

Greenhouse Gas Inventory Verification for:

Tiger Brands Limited

24 April 2015



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Disclaimer

Every attempt has been made by Terra Firma Solutions to ensure the accuracy of this Greenhouse Gas Inventory Verification; however the accuracy is dependent on information provided by Tiger Brands Limited including, but not limited to:

- Activity data provided by Tiger Brands
- Carbon emission calculations by source and business unit
- Assumptions used to calculate carbon emissions

Glossary

CDP	Carbon Disclosure Project
CFA	Carbon Footprint Assessment
CH ₄	Methane
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
DEFRA	Department of Environment, Food and Rural Affairs (UK)
DJSI	Dow Jones Sustainability Index
GHG	Greenhouse Gas
GJ	Gigajoule
IPCC	Intergovernmental Panel on Climate Change
JSE SRI	Johannesburg Stock Exchange Socially Responsible Investment
kL	Kilolitre
kW	Kilowatt
kWh	Kilowatt Hour
MWh	Megawatt Hour
N ₂ O	Nitrous Oxide
tCO ₂ e	Tonnes of Carbon Dioxide Equivalent

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I Introduction

I.1 Project Background

Organisations around the world are increasingly confronted with the topic of climate change and other social and environmental issues. These organisations are fast recognising that their response (or lack thereof) to environmental and social issues, poses both risks and opportunities.

Organisations are discovering that there is strategic business value by undertaking **Greenhouse Gas Inventory Verification** as part of their overall Carbon Management Plan.

These benefits include:

- **Reporting assurance:** Ensure your carbon emissions data is accurate, relevant, complete, and consistent over time for management decision making. This ensures transparent and credible reporting to external stakeholders, and to voluntary or regulated reporting schemes such as the CDP.
- **Manage risk:** Ensure your information is robust enough to withstand media and stakeholder scrutiny.
- **Differentiate from competition:** Show that your organisation takes its environmental impact seriously and is willing to go the extra step by undertaking external independent verification.
- **Enhance reputation:** Demonstrate your organisation's commitment to cut carbon emissions. Therefore enhancing your reputation among shareholders, customers, and employees.
- **Attract investment:** Improve access to capital through ratings on the growing number of market indices such as the JSE SRI index, FTSE4Good index and the DJSI.
- **Credible and efficient carbon neutrality:** Underpin any claims with a proven best practice calculation.
- **Increase CDP Score:** A company choosing to verify their footprint can potentially achieve an additional 9-17% on their CDP score.

I.2 Project Background

Tiger Brands Limited commissioned Terra Firma Solutions to conduct an independent verification assessment of their Greenhouse Gas Inventory for the reporting period 1st January 2014 to 31st December 2014. The purpose of the verification is to increase accuracy and credibility of Tiger Brands' Carbon Footprint Assessment as well as being used to increase their CDP score for emissions reporting.

The verification has been conducted in accordance with ISO 14064 – 3: 2006 International Standard.

I.3 Verification Scope

Terra Firma Solutions conducted **limited-level assurance** of Tiger Brands' Greenhouse Gas Inventory. The following verification activities were conducted:

- A desktop review of Tiger Brands' Scope 1 and Scope 2 GHG inventory and activity data.
- A desktop review of Tiger Brands' Scope 3 (water, waste and air travel) activity data.

- The following business units were included in the verification:

Grains	Consumer Brands	Exports and International
Albany	Beverages	Haco
Milling	Culinary	Chococam
Jungle	Home, Personal Care & Baby	Langeberg & Ashton Foods
King	Value Added Meat Products	
Tastic	Snacks and Treats	
Pasta		

- The following excel documents were verified for correctness:
 - Consumer Brands Summary Sheet
 - Grains Summary Sheet
 - Chococam
 - Haco
 - L&A
 - Carbon Emission Summary (consolidated report including final scope 1, 2 and 3 figures)
 - Carbon Emission test (scope 3 air travel data)
- Emission intensities were not verified.
- Scope 1 and 2 emissions were compared to the previous year's carbon footprint (2013)
- All environmental indicator reports containing activity data were assessed to ensure correctness in GHG emission calculations.
- All relevant emission factors were reviewed for accuracy.

