

Examples of process-related emissions

Examples of process-related emissions: approaches and ongoing development



Examples of process-related emissions

Content:

- development: step by step
- one example for a simple approach
- advanced data using
- the previous example under revision
- guidance on expert decision

Examples of process-related emissions



http://de.wikipedia.org/w/index.php?title=Datei:Algerien_5_0049.jpg&filetimestamp=20060618214945

Examples of process-related emissions

- First: hunters and gatherers step by step:
 - production data of relevant industries (well-known relevance or mentioned in GL)
 - conversion into comparable units, mostly in tons
 - multiplied with characteristic EF (based on studies or default)

http://de.wikipedia.org/w/index.php?title=Datei:Algerien_5_0049.jpg&filetimestamp=20060618214945

Examples of process-related emissions

Example cement clinker production:

- **EM = AD x EF**
- AD from industrial association – comparable with EU-ETS figures
- EF well documented and quality checked by different studies
- One Time series for AD such as for EF → calculation of 12 million tons of CO₂

Produkt	Einheit	Z.	2010
Zementklinker	t	a	22.995.731
Zementklinker	kg/t	a	530
Zementklinker	kg	a	12.187.737.430

Examples of process-related emissions

- some plant-specific data
 - in some cases there are no statistics or not in usable units
 - EU-ETS-Data since 2005 (partly since 2000)
 - ongoing improvement requires specific approaches
- possibilities of plant-specific data
 - in some cases you can improve the accuracy,
 - in other cases it's the only way for emissions estimation

Examples of process-related emissions

Anlage	Schads...	Wertetyp	Material	Einheit	Zeitauf.	2004	2005	2006	2007	2008	2009	2010
IKW Aschaffenburg		AR	Erdgas	TJ	a	2.780,0	2.700,4	3.048,2	3.203,4	2.833,1	2.768,7	3.149,5
IKW Aschaffenburg		AR	Gesamten...	TJ	a	2.780,0	2.700,4	3.048,2	3.203,4	2.833,1	2.768,7	3.149,5
IKW Aschaffenburg		FwL		MW	a	126,7	126,7	126,7	126,8	126,8	126,8	126,8
IKW Aschaffenburg	NOx	EM		t	a	424,492	374,223	358,835	402,345	359,808	331,446	344,817
IKW Aschaffenburg	SOx	EM		t	a	1,208	1,083	1,244	1,294	1,160	1,130	1,284
IKW Aschaffenburg	STB	EM		t	a	0,544	0,487	0,560	0,582	0,522	0,507	0,578
BHKW Augsburg		AR	Erdgas	TJ	a	1.762,6	1.882,7	1.747,6	1.639,8	1.702,2	1.183,5	1.284,0
BHKW Augsburg		AR	Gesamten...	TJ	a	1.762,6	1.882,7	1.747,6	1.639,8	1.702,2	1.183,5	1.284,0
BHKW Augsburg		FwL		MW	a	90	90	90	90	90	90	90
BHKW Augsburg	NOx	EM		t	a	91,129	100,240	82,930	52,100	52,250	35,063	46,755
BHKW Augsburg	SOx	EM		t	a	NE	NE	NE	0,091	0,094	0,065	0,071
BHKW Augsburg	STB	EM		t	a	NE	NE	NE	0,134	0,139	0,097	0,106
HKW Augsburg		AR	Erdgas	TJ	a	1.162,1	1.231,6	1.375,8	1.075,1	1.112,5	1.112,6	1.084,0
HKW Augsburg		AR	Flüssigbre...	TJ	a	2,7	4,8	0,5	9,5	16,5	40,4	9,6
HKW Augsburg		AR	Gesamten...	TJ	a	1.164,8	1.236,4	1.376,3	1.084,6	1.129,0	1.153,0	1.093,6
HKW Augsburg		FwL		MW	a	299,8	299,8	299,8	251	251	251	251
HKW Augsburg	NOx	EM		t	a	31,535	35,567	42,533	31,052	27,869	29,280	26,969
HKW Augsburg	SOx	EM		t	a	0,178	0,315	0,010	0,662	1,109	2,625	0,669
HKW Augsburg	STB	EM		t	a	0,087	0,000	0,349	0,117	0,136	0,163	0,110
IKW Papier-Augsburg		AR	Erdgas	TJ	a	2.246,7	2.468,2	2.422,6	2.602,0	2.331,5	1.994,6	2.367,7
IKW Papier-Augsburg		AR	Flüssigbre...	TJ	a	0,8	2,5	0,7	0,3	0,6	0,1	0,2
IKW Papier-Augsburg		AR	Gesamten...	TJ	a	2.247,5	2.470,7	2.423,3	2.602,3	2.332,1	1.994,7	2.367,9
IKW Papier-Augsburg		FwL		MW	a	256	256	256	256	256	256	256
IKW Papier-Augsburg	NOx	EM		t	a	83,313	48,717	55,126	53,534	46,806	38,471	47,500
IKW Papier-Augsburg	SOx	EM		t	a	0,390	0,117	0,033	0,013	0,030	0,010	0,010
IKW Papier-Augsburg	STB	EM		t	a	NE	NE	NE	NE	0,000	0,000	0,000
HKW Burghausen		AR	Erdgas	TJ	a	11.649,6	0,0	0,0	NE	NE	NE	
HKW Burghausen		AR	Flüssigbre...	TJ	a	NE	NE	NE	961,3	1.388,6	1.581,4	862,3
HKW Burghausen		AR	Gesamten...	TJ	a	11.649,6	0,0	0,0	2.389,5	3.371,1	3.393,5	2.981,9
HKW Burghausen		AR	Sonstige g...	TJ	a	NE	NE	NE	1.428,2	1.982,5	1.812,2	2.119,5
HKW Burghausen		FwL		MW	a	500	NE	NE	195	195	195	195
HKW Burghausen	NOx	EM		t	a	570,453	0,000	0,000	150,171	209,169	201,326	173,272
HKW Burghausen	SOx	EM		t	a	5,065	0,000	0,000	51,237	43,424	10,394	0,852
HKW Burghausen	STB	EM		t	a	2,279	0,000	0,000	2,430	2,152	1,987	0,485
IKW Burghausen		AR	Erdgas	TJ	a	12.118,6	12.248,8	12.946,4	12.482,2	13.444,0	13.704,0	13.895,8

Examples of process-related emissions

What is the benefit?

(not always plant-specific data is the best approach)

- a quite large number of facilities require detailed information about all aspects, not only about production amount but about emission abatement too
 - Comparisons don't show an improvement for accuracy from simple calculation to ETS-data from cement Industry
- **there are technical and expert decisions to find the suitable approach**

Have you any questions?

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