



**presentation by**

**Norbert Majer,**

**Chairman NUTZ**

# initiation and General

## **cement industry**

- The company employs 54 plants (as of 2021).  
German cement industry employs around 7,400 people and generates an annual turnover of around 2.2 billion euros.
- The German cement works together  
needed around 3.5 terawatt hours of electricity in  
2021 = 8% of the total German electricity  
consumption; per tonne of cement approx.  
110 kilowatt hours required. • The  
total energy costs are 50% of the gross value added.

The 5 cement plants in Baden-Württemberg today  
have a permit to burn  
**1.5 million tons of waste as alternative fuel.**



**Sperrmüll & Gewerbeabfälle**



**qualitätsgesicherter  
Ersatzbrennstoff**



# **Secondary fuel** in sizes from $< 25$ mm to $< 300$ mm for cement and power plants

industry at home and abroad, depending on  
firing process

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## Zementindustrie

# Dreckiger als vor zehn Jahren

Die europäische Zementindustrie produziert klimaschädlicher als vor zehn Jahren. Das geht aus einer Studie der britischen Umweltschutzorganisation Sandbag hervor. Die energieintensive Branche erzeugte vergangenes Jahr 144 Millionen Tonnen CO<sub>2</sub>. Das ist mehr als jeder andere Industriesektor in Europa und über doppelt so viel, wie ganz Irland in die Luft ablässt. Durch entsprechende Lobbyarbeit gelang es der Branche, vom EU-Emissionshandelssystem verschont zu bleiben. Um die Wettbewerbsfähigkeit zu erhalten, bekam sie aus Brüssel kosten-

lose Emissionszertifikate. Phil MacDonald von Sandbag spricht von „perversen Anreizen“ eines Systems, das nicht diszipliniere, sondern zu mehr Emissionen führe. Die Branche sei „überbehütet“ und habe „die Modernisierung verschlafen“: Während die Zementhersteller in Europa im Jahr 2005 noch mit 654 Kilo CO<sub>2</sub> pro produzierter Tonne Zement auskamen, brauchten sie 2014 sogar 678 Kilo, errechnete Sandbag. Der Industrieverband Cembureau in Brüssel spricht dagegen von einer leichten Reduktion und wirft Sandbag ungenaue Kalkulationen vor. Allerdings stieg selbst nach den Zahlen des Verbands der CO<sub>2</sub>-Ausstoß von 2013 auf 2014 an. nkl



# Decarbonization: Lots of blah-blah

**The capture of the climate killer CO<sub>2</sub> in the cement plant and its subsequent use or storage (Carbon Capture & Utilization or & Storage [CCU, CCS]) should play a crucial role in the decarbonization of the cement industry .**

# decarbonization issues

- These techniques are currently being used in small scale
- Model systems tested. •

Huge additional energy required for capture, transport and storage.

- The use of CCS technology increases the  
Up to 40% consumption of the limited fossil raw materials available if regenerative energies are not available.



# Concrete recycling: Problem

- The construction industry in Baden-Württemberg complains that the use of recycled building materials is still far too rarely considered in public tenders . • According to the State Recycling

Management Act, these so-called RC building materials should be treated at least as equally as primary materials in tendering practice.

# What happened until now!

# Our 'fight' worked

*We have shown:*

The cement industry is not only

- dangerous to health because their toxic emissions on site,
- she is wg. CO2 **the fourth largest climate killer and** energy consumer in the world,
- destroys landscapes that are millions of years old, • prevents this by burning 100% of waste Recycling
- and cements the unreality of our concrete deserts  
= Cities because they prevent alternatives.

# We had/have four thrusts:

- 1. Unequal emissions to incinerator
- 2. unsuitable filter SNCR --> conversion to SCR
- 3. Extraction of the finite raw material
- 4. **CO2 footprint – energy consumption without use of waste heat**



Our initiative and that of the BUND made on this issue after the issued

Approval of the use of 100% waste for combustion in Dotternhausen in one

Attention media release 2016:

***"More pollutants in the air, water and soil, but also more profit, these are the consequences of switching to pure waste incineration."***

We were and are part of the critical public towards the powerful cement industry locally, regionally and worldwide!

