



Sharp and Howells Pty Ltd

CHEMICAL LABORATORIES

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NATA Lab. No. 61

Established 1922

## TEST REPORT NO.: 17-0198

**Report Date:** 7<sup>th</sup> June 2017

**Client:** Integrity Testing Pty Ltd

**Address:** PO Box 1299  
**BENDIGO**, Vic 3552

**Attention:** John Higgs

**By Email:** [jshiggs@integritytesting.com.au](mailto:jshiggs@integritytesting.com.au)

**Date Received:** 29<sup>th</sup> May 2017

**Samples:** 2 x Eucalyptus Oil

**Our Reference:** 17/A/0826-0827

**Sampled By:** Client

**Analysis:** *Composition (Gas Chromatography)*  
*FTIR (Fourier Transform Infrared) & Refractive*  
*Index*

**SAMPLE NOTES:**

*Unless otherwise notified, all samples will be disposed of within three months of reporting date.*

Yours faithfully,

**SHARP AND HOWELLS PTY. LTD.**

Maria Zaksek  
BSc. C.Chem. MRACI  
Senior Chemist

John Franceschini  
BSc. (Hons), C.Chem. MRACI  
Director

**1. INTRODUCTION:**



We were provided with two samples of Eucalyptus oils to determine the composition and Refractive Index.

The samples were analysed directly using a Perkin Elmer Spectrum 100 Fourier Transform Infrared (FTIR) Spectrometer with ATR (Attenuated Total Reflectance accessory).

The samples were also analysed directly by Gas Chromatography/Mass Spectroscopy using a Perkin Elmer Clarus 680/600S.

**2. RESULTS OF ANALYSIS**

**Refractive Index**

Lab Number:	17/A/0826	17/A/0827
Sample Marked:	<p style="text-align: center;"><b>"2014"</b></p>  <p style="text-align: center;">Clear Pale light amber liquid</p>	<p style="text-align: center;"><b>"2016"</b></p>  <p style="text-align: center;">Clear pale amber liquid</p>
Refractive Index @ 20°C:	1.463	1.463
Refractive Index @ 20°C: 100% Pure Eucalyptol Reference	1.465	

**RESULTS OF ANALYSIS (Continued)**

**Gas Chromatography/ Mass Spectrometry Analysis: (Major Components)**

The samples were diluted with Ethanol and then analysed Directly by GC/MS

<b>Our Ref:</b>	<b>17/A/0826</b>	<b>17/A/0827</b>
<b>Sample Marked:</b>	<b>"2014"</b>	<b>"2016"</b>
α- Thujene:	0.2	0.1
α- Pinene :	1.6	0.9
Sabinene :	0.3	0.2
β-Pinene:	0.5	0.7
β- Myrcene:	0.4	0.2
α- Phellandrene :	0.2	0.3
p-Cymene:	0.2	Not Detected
2-Carene :	Not Detected	0.2
m-Cymene:	Not Detected	0.2
Limonene:	0.1	<0.1
Eucalyptol:	96.5	97.2

