

CSI Cement CO₂ and Energy Protocol Spreadsheet V3.1, 09 December 2014 - Release Notes

Sheet	Line	Correction/Adaption in V3.1	Problem in V3.04 / Solution in V3.1
Read Me, Plant	Jump marks	Jump marks are programmed as named sections in each Plant Sheet for easy navigation between the sections.	Further description of the jump marks in Read Me Sheet.
Comment	line033ca	Description amended	Description in V3.04: Power used for cement production obtained from the external grid or supplier Description in V3.1: Power used for cement production obtained from the external grid or supplier = purchased power minus power sold back in case of own power production.
Comment	line077	Description corrected	Error in description: V3.04: Reduction of specific emissions relative to base year (default 1990); $=(\text{line074 yr n} - \text{line074 yr 1990}) / \text{line074 yr 1990} * 100$ V3.1: Reduction of specific emissions relative to base year (default 1990); $=(\text{line074 yr n} - \text{line074 yr 1990}) / \text{line074 yr 1990}$ The line is formatted to show percentage instead of a ratio as numbers.
Plant	Button "New Plant Sheet Transfer 3.04 > 3.1"	Transfer tool for data import from V3.04 to V3.1	New plant sheet for pasting data from V3.04 to columns BA to CE. This data import area is unprotected and might be used for further editing of data or other programming works. See "Description_Step_by_step_data_transfer" for further instructions.
Plant	Button "Take last boundaries"	Programmed in combination with the transfer tool	The macro behind this button formats the Plant Sheet according to the inventory boundaries that are defined in the last filled year column.

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Plant	line154a to 154f, line311a, line312a to 312b, line313a to 313f, line314a to 314i	Referenced to lower heating values of conventional fossil fuels in line132 to 137	<p>In the white cells in line132 to line137 the lower heating values (LHV) of conventional fossil kiln fuels can be entered:</p> <table border="1"> <thead> <tr> <th colspan="3">Fuel Lower Heating Values</th> <th>1990</th> </tr> </thead> <tbody> <tr> <td>131</td> <td colspan="2">Conventional fossil fuels</td> <td></td> </tr> <tr> <td>132</td> <td>coal + anthracite</td> <td>[GJ/t]</td> <td>0.0</td> </tr> <tr> <td>133</td> <td>petrol coke</td> <td>[GJ/t]</td> <td>0.0</td> </tr> <tr> <td>134</td> <td>(ultra) heavy fuel</td> <td>[GJ/t]</td> <td>0.0</td> </tr> <tr> <td>135</td> <td>diesel oil</td> <td>[GJ/t]</td> <td>0.0</td> </tr> <tr> <td>136</td> <td>natural gas</td> <td>[GJ/1'000 Nm³]</td> <td>0.0</td> </tr> <tr> <td>137</td> <td>shale</td> <td>[GJ/t]</td> <td>0.0</td> </tr> <tr> <td>137a</td> <td>lignite</td> <td>[GJ/t]</td> <td>0.0</td> </tr> </tbody> </table> <p>Because in many plants some of the fossil kiln fuels are also used for other purposes, all following sections on LHVs of conventional fossil fuels use the values of the kiln fuels as default values. Those lines are of grey colour and can be overwritten by entering more specific values (as in the previous version of the CSI Protocol):</p> <ul style="list-style-type: none"> - Drying of raw materials and fuels (line154a to line154f) <table border="1"> <thead> <tr> <th colspan="3">Drying of raw materials and fuels</th> <th>1990</th> </tr> </thead> <tbody> <tr> <td>154</td> <td colspan="2">Conventional fossil fuels</td> <td></td> </tr> <tr> <td>154a</td> <td>coal + anthracite + lignite</td> <td>[GJ/t]</td> <td>0.0</td> </tr> <tr> <td>154b</td> <td>petrol coke</td> <td>[GJ/t]</td> <td>0.0</td> </tr> <tr> <td>154c</td> <td>(ultra) heavy