1.4 Concept of Materiality

The determination of materiality involves qualitative as well as quantitative considerations. As a result of the interaction of these considerations, discrepancies of relatively small amounts can have a material effect on the carbon emissions assertion.

In order to ensure consistency some GHG programmes or internal reporting programmes assist this decision-making process by including materiality thresholds. This can be defined at the overall level, such as 5% of an organisation's or GHG project's GHG emissions.

It can also include varying thresholds depending on the level of disaggregation, such as 5% at the gross organisational level, 7% at the facility level, and 10% at the GHG source level.

1.5 Assumptions and Limitations

All assumptions made during the verification process have been clearly explained in the relevant sections to which they pertain. Terra Firma Solutions are limited to the information and data provided by Tiger Brands.

1.6 Structure of the Report

The report has the following structure:

- Introduction
- Verification Process
- Verification Results

- Recommendations
- Verification Statement

I.7 Project Team

The table below shows the project team:

Table I: Project Team

Name	Company	Responsibility
Julie Ntsekhe	Tiger Brands	Client Representative
Lebogang Malatsi	Tiger Brands	Client Representative
David Bonellie	Terra Firma Solutions	Senior Manager
Caitlin Keam	Terra Firma Solutions	Senior Analyst

2 Verification Process

2.1 Verification Process

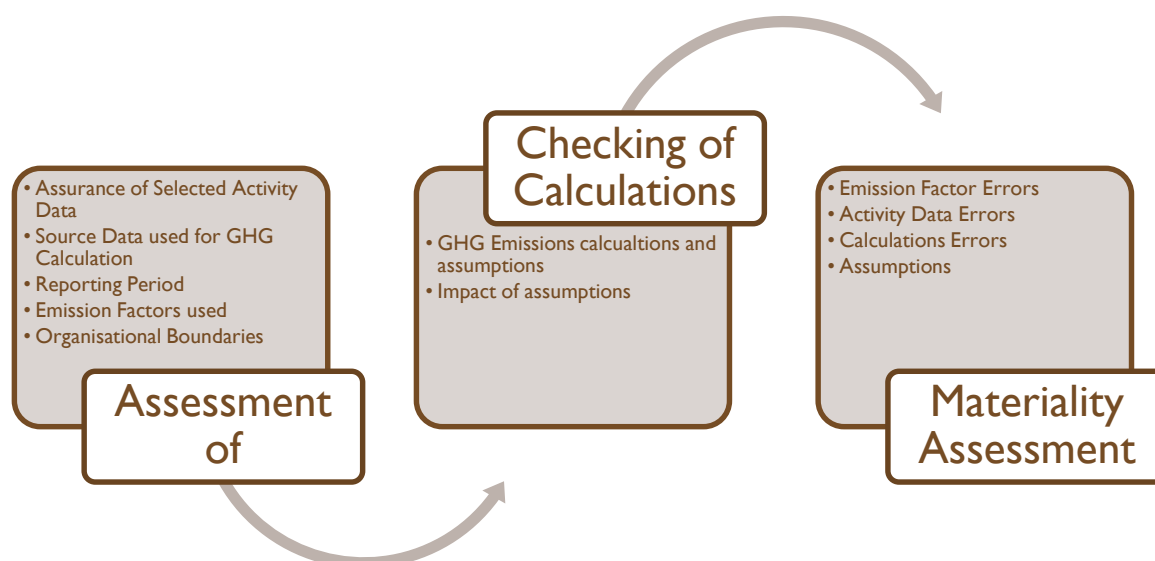


Figure 1: Greenhouse Gas Verification Process

2.2 Tiger Brands Activity Data

The GHG emissions were verified using the above process. All environmental indicator reports containing activity data were provided by Tiger Brands, for each business unit.

