

LCI Review report

Table 1: General review reporting items

REVIEW REPORTING			
General information			
Data set name	Steel tinplate including EoL recycling; blast furnace route; European, production mix, at plant; 1kg, Recycling rate = 72%, typical thickness between 0.13 - 0.49 mm. typical width between 600 - 1100 mm.		
Data set UUID and version number	UUID: 58ecba78-4ed5-4078-a911-57de29ee5c28 Version No.: 00.00.000		
Data set locator (e.g. Permanent URI, URL, contact point, or database name and version, etc.)	Philip Buisseret (P.Buisseret@apeal.be)		
Data set owner	APEAL		
Review commissioner(s)	APEAL / JRC		
Reviewer name(s) and affiliation(s), contact	Dr Dave Dowdell, BRANZ Ltd		
Review type applied	Qualified independent external review		
Date of review completion (DD/MM/YYYY)	3/9/12		
Reviewed against / Compliance system name	ILCD Data Network - Entry-level requirements		
Reviewer assessment:			
Aspect	Yes	No	Comments
Quality compliance (ISO 14040 & 14044) fulfilled (see table 2)	X		Data have been compiled in accordance with the worldsteel methodology report 2011. The underlying model used to produce the APEAL data is the same as the model used by worldsteel. Review of the model and

		methodology has not formed part of this assessment since both the methodology and model have been the subject of separate reviews in 2011. The worldsteel model was reviewed as part of a review against ILCD entry level requirements and the worldsteel methodology was subject to a critical review carried out by an independent panel in 2011. Based on these reviews, and the review on the dataset for this report, quality compliance criteria have been met.
Method compliance (ISO 14040 & 14044) fulfilled and documented in data set	X	Method used fully documented in dataset.
Nomenclature compliance (see table 3) fulfilled	X	Nomenclature appears compliant with mandatory requirements.
Documentation compliance (see table 3) fulfilled	X	Document is valid.
Review compliance (Independent external review OR independent internal review + review report) fulfilled	X	Independent external review
Compliant with ISO 14040 & 14044	X	Worldsteel methodology has been independently panel reviewed for compliance with ISO 14040 and ISO 14044, and has been found to be compliant. APEAL data are derived from this.
Overall compliant with Compliance system	X	Yes

Date, location, reviewer signature

3/9/12

A handwritten signature in black ink, appearing to read "D. Sandell", is written on a white rectangular background.

Porirua, New Zealand

Table 2: Specific/detailed review reporting items for LCI data set: Quality compliance (ISO 14040 & 14044)

ITEMs	Comments
<p>Time-related coverage/representativeness:</p> <p>“age of data and the minimum length of time over which data should be collected”</p> <p>“qualitative assessment of the degree to which the data set reflects the true population of interest”</p>	<p>Assessed as good using expert judgment.</p> <p>Based on annual average primary data collected between 2008 and 2009. Length of time over which data collected, and age of data, provide a good reflection of the true population of interest.</p> <p>Background data e.g. coke, sinter, iron ore, electricity, based on steel industry data and GaBi 2006 database.</p> <p>Data include a recycling rate of 72% for steel packaging at end of life based on industry expert judgments of current recycling rate.</p> <p>Data meet “SHALL” provisions in 6.8.4 of the Specific Guide for Life Cycle Inventory data sets in the ILCD Handbook.</p>
<p>Geographical coverage/representativeness:</p> <p>“geographical area from which data for unit processes should be collected to satisfy the goal of the study”</p> <p>“qualitative assessment of the degree to which the data set reflects the true population of interest”</p>	<p>Assessed as very good using expert judgment.</p> <p>Based on site specific primary data for 8 sites operated by 4 companies in France, Germany, the Netherlands, Slovakia and Spain. Electricity inputs based on country specific data from GaBi 2006 database.</p> <p>Other significant upstream data is country/region specific, based on the 2011 worldsteel methodology report.</p> <p>Data meet the provisions set out in 6.8.3 of the Specific Guide for Life Cycle Inventory data sets in the ILCD Handbook.</p>
<p>Technology coverage/representativeness:</p> <p>“specific technology or technology mix”</p> <p>“qualitative assessment of the degree to which the data set reflects the true population of interest”</p>	<p>Assessed as very good using expert judgment.</p> <p>Data are a weighted average based on production volume from each participating blast furnace site, representing a reported 97% of European manufacture of tinplate steel.</p> <p>The data consider a 5% scrap input although no impact associated with its collection and pre-processing is included. The impacts of these processes are likely to be minor in comparison with the steel production process. The dataset includes recycling at end of life in accordance with the worldsteel methodology from which the APEAL data have been derived.</p> <p>Data meet the provisions set out in 6.8.2 of the Specific Guide for Life Cycle Inventory data sets in the ILCD Handbook.</p>
<p>Precision:</p> <p>“measure of the variability of the data values for each data expressed (e.g. variance)”</p>	<p>Assessed as good using expert judgment.</p> <p>Variance is not measured currently and has been assessed as good using expert judgment. Data go through a rigorous quality control based on a series of checks (mass, energy, iron) as well as comparison with other similar processes (“horizontal checking”) to check for data outliers, in accordance with the data collection methods and checks employed in the worldsteel methodology, on</p>