fuel</td> <td>[GJ/t]</td> <td>0.0</td> </tr> <tr> <td>154d</td> <td>diesel oil</td> <td>[GJ/t]</td> <td>0.0</td> </tr> <tr> <td>154e</td> <td>natural gas</td> <td>[GJ/1'000 Nm³]</td> <td>0.0</td> </tr> <tr> <td>154f</td> <td>shale</td> <td>[GJ/t]</td> <td>0.0</td> </tr> </tbody> </table> <ul style="list-style-type: none"> - Non-Kiln Fuel Lower Heating Values (line311a, line312a and line312b) <table border="1"> <thead> <tr> <th colspan="3">Non-Kiln Fuel Lower Heating Values</th> <th>1990</th> </tr> </thead> <tbody> <tr> <td>311</td> <td colspan="2">Equipment and On-Site Vehicles fossil fuels</td> <td></td> </tr> <tr> <td>311a</td> <td>diesel oil</td> <td>[GJ/t]</td> <td>0.0</td> </tr> <tr> <td>311b</td> <td>gasoline</td> <td>[GJ/t]</td> <td>0.0</td> </tr> <tr> <td>311ba</td> <td>other fossil fuels</td> <td>[GJ/t]</td> <td>0.0</td> </tr> <tr> <td>311c</td> <td colspan="2">Equipment and On-Site Vehicles fuels (containing biomass)</td> <td></td> </tr> <tr> <td>311d</td> <td>bio and mixed diesel</td> <td>[GJ/t]</td> <td>0.0</td> </tr> <tr> <td>312</td> <td colspan="2">Room Heating and Cooling</td> <td></td> </tr> <tr> <td>312a</td> <td>diesel oil</td> <td>[GJ/t]</td> <td>0.0</td> </tr> <tr> <td>312b</td> <td>natural gas</td> <td>[GJ/1'000 Nm³]</td> <td>0.0</td> </tr> </tbody> </table> <ul style="list-style-type: none"> - Drying of mineral components (line313a to line313f) <table border="1"> <thead> <tr> <th colspan="3">Drying of mineral components</th> <th></th> </tr> </thead> <tbody> <tr> <td>313</td> <td colspan="2">Conventional fossil fuels</td> <td></td> </tr> <tr> <td>313a</td> <td>coal + anthracite + lignite</td> <td>[GJ/t]</td> <td>0.0</td> </tr> <tr> <td>313b</td> <td>petrol coke</td> <td>[GJ/t]</td> <td>0.0</td> </tr> <tr> <td>313c</td> <td>(ultra) heavy fuel</td> <td>[GJ/t]</td> <td>0.0</td> </tr> <tr> <td>313d</td> <td>diesel oil</td> <td>[GJ/t]</td> <td>0.0</td> </tr> <tr> <td>313e</td> <td>natural gas</td> <td>[GJ/1'000 Nm³]</td> <td>0.0</td> </tr> <tr> <td>313f</td> <td>shale</td> <td>[GJ/t]</td> <td>0.0</td> </tr> </tbody> </table> <ul style="list-style-type: none"> - On-site power generation (line314a to line314i) <table border="1"> <thead> <tr> <th colspan="3">On-site power generation</th> <th></th> </tr> </thead> <tbody> <tr> <td>314</td> <td colspan="2">Conventional fossil fuels</td> <td></td> </tr> <tr> <td>314a</td> <td>coal + anthracite + lignite</td> <td>[GJ/t]</td> <td>0.0</td> </tr> <tr> <td>314b</td> <td>(ultra) heavy fuel</td> <td>[GJ/t]</td> <td>0.0</td> </tr> <tr> <td>314c</td> <td>diesel oil</td> <td>[GJ/t]</td> <td>0.0</td> </tr> <tr> <td>314d</td> <td>natural gas</td> <td>[GJ/1'000 Nm³]</td> <td>0.0</td> </tr> <tr> <td>314i</td> <td>petrol coke</td> <td>[GJ/t]</td> <td>0.0</td> </tr> </tbody> </table> <p>The lines turn into white colour when overwritten.</p>	Fuel Lower Heating Values			1990	131	Conventional fossil fuels			132	coal + anthracite	[GJ/t]	0.0	133	petrol coke	[GJ/t]	0.0	134	(ultra) heavy fuel	[GJ/t]	0.0	135	diesel oil	[GJ/t]	0.0	136	natural gas	[GJ/1'000 Nm ³]	0.0	137	shale	[GJ/t]	0.0	137a	lignite	[GJ/t]	0.0	Drying of raw materials and fuels			1990	154	Conventional fossil fuels			154a	coal + anthracite + lignite	[GJ/t]	0.0	154b	petrol coke	[GJ/t]	0.0	154c	(ultra) heavy fuel	[GJ/t]	0.0	154d	diesel oil	[GJ/t]	0.0	154e	natural gas	[GJ/1'000 Nm ³]	0.0	154f	shale	[GJ/t]	0.0	Non-Kiln Fuel Lower Heating Values			1990	311	Equipment and On-Site Vehicles fossil fuels			311a	diesel oil	[GJ/t]	0.0	311b	gasoline	[GJ/t]	0.0	311ba	other fossil fuels	[GJ/t]	0.0	