Additions and Modifications to the U.S. LCI Database

Date and New Version	Data Module(s)	Summary of Changes
Jun-26, 2005 V. 1.2.1	• Softwood lumber (dry), US PNW at mill • Softwood lumber, US SE at mill • Plywood, US SE at mill gate • Plywood, US PNW at mill gate	• Corrected data inconsistencies
Mar-12, 2006 V. 1.2.2	• Composite I-Joists, US SE • Glue Laminated Beam (Glulam), US SE at mill gate • Laminated Veneer Lumber, US SE at mill gate • Oriented Strand Board (OSB), US SE at mill gate • Plywood, US SE at mill gate • Softwood lumber, US SE at mill	• Changed the mass from just the sawlog mass to the sawlog and pulpwood mass production in the roll-up of the allocated data. The original data overestimated the harvesting effect on the various wood products. This change did not affect the EcoSpold or Streamlined spreadsheets, only the detailed spreadsheets.
Mar-12, 2006 V. 1.2.2	• Salt Mining and Purification	• Expanded the boundaries of the LCI data module to include the brine purification of the salt after mining
May-26, 2006 V 1.3.0	• Diesel-Fueled Locomotive Transportation, • Diesel-Fueled Barge Transportation, • Diesel-Fueled Combination Truck Transportation, • Diesel-Fueled Single Unit Truck Transportation, • Cargo Plane Transportation, • Gasoline-Fueled Combination Truck Transportation, • Gasoline-Powered Single Unit Truck Transportation, • Residual Oil-Fueled Barge Transportation	• Removed the non-transportation inputs • Added another column in the streamlined spreadsheet that expresses the flow information on a 1,000 ton-mile basis. • Fixed a transcription error for the nitrous oxide (N_2O) emissions.
May-26, 2006 V 1.3.0	• Primary Aluminum Production	• Energy inputs not shown in the streamlined spreadsheet • Smelting electricity low by factor of 10
May-26, 2006 V 1.3.0	• Portland Cement Production	• New data module
May-26, 2006	• Automotive Painting – Electrocoat	• New data module

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V 1.3.0		
Oct-12, 2006 V 1.3.1	• DS_AnthraciteCoalProduction.xls • DS_BituminousCoalProduction.xls • DS_CrudeOilExtraction.xls • DS_LigniteCoalProduction.xls • DS_NaturalGasExtractionandProcessing.xls • SS_AnthraciteCoalProduction.xls • SS_BituminousCoalProduction.xls • SS_CrudeOilExtraction.xls • SS_LigniteCoalProduction.xls • SS_NaturalGasExtractionandProcessing.xls	• The weights of input and output materials were balanced for bituminous coal, lignite coal, crude oil production, and natural gas production/processing. The weights of input material (i.e., coal-bearing material, crude oil, and unprocessed natural gas) were estimated by adding weights of product (1,000 lbs) and solid wastes. For the EcoSpold spreadsheets, this included adding an “input from technosphere” for the coals, crude oil, and natural gas.
Oct-12, 2006 V 1.3.1	• DS_ResidualOilCombustioninIndustrialBoilers.xls • DS_ResidualOilCombustioninUtilityBoilers.xls • DS_WoodCombustion.xls • SS_GasolineCombustioninIndustrialEquipment.xls • SS_LPGCombustioninIndustrialBoilers.xls • SS_NaturalGasCombustioninUtilityBoilers.xls • SS_ResidualOilCombustioninIndustrialBoilers.xls • SS_ResidualOilCombustioninUtilityBoilers.xls	• Corrected label for “nitrous oxide” emissions
Oct-12, 2006 V 1.3.1	• DS_AnthraciteCombustioninIndustrialBoilers.xls • DS_NaturalGasExtractionandProcessing.xls • DS_PetroleumRefining.xls • SS_BituminousCombustioninIndustrialBoilers.xls • SS_DistillateOilCombustioninUtilityBoilers.xls • SS_LPGCombustioninIndustrialBoilers.xls	• All modules were reviewed for accurate units on material and energy flows. Corrections were necessary for these files.
Oct-12, 2006 V 1.3.1	• DS_AnthraciteCoalProduction.xls • DS_BituminousCoalProduction.xls • DS_LigniteCoalProduction.xls • SS_AnthraciteCoalProduction.xls • SS_BituminousCoalProduction.xls • SS_LigniteCoalProduction.xls	• Specified the rank of coal inputs as process energy.
Oct-12, 2006 V 1.3.1	• SS_FuelsandEnergyPrecombustion.xls	• Revised so that the system boundaries are more accurate. By definition, precombustion data is aggregated; it uses iterative calculations to combine the unit processes of fuel production and combustion in order to account for the

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		energy material flows of fuel production. In past versions of the precombustion EcoSpold spreadsheet, Franklin Associates defined energy inputs to the precombustion module as "inputs from the technosphere", but such inputs should be defined as "inputs from nature". This revision will prevent double-counting of energy requirements.
Oct-12, 2006 V 1.3.1	• MR_DieselFueledBargeTransportation.pdf • MR_DieselFueledCombinationTruckTransportation.pdf • MR_DieselFueledLocomotiveTransportation.pdf • MR_DieselFueledOceanFreighterTransportation.pdf • MR_DieselFueledSingleUnitTruckTransportation.pdf • MR_GasolineFueledCombinationTruckTransportation.pdf • MR_GasolineFueledSingleUnitTruckTransportation.pdf • MR_ResidualOilFueledBargeTransportation.pdf • MR_ResidualOilFueledOceanFreighterTransportation.pdf	• Added a paragraph to defend the use of HHV for converting from Btu of fuel to gallons of fuel. Also, a paragraph that explains the 2 bases (per 1,000 gallons of fuel and per 1,000 ton-miles) shown in the Streamlined and EcoSpold spreadsheets and encourages database users to use their own fuel consumption factors (miles per gallon).
May 4, 2007 V 1.4.0	• Acrylonitrile Butadiene Styrene (ABS) - Cradle to Resin • Acrylonitrile Butadiene Styrene (ABS) - Unit Process • General Purpose Polystyrene - Cradle to Resin • General Purpose Polystyrene - Unit Process • High Density Polyethylene - Cradle to Resin • High Density Polyethylene - Unit Process • High Impact Polystyrene - Cradle to Resin • High Impact Polystyrene - Unit Process • Linear Low Density Polyethylene - Cradle to Resin • Linear Low Density Polyethylene - Unit Process • Low Density Polyethylene - Cradle to Resin • Low Density Polyethylene - Unit Process • Polyethylene Terephthalate (PET) - Cradle to Resin • Polyethylene Terephthalate (PET) - Unit Process • Polyol - Flexible Polyurethane - Cradle to Resin	• Added new data modules for nine plastics and two polyurethane precursors. The data are presented as one process from cradle to resin and as separate unit processes.

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	• Polyol - Flexible Polyurethane - Unit Process • Polyol - Rigid Polyurethane - Cradle to Resin • Polyol - Rigid Polyurethane - Unit Process • Polypropylene - Cradle to Resin • Polypropylene - Unit Process • Polyvinyl Chloride - Cradle to Resin • Polyvinyl Chloride - Unit Process	