## Our work has the cement industry in Germany changed :

- **2014-10-06, added on 2016-09-23**

Application to the RP Tübingen of the company HOLCIM Dotternhausen to expand the use of secondary fuels in the cement plant's rotary kiln from the currently approved 60 % to 100%

- **2016-10-11**

Inspection of files in the RP Tübingen (also to the airport talks that took place in 2015)

# Our work has the cement industry in Germany changed :

- **2017-08-31**

Sigmaringen Administrative Court:  
Dismissal of application N. Majer

- **2018**

RTL Nachtjournal - Special: **Gift Schleuder**  
**Cement works**

- **2019**

Inquiry in the state parliament SWR reports about it +  
about Dotternhausen

# Dotternhausen Emissions 2021-in milligrams

2021	Staub	Stickoxide	Schwefel- oxide	Quecksilber	Organische Kohlenstoffe	Chlor	Ammoniak	Kohlen- monoxid
		NO <sub>x</sub>	SO <sub>x</sub>	Hg	C <sub>ges.</sub>	HCl	NH <sub>3</sub>	CO
	mg/Nm <sup>3</sup>	mg/Nm <sup>3</sup>	mg/Nm <sup>3</sup>	µg/Nm <sup>3</sup>	mg/Nm <sup>3</sup>	mg/Nm <sup>3</sup>	mg/Nm <sup>3</sup>	mg/Nm <sup>3</sup>
Januar	0,22	193,47	0,91	0,95	16,89	0,44	9,80	558,07
Februar	0,23	193,56	2,61	0,83	17,10	0,42	11,47	666,07
März	0,23	193,61	1,12	0,52	19,37	0,31	11,21	811,77
April	0,24	194,33	1,02	0,57	20,68	0,12	11,84	773,76
Mai	0,15	193,36	5,49	0,35	30,40	0,33	12,69	635,71
Juni	0,16	193,39	4,73	0,17	30,30	0,10	12,57	604,62
Juli	0,29	193,46	5,86	0,10	26,39	0,13	9,77	618,29
August	0,63	193,47	4,02	0,09	24,88	0,06	11,50	863,66
September	2,51	193,74	4,39	0,20	25,28	0,17	10,18	834,94
Oktober	0,65	194,23	4,60	0,29	24,82	0,16	10,94	768,77
November	1,02	193,65	3,51	0,11	24,96	0,09	10,85	866,95
Dezember	1,43	193,82	4,80	0,57	24,64	0,39	13,87	944,32
Jahresmittel	0,68	193,62	3,73	0,38	23,98	0,23	11,36	746,52
Grenzwert als Tages- mittelwert	10 mg/Nm <sup>3</sup>	200 mg/Nm <sup>3</sup>	50 mg/Nm <sup>3</sup>	30 µg/Nm <sup>3</sup>	50 mg/Nm <sup>3</sup>	10 mg/Nm <sup>3</sup>	30 mg/Nm <sup>3</sup>	1.800 mg/Nm <sup>3</sup>



## Federal Environment Agency: Emission data from **Dotternhausen 2021** in kilograms

- **CO (carbon monoxide): 1,820,000 kg** Carbon monoxide (colorless and odorless) is so dangerous because it forms a chemical bond with the blood cells, which normally transport oxygen molecules. This leads to a chemical blockage as *no more oxygen* enters the circuit.

# Federal Environment Agency: Emission data from **Dotternhausen 2021** in kilograms

- **PAHs or PAHs (polycyclic aromatic hydrocarbons): 424 kg** They represent a large, highly toxic chemical group of approx. 10,000 compounds
- **NOx (nitrogen oxides): 473,000 kg** Nitrogen dioxide is absorbed through breathing. As a highly reactive irritant gas, it affects the mucous membranes of the respiratory organs, with the lower respiratory tract being particularly affected

# Federal Environment Agency: Emission data from **Dotternhausen 2021** in kilograms

- **CO<sub>2</sub> (carbon dioxide): 438,000,000 kg**  
colorless and odorless, composed  
of two substances (carbon and oxygen)

