation (EC) No 882/2004 of the European Parliament and of the Council as regards to Community Reference Laboratories
- [6] Food Chemicals Codex, *Perlite monograph*. Seventh Edition (2010-2011)

\*Refers to Dossier no: FAD-2010-0012

**7. RAPPORTEUR LABORATORY & NATIONAL REFERENCE LABORATORIES**

The Rapporteur Laboratory for this evaluation was European Union Reference Laboratory for Feed Additives, IRMM, Geel, Belgium. This report is in accordance with the opinion of the consortium of National Reference Laboratories as referred to in Article 6(2) of Commission Regulation (EC) No 378/2005, as last amended by Regulation (EC) No 885/2009.

**8. ACKNOWLEDGEMENTS**

The following National Reference Laboratories contributed to this report:

- Schwerpunktlabor Futtermittel des Bayerischen Landesamtes für Gesundheit und Lebensmittelsicherheit (LGL), Oberschleißheim (DE)
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- RIKILT-Instituut voor Voedselveiligheid, Wageningen (NL)

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- Österreichische Agentur für Gesundheit und Ernährungssicherheit (AGES), Wien (AT)
  - Thüringer Landesanstalt für Landwirtschaft (TLL), Abteilung Untersuchungswesen, Jena (DE)
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  - Państwowy Instytut Weterynaryjny, Puławy (PL)
  - Laboratorio Arbitral Agroalimentario, Ministerio de Agricultura, Alimentación y Medio Ambiente, Madrid (ES)
  - Laboratoire de Rennes, SCL L35, Service Commun des Laboratoires, Rennes (FR)