The following points describe the verification method used:

- Activity data was checked by calculating emissions using input sheet data and comparing emissions against the final consolidated GHG inventory. The following business units were included in the assessment:
 - Consumer Brands
 - Grains
 - Exports and International:
 - Haco Tiger Brands (Kenya)
 - Chococam (Cameroon)
 - Langeberg & Ashton Foods (South Africa)
- Scope 3 air travel emissions were included in the verification assessment.
- The reporting period assessed was for 1st January 2014 to 31st December 2014.
- The organisational boundaries were checked and confirmed to operational control. Therefore 100% of emissions are attributed to Tiger Brands.
- The calculations of GHG emissions were checked and assessed for material impact on the overall carbon footprint for Scopes 1 and Scope 2 emission sources. Scope 3 water, waste and air travel emissions were also assessed.
- The materiality of all discrepancies were assessed using the criteria stipulated in Section 1.4 Concept of Materiality.

3 Verification Results

The following findings relate to the scope of the verification as defined in Section 1.3.

3.1 Materiality

A 5% organisational level materiality threshold was set for the verification assessment. Based on the process and procedures conducted, there is no evidence that the GHG assertion

1. has significant material errors and is not a fair representation of GHG data and information; and
2. has not been prepared in accordance with the GHG Protocol Corporate Accounting and Reporting Standard.

3.2 Organisational Boundaries

The organisational boundaries were defined and utilised correctly in the calculation of the GHG Inventory.

3.3 Reporting Period

The reporting period was correctly defined and utilised in the calculation of the GHG emissions inventory. Tiger Brands reporting period is the calendar year and not the organisations financial year.

3.4 Emission Factors

All Scope 1 and 2 emission factors used in Tiger Brands environmental indicator reports were checked for correctness; utilising the following sources:

- The Greenhouse Gas Protocol Emission Factors from Cross Sector Tools
- Eskom 2014 Supplementary and Divisional Report
- IPCC Guidelines for National Greenhouse Gas Inventories 2006

Scope 3 emission factors were checked for correctness; utilising the following sources:

- 2014 Guidelines to DEFRA/DEC's GHG Conversion Factors for Company Reporting.

3.5 Corrective Action Requests

The following corrective actions were undertaken by Tiger Brands to improve the accuracy of the carbon footprint assessment:

3.5.1 Corrective Actions Round 1

3.5.1.1 Emission Factors

- ✓ The grid electricity emission factor was updated from the 2013 Eskom grid emission factor (1.00 kgCO₂e/kWh) to the 2014 Eskom grid electricity emission factor (1.03 kgCO₂e/kWh).
- ✓ To ensure consistency with previous year's carbon footprints the emission factors were updated to use the same source as in 2013. Discrepancies are shown as highlighted values in the "Verification Emission Factors" column in Table 2.

Table 2: Emission Factor Corrective Actions

Emission Source	TIGER BRANDS		VERIFICATION		Source used in 2013
	Emission Factors	Source	Emission Factors	Source	
Coal	2 453	IPCC	2 458.10	GHG Protocol	GHG Protocol
Natural Gas (SASOL)	56 236	GHG Protocol	56 236.00	GHG Protocol	GHG Protocol
LPG	2 986	IPCC	2 991.06	GHG Protocol	GHG Protocol
Diesel - Heating	3 196	IPCC	3 203.33	GHG Protocol	GHG Protocol
Paraffin	3 165	IPCC	3 166.56	GHG Protocol	GHG Protocol
Poly Fuel	3 149	GHG Protocol (only CO ₂)	3 166.56	GHG Protocol	GHG Protocol
HFO	3 136	Unknown	3 142.96	GHG Protocol	GHG Protocol
Biomass (peach pits)	1 183	IPCC	1 247.46	GHG Protocol	GHG Protocol
Petrol -Transport	2.380	Unknown	2.46	IPCC	IPCC
Diesel -Transport	2.750	Unknown	2.87	IPCC	IPCC
LPG - Transport	2.910	Unknown	1.72	IPCC	IPCC
Electricity	1	ESKOM 2013	1.03	ESKOM 2014	ESKOM 2013
Haco Electricity	0.294	GHG Protocol	0.29	GHG Protocol	GHG Protocol
Cococam Electricity	0.200	GHG Protocol	0.20	GHG Protocol	GHG Protocol
Water Usage	0.34	DEFRA 2014	0.34	DEFRA 2014	n/a
Waste	199	DEFRA 2014	199.00	DEFRA 2014	n/a
Grains Waste	115	DEFRA 2014	199.00	DEFRA 2014	n/a

3.5.1.2 Activity Data

- ✓ LPG activity data in the Grains report was pulling February to December therefore data for January was missing.
- ✓ Jungle's waste activity data in the Grains report was pulling data for packaging, not waste to landfill.
- ✓ L&A West's waste activity data in the L&A report was pulling data for packaging, not waste to landfill.