311c	Equipment and On-Site Vehicles fuels (containing biomass)			311d	bio and mixed diesel	[GJ/t]	0.0	312	Room Heating and Cooling			312a	diesel oil	[GJ/t]	0.0	312b	natural gas	[GJ/1'000 Nm ³]	0.0	Drying of mineral components				313	Conventional fossil fuels			313a	coal + anthracite + lignite	[GJ/t]	0.0	313b	petrol coke	[GJ/t]	0.0	313c	(ultra) heavy fuel	[GJ/t]	0.0	313d	diesel oil	[GJ/t]	0.0	313e	natural gas	[GJ/1'000 Nm ³]	0.0	313f	shale	[GJ/t]	0.0	On-site power generation				314	Conventional fossil fuels			314a	coal + anthracite + lignite	[GJ/t]	0.0	314b	(ultra) heavy fuel	[GJ/t]	0.0	314c	diesel oil	[GJ/t]	0.0	314d	natural gas	[GJ/1'000 Nm ³]	0.0	314i	petrol coke	[GJ/t]	0.0
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Company	line011	Calculation formula corrected	<p>Error in the calculation of the clinker mass balance in Company Sheet: V3.04: line011 =line008 + line009 - line010 - line010a + line010b - line010c V3.1: line011 =line008 + line009 - line010 - line010a + line010b + line010c Normally, line010c should sum up to 0.</p>																																																																																																																																																																								

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Company	line039	Calculation formula corrected	Error in data consolidation from plant to company level: V3.04: =SUM(line036:line038b) V3.1: Unprotected white cell for calculating the SUM of all generated Plant Sheets. This adaption was decided, because the SUM values in line036 to line038b in the Company Sheet are only valid for companies that apply the same calcination method in each plant. Now, line039 shows the correct sum of CO ₂ emissions of all plants (if the user correctly builds the SUM equation) independent from the calcination method.
Comment, Plant, Company	line009	Renaming	Amendment of line name. V3.04: Clinker bought from other companies V3.1: Clinker bought from other companies and from cross-border transfer
Comment, Plant, Company	line010	Renaming	Amendment of line name. V3.04: Clinker sold to other companies V3.1: Clinker sold to other companies and from cross-border transfer
Comment, Plant, Company	line010c	Renaming	Amendment of line name. V3.04: Clinker from internal cement transfer (+ = cement received; - = cement sent) V3.1: Clinker from internal transfer of processed cement (+ = cement received; - = cement sent) Asterisk: Transferred cements, that are not further processed at plant are excluded.
Comment, Plant, Company	line017a	Renaming and further explanation by an asterisk	Amendment of line name. V3.04: MIC from internal cement transfer (+ =received; - =sent) V3.1: MIC from internal transfer of processed cement (+ =received; - =sent) Asterisk: Transferred cements, that are not further processed at plant are excluded.
Plant, Company	line021b	Bug fixing	Adaption of formula in order to avoid error messages. Shows "n. appl.", if line008 is empty or 0, or if line092a is "n. appl."
Plant, Company	line063a	Bug fixing	Adaption of formula in order to avoid error messages. Shows "n. appl.", if line008 or line011 are 0.
Plant, Company	line063b	Bug fixing	Adaption of formula in order to avoid error messages. Shows "n. appl.", if line008 or line011 are 0.
Plant, Company	line092a	Bug fixing	Adaption of formula in order to avoid error messages. Shows "n. appl.", if line011 or line020 are empty or 0.
Plant, Company	line098c	Bug fixing	Adaption of formula in order to avoid error messages. Shows "n. appl.", if line021 is empty or 0 and if line098 is "n. appl."