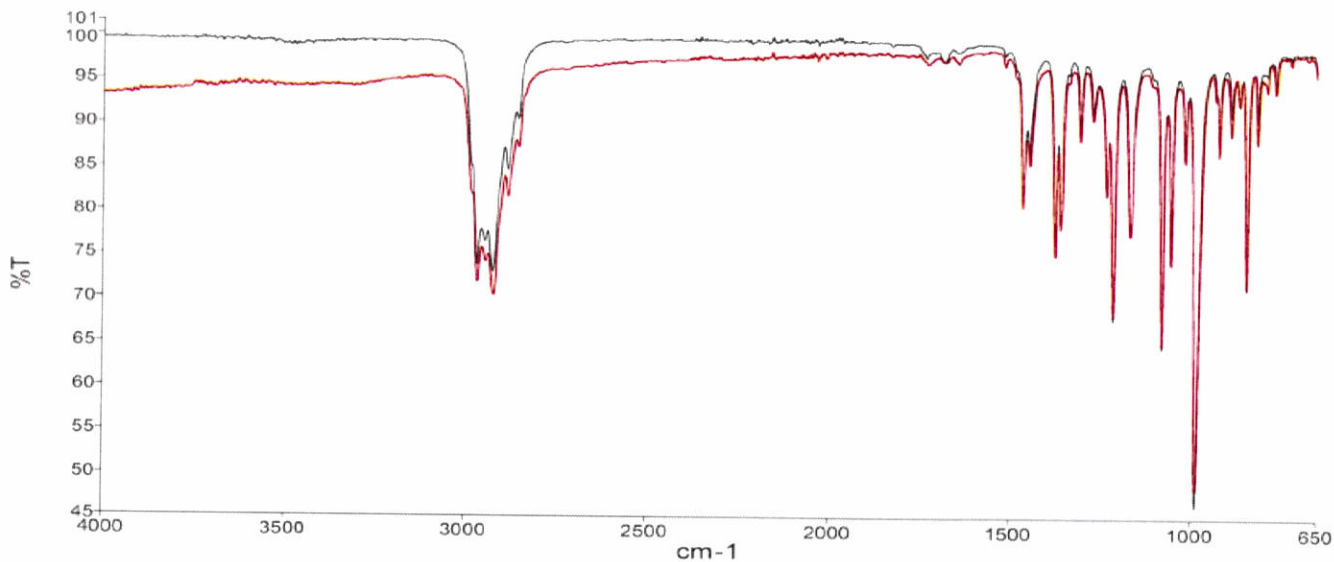
**NOTE:**

*These results show the best matches according to comparison against current databases and available information. All efforts have been made to ensure that our databases are up to date and reflective of current knowledge and technology.*

*Further or absolute confirmation would require reference materials being available for additional testing.*

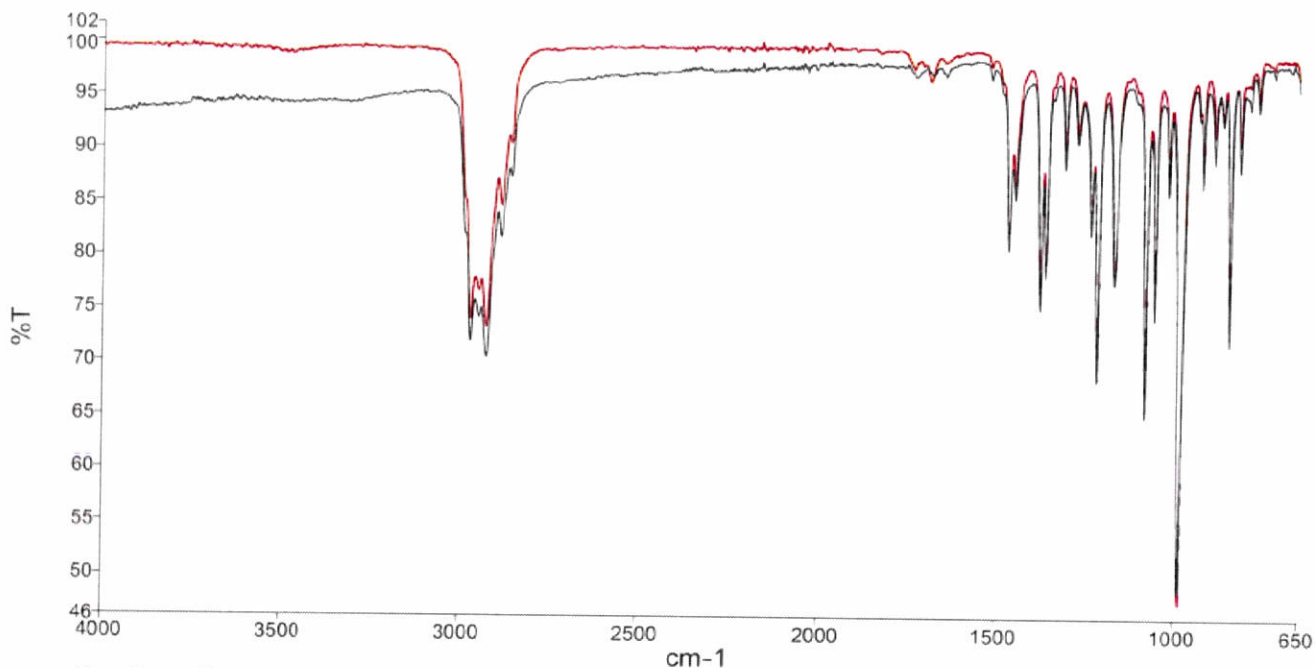
**RESULTS OF ANALYSIS (Continued)**

**Fourier Transform Infrared (FTIR):**



**Spectrum 1:**

**BLACK** – Integrity Testing “2016” (17/A/0826) (Greater than 99% match compared with Reference)  
**RED** - 100% Eucalyptus Oil (Reference)



**Spectrum 2:**

**RED** – Integrity Testing “2017” (17/A/0827) (Greater than 99% match compared with Reference)  
**BLACK** - 100% Eucalyptus Oil (Reference)