Werk	NH <sub>3</sub> [mg/m <sup>3</sup> ]	C <sub>ges</sub> [mg/m <sup>3</sup> ]	CO [mg/m <sup>3</sup> ]	SO <sub>x</sub> [mg/m <sup>3</sup> ]	Erläuterungen
Grenzwerte nach 17. BImSchV <sup>1</sup>	30	10 <sup>2</sup>	50 <sup>2</sup>	50 <sup>2</sup>	
<b>Schelklingen</b>	40 befristet bis 27.03.20	60 befristet bis 27.03.21 danach 30	1.500 befristet bis 27.09.20, danach Fest- setzung per Anordnung	300 befristet bis 27.09.20, danach Fest- setzung per Anordnung	Hinsichtlich C <sub>ges</sub> , CO und SO <sub>x</sub> erfolgte eine Befristung, mit dem Ziel, die Emissionsgrenzwerte nach der Einfahrzeit der Anlage weiter zu reduzieren.
<b>Leimen</b> LO2 LO3	40 40 jeweils befristet bis 31.12.24	25 25	800 800	350 350	Es gelten zusätzlich folgende Jahresmittelwerte: für SO <sub>x</sub> 320 mg/m <sup>3</sup> , für NH <sub>3</sub> 30 mg/m <sup>3</sup> , für CO 500 mg/m <sup>3</sup> . Der Betrieb der beiden Lepolöfen ist zunächst bis zum 31.12.24 befristet.
<b>Mergelstetten</b>			1.000		Der Drehofenbetrieb darf bei technisch unvermeidbaren Ausfällen der SCR-Anlage, z.B. im Fall unvorhergesehener Wartungsarbeiten, für einen Zeitraum von maximal 8 % der jährlichen Ofenlaufzeit weiter betrieben werden. Es gelten in dieser Zeit folgende Emissionsgrenzwerte: für NO <sub>x</sub> 350 mg/m <sup>3</sup> (sonst 200 mg/m <sup>3</sup> ), für NH <sub>3</sub> 50 mg/m <sup>3</sup> und für C <sub>ges</sub> 20 mg/m <sup>3</sup> .
<b>Allmendingen</b>			100 befristet bis 30.06.21	350 befristet bis 31.12.22	
<b>Wössingen</b>		20	1.000	150	Für SO <sub>x</sub> gilt zusätzlich, dass ein Jahresmittelwert von 100 mg/m <sup>3</sup> einzuhalten ist.
<b>Dottern- hausen</b>	60 DB <sup>3</sup>	50	1.800 befristet bis 31.12.23		Für C <sub>ges</sub> gilt zusätzlich, dass ein Jahresmittelwert von 45 mg/m <sup>3</sup> einzuhalten ist. Für NH <sub>3</sub> Ausnahme im Direktbetrieb (max. 438 h/a), ansonsten gilt der Regelgrenzwert der 17. BImSchV für NH <sub>3</sub> [30 mg/m <sup>3</sup> ].

This will also  
change because of us

Approval  
shows:

Cement plants have  
completely different ones  
permits as

Waste incineration  
plants



# Cement works emissions = MVAs

Decision of the Federal Environment Committee:

- The 17th BImSchV must be changed: exhaust gas cleaning requirements in cement works with waste incineration are treated as pure waste incineration plants .

# SNCR or SCR? – definitely **SCR**

71/2011

Description of different techniques and their development potential for the reduction of nitrogen oxides in the

Exhaust gas from waste incineration plants and substitute fuel power plants regarding performance, costs and power consumption

TEXTE

202/2020

## Abfallmitverbrennung in Zementwerken

Sachverständigengutachten

# J. Waltisberg zeigt den optimalen Weg zur Schadstoffreduzierung – SCR!

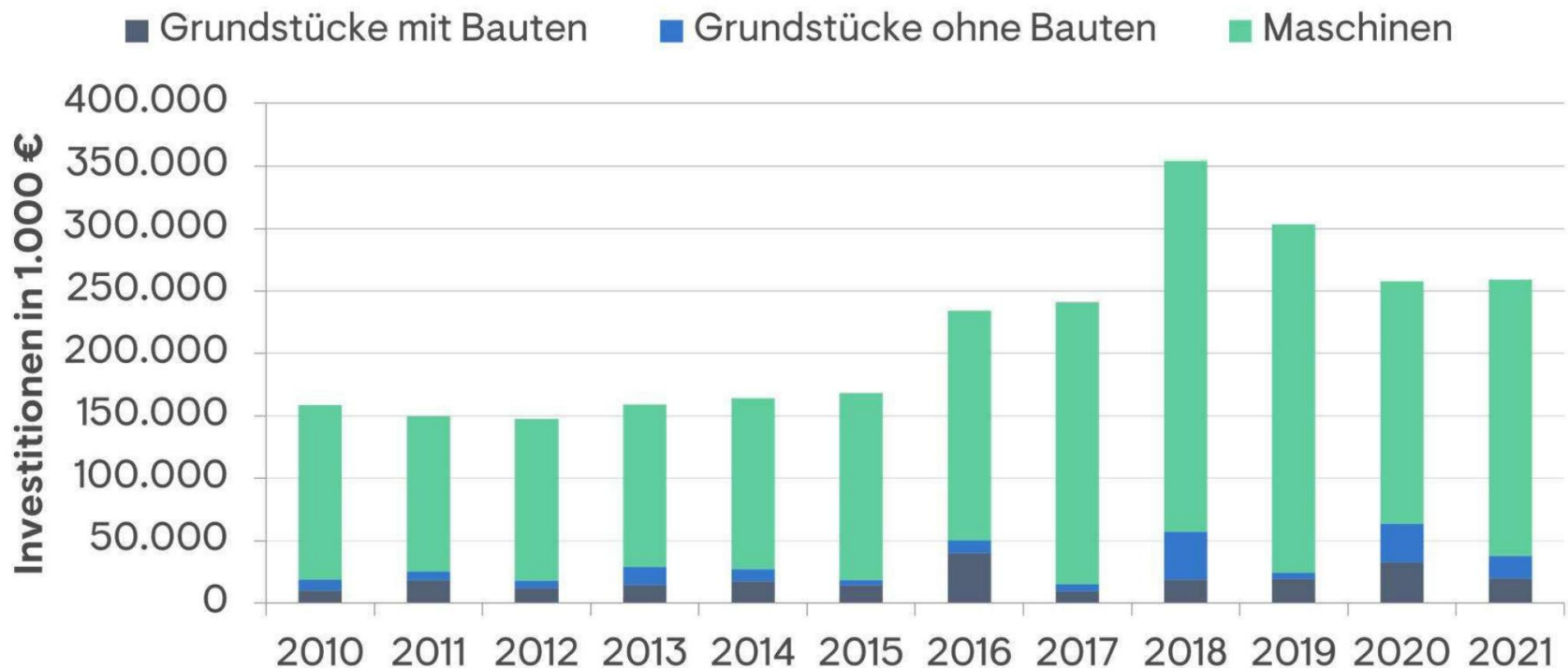
## **Verfahren zur Reduktion von Schadstoffen in Zementofensystemen**

