



Australian Beverages Council Limited

*Report to Food Standards Australia
New Zealand 2009*

*Reduction & Incidence of Benzene
Formation in Water Based, Non
Alcoholic Beverages*

FINAL

September 2009

*Australian Beverages Council Limited Report to
Food Standards Australia New Zealand on the Reduction and
Incidence of Benzene Formation in Water-Based, Non-Alcoholic
Beverages*

INTRODUCTION

The Australian Beverages Council Ltd (ABCL) has prepared the following report to communicate the findings of its 2009 annual benzene survey, which aimed to report on possible levels of benzene formed in some water and juice-based, non alcoholic beverages, since ABCL undertook its commitment to FSANZ in 2006.

Testing was carried out on a range of member and non member 'at risk' products, by the manufacturers and ABCL. This year's sample range of 'at risk' products (121) was lower than 2008 (139) and 2007 (228) due to the fact that many companies have reformulated product ranges and hence, there continues to be less 'at risk' products each year to test for the presence of benzene.

To ensure testing was as accurate as possible, members followed a standardised protocol which was refined from 2008 and agreed by the ABCL Technical Committee prior to collecting the results. Non member products were tested by the National Measurement Institute (NMI). ABCL can confidently report that no member products detected benzene above 5 ppb, well within the limits of the World Health Organisation (WHO) guideline for drinking water which is set at 10 ppb. In fact the highest level recorded was 4.9 ppb. FSANZ has previously established that whilst at the levels and rate of incidence found, benzene is not a health risk, it is agreed by all that the presence of benzene is not desirable.

ABCL members have committed to adopting the International Council of Beverages Associations (ICBA) *Guidance Document to Mitigate the Potential for Benzene Formation in Soft Drinks* which was released in 2006. ABCL member companies have adopted and continue to adhere to this document for their in-plant determination and management of the potential formation of benzene in beverages. ABCL continues to make this document available in the public section of the ABCL web site, allowing non-members to download the *Guidance Document*.

After discussions with FSANZ staff in June 2006 the Australian Beverages Council Ltd (ABCL) undertook to provide annual reporting to FSANZ on the status of the beverages industry's attention to this issue, the steps that are being taken by members, and the resulting effects on the possible presence of benzene in beverages.

The Australian Beverages Council Ltd is pleased to now report on the third year of annual reporting and the resultant effects of Industry's hard work and commitment in minimising the possible risk of benzene to form as much as possible, without compromising the quality of the product.

TESTING/SAMPLING PROTOCOL

Testing was carried out by the ABCL and our member companies, to determine whether benzene could be expected to be formed in each individual company's range of products.

The ABCL Technical Committee refined its 2008 protocol to ensure there was greater conformity from a testing perspective. The protocol was followed for sampling, collection and testing of the product samples and members were committed to following this protocol as closely as possible. ABCL had hoped to implement the cross referencing of exact product ranges for 2009 against those tested in 2008 so that comparisons could be made with like products, however we were only able to compare the total 'at risk' products for each company which scored a benzene result of under 1 and under 5 ppb etc. This was due to the following reasons;

- Not all individual results for each product were forwarded to ABCL in 2008 as they were for 2009, therefore the exact comparisons for each product could not be made.
- New product ranges on the market
- A couple of companies had not forwarded results last year due to either not being members or did not have any 'at risk' products in their profiles at that time.

The main aspects of this protocol are highlighted below;

1. **Range of products to be tested** – Products were sampled and tested which had the 'potential' to form benzene in water and/or juice based, flavoured non alcoholic beverages. These included products with sodium benzoate and/or ascorbic acid present either naturally or added.
2. **Stage at which the product should be tested** – It was agreed to test ABCL Member Companies internal retention samples at end of shelf life' or as close as possible with a tolerance level of up to 1 month. *However in some cases this was not feasible due to the high turnover of certain products. The majority of products were tested within 2 months of shelf life.*
3. **Sampling** – it was agreed sampling & testing of products 'where available' would be from across all States within Australia to give a fair indication of results
4. **Analytical testing** – Members were advised to send samples to the following laboratories, which use a level of quantitation and a method of analysis of that stipulated in the ICBA guidelines;
 - *National Measurement Institute (NMI).*
 - *George Weston Technologies*
 - *Dairy Technical Services Labs*

Members who chose not to send samples to an external lab and instead use their internal labs or an alternative lab were recommended to use those which follow the ICBA method of analysis – such as the 'Purge/trap GCMS Quantitation of trace level in carbonated drinks and juice products.

A copy of this methodology is attached as Appendix C to this report.

An overview of ABCL members and non member's method of analysis and details of the laboratories used for benzene testing is attached as Appendix D to this report.

The test methodologies used by member companies are those detailed in the ICBA *Guidance Document*.