3.5.1.3 Density

- ✓ In all reports the density of diesel used was 0.74 kg/l, this was updated to 0.84 kg/l (GHG Protocol tool).

3.5.1.4 Additional Checks

- ✓ The "Usage and Costs Summary" tab did not impact the carbon footprint calculations. However, it was recommended that the Paraffin and Polyfuel data was reviewed. In all environmental indicator reports, the data for Paraffin and Polyfuel was identical.

3.5.2 Corrective Actions Round 2

3.5.2.1 Emission Factors

- ✓ In the L&A report, the grid electricity emission factor was updated from the 2013 Eskom grid emission factor (1.00 kgCO₂e/kWh) to the 2014 Eskom grid electricity emission factor (1.03 kgCO₂e/kWh).

3.5.2.2 Activity Data

- ✓ LPG activity data in the Chococam report was pulling February to December therefore data for January was missing.

3.6 Verification Results Summary

The table below summarises the results of Tiger Brands 2014 carbon footprint verification. The gross organisational emissions were understated by 0.003%, well below the 5% materiality threshold.

Table 3: Tiger Brands Verification Summary

Business Unit	Tiger Brands (tCO ₂ e)	Verification (tCO ₂ e)	% Change
Consumer Brands	282 305	282 307	-0.001%
Scope 1	143 606	143 608	-0.001%
Scope 2	134 650	134 650	0%
Scope 3	4 049	4 050	-0.025%
Grains	227 173	227 188	-0.007%
Scope 1	59 281	59 295	-0.024%
Scope 2	163 224	163 226	-0.001%
Scope 3	4 668	4 667	0.021%
Exports and International	61 012	61 014	-0.003%
Scope 1	38 517	38 519	-0.005%
Scope 2	17 684	17 684	0%
Scope 3	4 812	4 812	0%
Total Scope 1, 2 & 3	570 491	570 511	-0.004%
Scope 1	241 404	241 422	-0.007%
Scope 2	315 558	315 560	-0.001%
Scope 3	13 529	13 528	0.007%
Air Travel	2 161	2 161	0%
Total Carbon Footprint	572 652	572 671	-0.003%

The verification results per business unit are as follows:

- Consumer Brands emissions were understated by 0.001%
- Grains emissions were understated by 0.007%
- Exports and International (Haco, Chococam and L&AF) emissions were understated by 0.003%.

3.7 Emissions Compared to 2013

Tiger Brands did not include scope 3 water and waste emissions in the company's 2013 carbon footprint. Therefore these emissions were excluded from the comparison in Table 4.

Compared to 2013, Tiger Brands carbon footprint (scope 1, 2 and air travel) decreased by 5%. Scope 1 emissions decreased by 19%, while scope 2 electricity emissions increased by 11%. Air travel emissions decreased significantly by 40%.

By business units, Consumer Brands emissions decreased by 11%, Grains emissions increased by 9% and International business units decreased by 15%.

Table 4: Comparing Emission to 2013

Business Unit	Tiger Brands 2014 (tCO ₂ e)	Tiger Brands 2013 (tCO ₂ e)	% Change
Consumer Brands	278 256	312 356	-11%
Scope 1	143 606	180 305	-20%
Scope 2	134 650	132 051	2%
Grains	222 505	203 528	9%
Scope 1	59 281	67 608	-12%
Scope 2	163 224	135 920	20%
Exports and International	56 201	66 000	-15%
Scope 1	38 517	48 892	-21%
Scope 2	17 684	17 108	3%
Total Scope 1 & 2	556 962	581 884	-4%
Scope 1	241 404	296 805	-19%
Scope 2	315 558	285 079	11%
Air Travel	2 161	3 607	-40%
Total Carbon Footprint (Scope 1, 2 & Air Travel)	559 123	585 491	-5%

3.8 Verification Discrepancies

Tiger Brands supplied Terra Firma Solutions with excel based environmental indicator reports containing activity data and emission calculations for each business unit. The following sections highlight discrepancies compared to the verification results. The discrepancies discussed are not material to the overall footprint, however they are detailed below to assist Tiger Brands in improving the accuracy of future carbon footprint calculations.