Plant, Company	line082c	Vadility check corrected	Error in formula of vadility check. V3.04: line082c = (IF(line021a="";"";IF(line021a=0;"n. appl.";line049a/line021b*1000)) V3.1: line082c = (IF(line021 b ="";"";IF(line021 b =0;"n. appl.";line049a/line021b*1000))
Comment, Plant, Company	line102, line132, line162, line186, line212	Renaming	Deleting the explicit mentioning of "waste coal" in kiln fuel sections for "Conventional fossil fuels".

Sheet	Line	Correction/Adaption in V3.1	Problem in V3.04 / Solution in V3.1
Comment, Plant, Company	line124a, line154a, line184a, line234a, line303a, line304a, line313a, line314a, line323a, line324a, line333a, line334a	Renaming	Change of "waste coal" to "lignite" for sections "Drying of raw materials and fuels", "Drying of MIC" and "On-site power generation". Please note: Line234a = line184a (TJ/yr of coal, anthracite and lignite) * line186 (EF of coal and anthracite). This means, if a plant uses a mixture of coal, anthracite and lignite for drying of raw materials, the consumed energy amount is multiplied with a slightly incorrect emission factor for anthracite and coal. The emission factor in line186 shall not be adapted, because otherwise the more important main input stream of coal and anthracite into the kiln would be result in really wrong CO ₂ emissions.
Calcination A1	Instructions for users	Minor text correction	Insertion of information. V3.04: Use the results in lines 525 and 526 as input data in the plant sheet according to the Simple Input Method (A1) V3.1: Use the results in lines 525 and 526 as input data for line 34e and line 34f in the plant sheet according to the Simple Input Method (A1)
Calcination A1	line504, line514	Correction of unit	Error in unit. V3.04: [t /yr] V3.1: [t CO ₂ /yr]
Calcination A2	Instructions for users	Minor text correction	Insertion of information. V3.04: Use lines 681 and 682 as input data in the plant sheet according to the detailed input Method (A2). V3.1: Use lines 681 and 682 as input data for line 34i and line 34j in the plant sheet according to the detailed input Method (A2).
Calcination A2	line604, line612, line615, line618, line621, line624, line627, line630, line633, line636, line639, line652, line659, line667	Correction of unit	Error in unit. V3.04: [t /yr] V3.1: [t CO ₂ /yr]
Calcination B2	Instructions for users	Minor text correction	Error in instructions. V3.04: Use line 820 as input data in the plant sheet according to the Detailed Output Method (B1) V3.1: Use line 820 as input data in the plant sheet according to the Detailed Output Method (B2)

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Calcination B2	line820	Minor text correction	Spelling error. V3.04: Output CalcB2: Calcination emission factor corrected for non-carbonate and silicate sources of CaO, MgO in clinker (=Plant sheet lines 34q) V3.1: Output CalcB2: Calcination emission factor corrected for non-carbonate and silicate sources of CaO, MgO in clinker (=Plant sheet line 34q)
Calcination B2	Instructions below line709, line749 and line789	Minor text corrections	Error in instructions. V3.04: Below line709 "(If more than 2 types of clinker are produced, add lines for clinkers #3 - n, and adjust formulae in lines 41, 44 and 45)" Below line749 "(If more than 2 types of pre-calcined raw materials are consumed, add lines for raw materials #3 - n, and adjust formulae in lines 71, 74 and 75)." Below line789 "(If more than 2 types of pre-calcined raw materials are consumed, add lines for raw materials #3 - n, and adjust formulae in lines 101, 104 and 105)." V3.1: Below line709 "(If more than 2 types of clinker are produced, add lines for clinkers #3 - n, and adjust formulae in lines 730, 733 and 734)" Below line749 "(If more than 2 types of pre-calcined raw materials are consumed, add lines for raw materials #3 - n, and adjust formulae in lines 770, 773 and 774)." Below line789 "(If more than 2 types of pre-calcined raw materials are consumed, add lines for raw materials #3 - n, and adjust formulae in lines 800, 803 and 804)."
Fuel CO2 Factors	Fuel types 2, 8, 11 and 17	Correction of reference	Error in reference. V3.04: Based on measurements compiled by CSI Task Force 1. See Guidance Document, Appendix 5 for details. V3.1: Based on measurements compiled by CSI Task Force 1. See Guidance Document, Appendix 4 for details.