**Josef Waltisberg, dipl. Ing. ETH**

Vortrag vom 19.11.2021 in Dotternhausen/Deutschland  
Verein für Natur- und Umweltschutz Zollernalb (NUZ) e.V.

Here you can see our influence in converting the cement works to SCR **in euros**

## Investitionen





# Plettenberg: We publicized the destruction of our natural resources



# We irretrievably destroy million years of earth history

Over the course of millions of years , meter-thick layers of limestone compounds form on the sea floor.

If these seabeds are raised by tectonic movements, these limestone layers are found again as limestone (e.g. Limestone Alps, Swabian Jura) or chalk cliffs on the surface.



## Alternative aggregates are no longer available, and all cement works are therefore tackling new mining areas

- 51.1 million tons of raw materials were used in 2019.
- Of these, 8.0 million tons alone were accounted for alternative raw materials such as foundry sand from metal processing and fly ash from hard coal and lignite power plants.
- The approved extraction bins are consumed faster.

- Producing one ton of cement is in Germany associated with **CO2 emissions of around 600 kg.**
- In total, the **CO2 emissions of the cement industry in Germany currently** amount to **around 20 million** and **have remained almost constantly at this high level over the past 12 years.**
- According to politicians, they should be considerable be lowered.

## But what actually happened????

- Since 2005 at Holcim for the
  - Cement production around 500,00 t CO<sub>2</sub>,
  - Oil shale combustion produces around 200,000 t of CO<sub>2</sub>
- For almost the entire amount, Holcim will receive free certificates from the European Union , guaranteed until 2030!! As a result, there is no political or economic pressure to bring about improvements here.
- Change from 2030! •

The CCS reductions are much too expensive in terms of cost and will probably not prevail.

Summary: What  
happened so far!!

- As early as 2008, in the cement industry, as well tested in coal-fired power plants and general waste incineration plants, retrofitting exhaust gas cleaning systems using catalysts, so-called SCR systems! At that time, waste incineration was limited to 30-60%.
- Cement plants are defending themselves because catalysts supposedly do not work in cement plants because of dust, alkalis and acids !
- From 2010 to 2014 , SCR exhaust gas purification was tested under scientific control in 2 German cement plants and it was officially and by the cement industry that SCR worked.

• In 2013, the 17th BImVO with new

Limit values, especially nitrogen oxides (200 mg) and  $C_{tot}$  (10 mg) and ammonia (30 mg, annual values 25 mg), coming into force on January 1st, 2019.

At that time SCR was not yet recognized!

• Cement plants were retrofitted asked.

• The law states that limit value exceptions are only possible with the state of the art, i.e. at least SCR.

• Costs: SCR 10-15 million, SNCR max 500,000€ (but long since written off).

**• We demand retrofitting of an SCR system!!!!!!**



Further  
procedure from NUZ!

## **What we do now!!!**

- We try to convince the authorities and politicians !
- Unfortunately, lobbyists have considerable influence and top politicians are probably bought!
- Despite climate and environmental protests , courts do not want to decide such billions of decisions on global launches . Allegedly no improvements for the environment!
- Deal with lies even in court!

# What else do we have to do!

The German environmental committees of the States, also with the participation of the Federal Ministry of the Environment, decided the following in May 2022:

- Cement plants to retrofit SCR
- the BAT reference sheets are to be officially changed accordingly in Europe
- Cement plants should use 100% waste incineration comply with the same limit values as the waste incineration plants
- We can only do about public relations and  
Public pressure demands at least retrofitting with SCR.

# J. Waltisberg zeigt den optimalen Weg zur Schadstoffreduzierung – SCR!

## **Verfahren zur Reduktion von Schadstoffen in Zementofensystemen**

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**Thank you for your interest...**

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