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*Report prepared  
on behalf of  
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*Australian Perlite Chemical  
Analysis*

*for*

*Australian Perlite Pty Ltd*

*by*

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## **BACKGROUND**

The Australia New Zealand Food Standards Code, Standard 1.3.4 establishes specifications for identity and purity of food additives, processing aids added to foods.

The standard establishes a priority order for reference documents to be use in identifying an appropriate specification:

## **PRIMARY SOURCES**

A substance must comply with a relevant monograph (if any) in one of –

- (a) Food and Nutrition Paper 52 Compendium of Food Additive Specifications Volumes 1 and 2, including addenda 1 to 12, published by the Food and Agriculture Organisation of the United Nations in Rome (1992); or
- (b) the fifth edition of the Food Chemicals Codex (FCC) published by the National Academy of Sciences and the National Research Council of the United States of America in Washington, D.C. (2004); or
- (c) the Schedule to Standard 1.3.4.

## SECONDARY SOURCES

If there is no monograph applying to a substance in the primary sources, the substance must comply with a relevant monograph (if any) published in one of –

- (a) the British Pharmacopoeia Volumes 1 and 2 1993, HMSO, London, 16th Edition (1998); or
- (b) The United States Pharmacopeia, 24th Revision and The National Formulary, 19th Edition. Official from January 1,2000. United States Pharmacopeia Convention Inc. Rockville, Md. (1994); or
- (c) The Pharmaceutical Codex, 12th Edition, Council of the Pharmaceutical Society of Great Britain. The Pharmaceutical Press, London (1994); or
- (d) Martindale The Extra Pharmacopoeia, 31st Edition, JEF Reynolds (Ed), The Pharmaceutical Press London (1996); or
- (e) the European Pharmacopoeia 3rd Edition, Council of Europe, Strasbourg (1996); or
- (f) the International Pharmacopoeia 3rd Edition, Volumes 1, 2, 3 and 4, World Health Organisation, Geneva (1994); or
- (g) The Merck Index, 13th Edition, Merck and Co. Ltd. Whitehouse Station, N.J. (2001); or
- (h) Regulatory Aspects of Enzymes, the Association of Manufacturers of Fermentation Enzyme Products, 5th Edition (1997); or
- (i) Code of Federal Regulations of the United States of America, 1 April, 2004; or
- (j) The Japanese Standard for Food Additives 6th Edition (1994).

## TERTIARY REQUIREMENTS

Where no monograph is available from the primary and secondary sources, or where a monograph contains no specifications for identity and purity of a substance relating to arsenic or heavy metals, the substance must not contain on a dry weight basis more than –

- (a) 2 mg/kg of lead;
- (b) 1 mg/kg of arsenic;
- (c) 40 mg/kg in total of heavy metals other than lead.

Having regard to the requirements in Standard 1.3.4:

1. The fifth edition of the FCC contains a specification for perlite.
2. Food and Nutrition Paper 52 Compendium of Food Additive Specifications does not contain a specification for perlite. However, it does contain specifications for other filter aids that include maximum limits for heavy metals that may provide useful points of reference:

Diatomaceous earth

Arsenic (Vol. 4) Not more than 10 mg/kg (Method II)

Lead (Vol. 4) Not more than 10 mg/kg

Magnesium silate (synthetic)

Lead (Vol. 4) Not more than 5mg/kg

3. The schedule to standard 1.3.4 does not contain a specification for perlite

Perlite added to food as a processing aid in compliance with the Australia New Zealand Food Standards Code should comply with the specification from the fifth edition of the FCC.

## ANALYTICAL RESULTS

Results of the analysis of the perlite samples:

	<b>Sample 1</b>	<b>Sample 2</b>
pH (10% suspension)	7.3	8.0
Loss on drying	0.28%	0.29%
Loss on ignition (1050°C)	0.64%	1.18%
Lead	<1 ppm	<1 ppm
<i>Arsenic</i>	1 ppm	0.6 ppm

## EXAMINATION OF ANALYTICAL RESULTS AGAINST THE REQUIREMENTS OF THE ANZ FOOD STANDARD CODE

The Australia New Zealand Food Standards Code identifies the monograph for perlite in the fifth edition of the FCC as containing the relevant specifications for identity and purity.

The FCC establishes the following specifications for perlite:

pH	5-9
loss on drying	<3%
Loss on ignition (1050°C)	<7%
Lead	<10 ppm
Arsenic	<10 ppm

Both lots of perlite analysed comply with the FCC specifications for pH, moisture content and ash, and the maximum limits for lead and arsenic. As a result, samples would be suitable for use as a processing aid for foods produced in compliance with the Australia New Zealand Food Standards Code.

## **EXAMINATION OF ANALYTICAL RESULTS AGAINST CODEX REQUIREMENTS**

Food additives (and processing aids) used in foods produced to the requirements of the Codex Alimentarius should comply with specifications published in the Food and Nutrition Paper 52 - Compendium of Food Additive Specifications (FNP52), where a monograph exists. Where no monograph exists, food specific heavy metal limits may be found in individual Codex commodity standards that apply to the finished food.

Although there is no relevant specification for perlite in FNP52, the compendium does contain a monograph for another mineral based filter aid, Diatomaceous earth. This monograph established maximum limits of <10ppm for both lead and arsenic. Applying these limits to perlite would suggest that the lots analysed would be considered suitable for food use in the context of Codex Alimentarius.

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