ITEMs	Comments
	which the APEAL data are derived.
<p>Completeness: “percentage of flow that is measured or estimated”; assessed on level of process</p>	<p>Assessed as good using expert judgment.</p> <p>In accordance with the worldsteel methodology, cut off is as follows: 99.9% of mass inputs and all non-mass inputs reported as included. Wastes of less than 1% by mass for a process not recorded unless treated outside the system.</p>
<p>Consistency: “qualitative assessment of whether the study methodology is applied uniformly to the various components of the analysis”</p>	<p>Assessed as good using expert judgment.</p> <p>Study methodology follows worldsteel approach which was found to be applied consistently, for example, with respect to allocation procedures. The worldsteel model from which the APEAL dataset is derived uses secondary data including other trade association and GaBi data for some processes, for which it is more difficult to assess the extent of compliance with the worldsteel methodology.</p>
<p>Sources of the data; Appropriateness of use primary/secondary data source</p>	<p>Assessed as good using expert judgment.</p> <p>Primary annual data from individual participating site submissions, supported by country/region specific steel industry data in GaBi 2006 database.</p>
<p>Uncertainty of the information (e.g. data, models and assumptions).</p>	<p>Uncertainty not recorded. Having reviewed the methodology (as part of an independent review panel reviewing the worldsteel methodology), model, assumptions and data, the level of uncertainty is judged to be low.</p>
<p>Others</p>	<p>Overall data quality rating (DQR) assessed conservatively using expert judgment by the reviewer based on knowledge and available qualitative information, as follows:</p> <p>Technological representativeness: very good Geographical representativeness: very good Time-related representativeness: good Completeness: good Precision: good Methodological appropriateness: good</p> <p>Therefore: $DQR = (1 + 1 + 2 + 2 + 2 + 2 * 4) / (6 + 4) = 1.6$</p> <p>Overall data quality level = high quality</p> <p>Reference (and a link) is made to the updated worldsteel methodology report for 2011, which has undergone an independent panel review.</p>

Table 3: Specific/detailed review reporting items for LCI data set: Nomenclature and Documentation

ITEMs	Comments
Nomenclature	

ITEMs	Comments
Correctness and consistency of applied nomenclature	Nomenclature appears to be applied consistently, based on audit of randomly selected flows.
Documentation	
Appropriateness of documentation extent (see Document "Documentation of LCA data sets")	Documentation appears to be complete from visual inspection and use of Documentation Compliance checker.
Appropriateness of documentation form (ILCD Format)	Meets requirements. Compliance tool indicates document is valid.