

A global harmonised LCA database: steel products

Clare Broadbent, Manager LCA



worldsteel's role

- The World Steel Association acts as the focal point for the steel industry.
- **worldsteel provides global leadership on all major strategic issues affecting the industry, particularly focusing on economic, environmental and social sustainability.**
- worldsteel promotes steel and the steel industry to customers, the industry, media, financial markets and the general public.
- worldsteel assists its members to develop the market for steel, managing major projects in a range of industry sectors.

2

worldsteel's key goals?

- Steel is the most important, innovative, recyclable and sustainable material for the 21st century.
- Members will be profitable rewarding shareholders and re-investing in new products and processes.
- The safety goal is "zero": an injury free, illness free and healthy workplace.
- **The industry will minimize its environmental footprint and conduct its operations in a sustainable way.**
- The steel industry should be free of government involvement which distorts the market and prevents fair competition.

3

Market Development and Sustainability

- **Sustainability Committee (SUSCO)**
 - **Manages the Industry Sustainability Agenda**
 - **Market Development Initiatives**
 - LCA Expert Group
 - Data collection and methodology
 - LCA modelling of steel and steel products
 - Marketing and communications using LCA
 - Sustainability Expert Group
 - Trend monitoring and issues management
 - Sustainability reporting

4

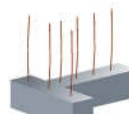
LCA at worldsteel

- worldsteel has developed globally-accepted, peer-reviewed methodology for creation of LCI data for steel and steel products
- Two full data collection studies done previously
- **New data released for 2010**
 - **New model developed in GaBi**
 - **Comprehensive data update**
 - Steel production facilities
 - Upstream data
- 16 steel products from both EAF and BOF routes
- Global and European data (including EU, China, India, Japan, Korea, North and South America)
- Data provision: **55 sites from 22 companies in 20 countries**
- Still updating
 - **Include more sites: increase global representation**
 - **More regions: provide more specific data for regional basis**

5

16 steel products

- | | |
|---|-----------------------|
| ▪ Slab | ▪ Rebar |
| ▪ Hot Rolled Coil | ▪ UO Pipe |
| ▪ Cold Rolled Coil | ▪ Welded Pipe |
| ▪ Pickled Hot Rolled Coil | ▪ Organic Coated Pipe |
| ▪ Finished Cold Rolled Coil | ▪ Electro Galvanized |
| ▪ Tinplate | ▪ Hot Dip Galvanized |
| ▪ Electrolytic Chromium Coated Steel (Tin-free steel) | ▪ Plate |
| ▪ Sections | ▪ Wire rod |



6

Comprehensive questionnaires

- Processes
 - EAF
 - Coke oven
 - Sinter plant
 - Pellet plant
 - Blast Furnace
 - Alternative iron making
 - BOF
 - Hot rolling mill
 - Pickling mill
 - Cold rolling mill
 - Annealing and tempering
 - ...
 - Ancillary services
 - Boilers
 - Compressors / Alternators
 - Waste Water Treatment Plant
 - Water softening
- 40 - 50 data flows per process
 - Includes input and output
 - > 300 data flows required per product and per site
 - Significant input from member companies
 - Data collection
 - Verification of data
 - Correction of data

LCI database

- Includes country-specific electricity upstream data per site
- Steel specific upstream data based on company data
 - Coke, sinter, hot metal etc.
 - Calculated within the new model
- Weighted average of data
 - Based on site production volume per product
- Extremely credible database
 - Peer-reviewed methodology
 - Transparent reporting
- Powerful modelling software
 - Flexibility to understand the environmental profile of steel products and steel in applications
 - Provides full LCA per kg steel product including end-of-life

worldsteel: application of LCI and LCA

- Improved understanding of the performance of steel
 - As a material
 - As a component of a fabricated product
- Product / material optimisation
- Response to requests from regulators and users (Approx 150 data requests in 2009)
- Education of practitioners
 - Life cycle thinking
 - worldsteel methodology
 - Recycling

Uses of the data

- Used in LCA studies
 - Different market sectors
 - Different region data (currently Europe and Global)
 - Material comparisons
 - Life cycle modelling of greenhouse gas emissions to assess material selection
- Used for carbon footprints, for example:
 - Packaging
 - Construction
- Used in Environmental Product Declarations
- Used by:
 - Customers, academia, consultants, the steel industry, regulators etc
 - Provision to LCA databases for use in LCA projects

Worldsteel LCI data availability

- Website for obtaining **freely-available** data for LCI data: <http://www.worldsteel.org/?action=lcaform>

worldsteel
ASSOCIATION

Clare Broadbent
broadbent@worldsteel.org
worldsteel.org