3.8.1 Emission Factors

There was a slight discrepancy (less and 1%) in transport emissions for Petrol, Diesel and LPG. The discrepancy is due to Tiger Brands not including all decimal points in the carbon footprint calculations. For future iterations of the carbon footprint it is recommended that the following emission factors are updated to include all decimal points:

- Petrol – Transport: 2.46 kgCO₂e/Litre updated to 2.4603401
- Diesel – Transport: 2.87 kgCO₂e/Litre updated to 2.87239329
- LPG – Transport: 1.72 kgCO₂e/Kg updated to 1.7211888

3.9 Scope 3 Emissions

Tiger Brands Scope 3 business flights are recorded by the company's travel agent, TWF Travel. TWF travel calculated the business flight emissions at 2 161 tCO₂e. A desktop review of the emissions used DEFRA's emissions factors; short-haul economy for domestic travel and long-haul business class for international travel. The comparison using DEFRA is within the 5% materiality threshold. However, it is assumed that TWF's emissions are more accurate as they are calculated on a per flight basis and require less assumptions as used in the verification. Therefore for verification purposes the TWF figure of 2 161 tCO₂e was used and the conclusion was made that there were no material discrepancies regarding Tiger Brands air travel emissions.

4 Recommendations

The following recommendations indicate ways in which Tiger Brands can improve their carbon management system:

- **Improve data quality:** it is recommended that Tiger Brands continue to collect non-financial data by business unit. This should be accompanied by a non-financial data collection guideline which aims to reduce errors. It is recommended that each business unit take actions to reduce all data gaps, and ensure all cells in the excel spreadsheet are pulling the correct data:
 - In the “Usage & Cost Summary (YTD) tab, ensure that all YTD totals are pulling the correct data.
 - Ensure the “Carbon Footprint Analysis” tab is pulling the correct activity data for each business unit and emission source.
- **Review process:** it is recommended that each business unit review the non-financial data before submitting to head office. This review should ensure that there are not material exclusions or errors in the data. Head office should review the data further, again highlighting any significant discrepancies in the data. All calculations should be reviewed by a Tiger Brands employee who did not calculate the footprint, this review should ensure all activity data is pulled correctly throughout the workbooks as indicated in the bullet point above.
- **Emission factors:** Tiger Brands should update electricity emission factors annually. Eskom’s supplementary and divisional report publishes the grid emission factor annually. International electricity emission factors are found in the Greenhouse Gas protocol guidelines, where the latest emission factor should be used. DEFRA releases an updated database of emission factors annually, the latest DEFRA emission facts should be used for scope 3 emissions. IPCC and GHG Protocol emission factors are not updated annually, however it is recommended that Tiger Brands check for updates prior to calculating the company’s carbon footprint.
- **Carbon footprint calculations:** it is recommended that the carbon footprint calculator is reviewed for calculation errors. This involves ensuring calculations are correct and ensuring all densities have been applied correctly.
- **Carbon inventory development:** Tiger Brand has a large scope I footprint, comprised of fossil fuels. It is recommended that Tiger Brand’s carbon inventory identifies the largest emitters, allowing for the identification of possible carbon projects as well as investigating, at a high level, if these projects would be feasible to investigate further.
- **Detailed carbon emission reduction strategy:** There are a number of opportunities for Tiger Brands to reduce emissions. The company should look to develop a detailed emission reduction strategy in order to provide the best way forward to reduce group emissions. This will directly reduce Tiger Brand’s carbon tax liability which is likely to be over R10 million (based on a tax free threshold of 60%) for the first year of the tax in 2016. The carbon strategy should look at specific opportunities at selected facilities and highlight which opportunities should be investigated more closely.