RESULTS – ABCL MEMBERS' PRODUCTS

ABCL member companies reported the following test results:

- A total of 121 'at risk' products were tested
- ALL samples showed test results of less than 5ppb

ABCL MEMBER PRODUCTS- BENZENE TEST RESULTS	
Sample	Result
Total number of samples	121
Number of samples (ppb) >5	0
Number of samples (ppb) < 5	121
Highest value recorded (ppb)	4.9
Mean value (ppb)	1
Estimated % of the market of 'at risk' products tested	< 5%

An overview of member results and comparisons with the 2008 member results is attached as Appendix B to this report.

ACTIONS UNDERTAKEN & FUTURE MONITORING

Members take the issue of benzene monitoring extremely seriously and follow the recommendations specified in the ICBA guidelines which are as follows;

- Review existing products and new formulations
- Perform tests/analytical sampling of appropriate products
- Reformulate any affected products in which benzene maybe present
- Monitor post launch & confirm that new formulations or reformulations are effective in preventing/minimising benzene formation.

Companies have instituted ongoing monitoring and testing procedures and appropriate schedules to ensure their ongoing compliance to ensure they comply with the requirements of the *ICBA Guidance Document*.

The following information should also be noted:

- It is estimated that the products with the potential to form benzene represent less than 5 % of the total volume of low energy products sold in Australia.
- ABCL members have undertaken considerable testing and have found that certain product categories do **not** need to be reformulated. These include refrigerated juices and post-mix syrups. Test results for these products have found to be less than 5ppb benzene.
- ABCL members have advised that they will continue to test for benzene where there is a potential for it to form as a part of their regular trade sampling program. Further, processes are in place to highlight this issue and identify any future formulations that may require similar monitoring and testing.

RESULTS – NON MEMBERS’ PRODUCTS

ABCL has again undertaken random testing of non-member products to ensure a complete assessment of the Australian market place. The Beverages Council randomly sampled 10 products which in the main were taken from the own label retailers brands.

It should also be noted that very few products exist in the market place which are non-ABCL member companies and meet the criteria of the following;

- Low energy products
- Presence of ascorbic acid – added or naturally occurring
- Presence of benzoic acid – added or naturally occurring

Of the 10 samples tested, 9 detected levels of <1ppb. One sample detected a level of 17 ppb.

Sampling

- A random selection of products were taken from the 4 main retailers (Coles, Woolworths, Franklins & Aldi) and some random corner stores and newsagents
- A range of shelf-life timeframes were sampled due to the end of shelf life products not being obtainable at the time of selection.

NON MEMBER PRODUCTS- BENZENE TEST RESULTS

Sample	Result
Total number of samples	10
Number of samples >5ppb	1
Number of samples >10ppb	1
Number of samples <1ppb	9
Highest value (ppb)	17
Estimated % of the market	<1

ABCL ACTIONS

The ABCL has noted the above results and has written to the Company where the benzene level detected was above 10ppb. ABCL has advised the company of the testing, the reason why testing took place, their result and has been directed to the ICBA *Guidance Document to Mitigate the Potential for Benzene Formation in Beverages*. A copy of the template letter is attached to this report as Appendix D.

IN CONCLUSION

ABCL is pleased to report that ALL member products detected benzene below 5 ppb, which is well below the benchmark level set by the World Health Organisation (WHO) of 10ppb for municipal drinking water. Therefore, ABCL can be assured and confident that the all of ABCL members continue to follow the ICBA Guidance Document.

All but one of the 10 non member samples tested detected benzene levels below 1 ppb which shows that the majority of non members have adopted the guidance document to ensure that the occurrence of benzene in products on the market place is now minimal. However, there was one non member result which detected a benzene level of 17 ppb, which is above the WHO guideline level. ABCL has written to the company and has advised them of their options in order to address the issue. The options identified include reformulation or withdrawal from the market. If the product is reformulated and continues on the market, ABCL will endeavour to ensure this exact product is retested along with other 'random' products for 2010 to ensure the Company has taken the appropriate action.

If we compare the member results recorded for the 2008 report, it is evident by the reduction of 'at risk' samples tested, 139 in 2008 compared to 121 in 2009 and the number of samples which recorded benzene levels below 5 ppb, 94 % in 2008 compared to 100% in 2009, that manufacturers have made great progress in reducing the risk of possible benzene formation. Comparison of the non member results is not viable as only 4 non member products were

tested in 2008 and they all detected benzene of less than 1ppb. This year a different range of non member products were sampled and tested, which were not available for selection and from the market last year.

The ABCL is pleased that members have adhered as closely as possible to the revised standardised protocol for 2009. ABCL acknowledges there is further room for improvement to ensure there is 100% conformity amongst member reporting and from an ongoing testing perspective, testing like with like which is an area ABCL would like to see implemented for 2010. This could not be achieved this year, as not all individual results were forwarded to ABCL in 2008 as they were for 2009, therefore the exact comparisons could not be made. There were some cases where end of shelf life could not be tested, due to high product turnover and fast selling of the product.

ABCL members are committed to ensuring that all beverage formulations produced for public consumption are safe and comply with the FANZ Food Code.

Should FSANZ have any further concerns, please feel free to contact the undersigned.

Yours sincerely,

A handwritten signature in cursive script that reads "Lucy Pearson". The signature is written in black ink on a white background.

Lucy Pearson