



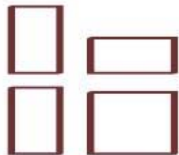
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"The Use of Alternative Fuels in the Cement Industry"
May 16th, Athens

ALF-CEMIND

The Dutch Example

Victor van Heekeren

May 16, 2007



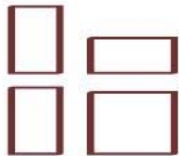


Contents



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- **Tasks Van Heekeren & Frima in project**
 - Assist & support the organisation of workshops
 - Organisation of the study tour
- **Study tour :**
 - Why ENCI ? – the figures
 - Date & programme study tour





Background & origins



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- Background & project structure has been explained by Exergia
- Main drive:
promote the knowledge transfer and replication of 'Best Practices'
- One element in the project : study tour to interesting plant (or plants)





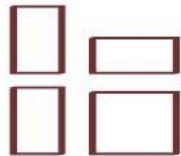
Why The Netherlands / ENCI Plant ?



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ENCI Profile (Note : all figures based on 2005):

- 1 furnace;
- 3 milling plants;
- roughly 3.3 mln ton cement
- 450 employees.





Alternative Raw Materials



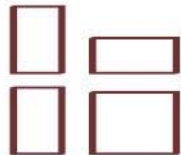
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Total of alternative raw materials (2005):

- 1.7 mln tons (> 50% of cement production volume)
- Major contribution : 1.3 mln ton of blast furnace slag
- BF cement = approximately 50% of total cement production volume in The Netherlands
- Note: the current market penetration levels of BF cement required a considerable amount of time

Why this level?

- Scarcity of limestone/marl
- Availability of good quality Blast Furnace slag
- BF cement production started with a joint venture with the Dutch Steel Industry





Alternative Fuels



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Furnace :

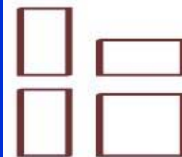
- 144.000 ton alternative fuels (2,7 mln GJoule)
- 83 % replacement of conventional fuels
- 35 % = Biomass

Major contributions :

- sewage sludge 28%
- rest is animal meal, paper pellets, paper production sludge et cetera.

Why sewage sludge?

- Landfilling of wet organic waste is forbidden
- Combination of combustibles and dry solids makes sewage sludge an attractive fuel (for clinker production)





Conclusions



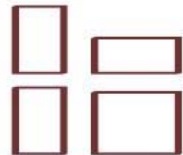
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Drivers:

- Costs
- Scarcity (limestone/marl)
- Legislation
- Ambitions for sustainable operation

Results :

- One of the highest levels of replacement of both raw materials and of conventional fuels
- Energy content is 1.5 GigaJoule/ton cement (2004, including electricity)





Study tour (draft) Programme



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- Start: Wednesday August 29, \pm 15.00 hrs
- Wednesday : introductions & welcome dinner
- Thursday August 30: Visit to Maastricht (The Netherlands) and Lixhe (Belgium) plants
- Location(s): starting and ending in Maastricht (The Netherlands); transport by touring car between hotel and cement plants will be provided
- Travel to Maastricht and hotel costs at own expense; no charge for participation in study tour
- Number of participants: 20 - 30 persons
- End of Programme: Thursday 16.00 hrs (Maastricht)
- Application for participation through national contact points





Aerial view Maastricht Plant



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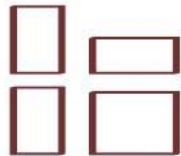




Maastricht (cement plant & medieval city)



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Further information & contact points



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Thank you for your
attention!

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management consultants