5 Verification Statement

Tiger Brands Limited
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Independent Verification Statement

Introduction

Tiger Brands Limited (Herewith Tiger Brands) commissioned Terra Firma Solutions to perform limited-level assurance of its Greenhouse Gas (GHG) inventory for the reporting period 1 January 2014 – 31 December 2014 (Herewith 2014). The preparation for the GHG calculation has been the responsibility of Tiger Brands. The verifier has been given the responsibility to express an opinion on the GHG calculation based on the review of Tiger Brands calculations.

The verification has been conducted in accordance with ISO 14064 – 3: 2006.

Objectives

The GHG assertions verified were the following:

- That the calculation of the 2014 GHG inventory for Tiger Brands has been developed in accordance with the GHG Protocol Corporate Accounting and Reporting Standard; and
- That the final reported figure of GHG emissions were calculated according to the operational control approach at **572 652 tonnes CO₂e** for Scope 1, Scope 2 and Scope 3 (water, waste and air travel).

Scope

The following verification activities were conducted:

- A desktop review of Tiger Brands Scope 1, Scope 2 and Scope 3 (water, waste and air travel) GHG inventory and activity data, where the following reviews were conducted:
 - Reliability and correctness of emission factors;
 - Assessing completeness and accuracy of activity data;
 - Assuring a consistent methodology was used for assumptions and extrapolation; and
 - Reviewing the accuracy of final GHG calculations, as per the following materiality thresholds:
 - 5% gross organisational threshold
- All corrective actions were made by Tiger Brands, including:
 - Updating Eskom grid electricity emission factor
 - Ensuring all emission factors are consistent compared to previous years
 - Ensuring all activity is correctly pulled from input sheets to calculations
 - Ensuring density of fuels is applied correctly

- The following business operations were included in the Scope 1, 2 and 3 (water and waste) verification:

Grains	Consumer	International
<ul style="list-style-type: none"> • Albany • Milling • Jungle • King • Tastic • Pasta 	<ul style="list-style-type: none"> • Beverages • Culinary • Home, Personal Care & Baby • Value Added Meat Products • Snacks and Treats 	<ul style="list-style-type: none"> • Haco • Chococam • Langeberg & Ashon Foods (S.A.)

- Scope 3 air travel emissions were verified
- Scope 1 and 2 emissions were compared to the previous year's carbon footprint (2013)
- Emission intensities were not verified.
- Documentation of verification findings, and recommendations for improvement, are highlighted in the verification report.
- Issuance of verification statement and completion of verification.

Conclusion

The limited level of assurance was conducted so as to comply with the requirements of the Carbon Disclosure Project and the Greenhouse Gas Protocol. The Tiger Brands Scope 1 and Scope 2 GHG emissions were found to be understated by 0.004%. Tiger Brands Scope 3 emissions were overstated by 0.006%.

Scope 1:

Total Scope 1 emissions reported for 2014: **241 404 tonnes CO₂e**

For CDP purposes more than 90% but less than or equal to 100% of the reported global emissions were verified.

Compared to 2013, Scope 1 emissions decreased by 55 422 tCO₂e (19%)

Scope 2:

Total Scope 2 emissions reported for 2014: **315 558 tonnes CO₂e**

For CDP purposes more than 90% but less than or equal to 100% of the reported global emissions were verified.

Compared to 2013, Scope 2 emissions increased by 30 028 tCO₂e (11%)

Scope 3:

Total Scope 3 emissions reported for 2014: **15 690 tonnes CO₂e**

For CDP purposes more than 90% but less than or equal to 100% of the reported global emissions were verified.

In 2014 Tiger Brands included water and waste in Scope 3 emissions. Therefore these emissions are not directly comparable to 2013.

Verification Opinion

Based on the process and procedures conducted, there is no evidence that the GHG assertion

3. has significant material errors and is not a fair representation of GHG data and information;
and
4. has not been prepared in accordance with the GHG Protocol Corporate Accounting and Reporting Standard.

Date of Verification

The preparation for the verification opinion for the GHG calculation was performed between 13th April 2015 and 24 April 2015.

The verification statement is dated 24 April 2015.



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