Welcome to our Presentation!

WATER CONDITIONING SYSTEM

in the

PRODUCTION OF CONCRETE

Initial situation:

- Higher demands are continuously being made with regard to the processability and durability of concrete.
- These are usually met through an increased use of additives.
- This results in considerable expense for your company.
- Additives are also harmful to the environment.

Our Technology – Your Benefits

Condition your water ....

.... with the maintenance-free, environmentally-friendly water conditioning systems by CWE.

- **Better compaction and higher compressive strength**
- **Reduced capillarity and significantly less efflorescence**
- **Fewer additives and binders**

Example for ready-mix concrete

Price of cement per kg: 0.075 €
Price of additives per kg: 0.60 €
Annual production volume: 50,000 m³

- **With untreated water:**

Cement per m³:	290 kg
Additives per m³:	1 kg
Water content:	180 l
Added water:	140 l

- **With conditioned water:**

- 5 % :	275.50 kg
- 50 % :	0.50 kg
- 6 % :	170 l
- 7 % :	130 l

Savings

per m³
= 2,70 €

per year
= 135.000 €

Example for precast elements

Price of cement per kg: 0.075 €
Price of additives per kg: 1.20 €
Annual production volume: 25,000 m³

- **With untreated water:**

Cement per m³:	420 kg
Additives per m³:	3 kg
Water content:	180 l
Added water:	150 l

- **With conditioned water:**

- 5 % :	399 kg
50 % :	1,5 kg
- 5 % :	170 l
- 7 % :	140 l

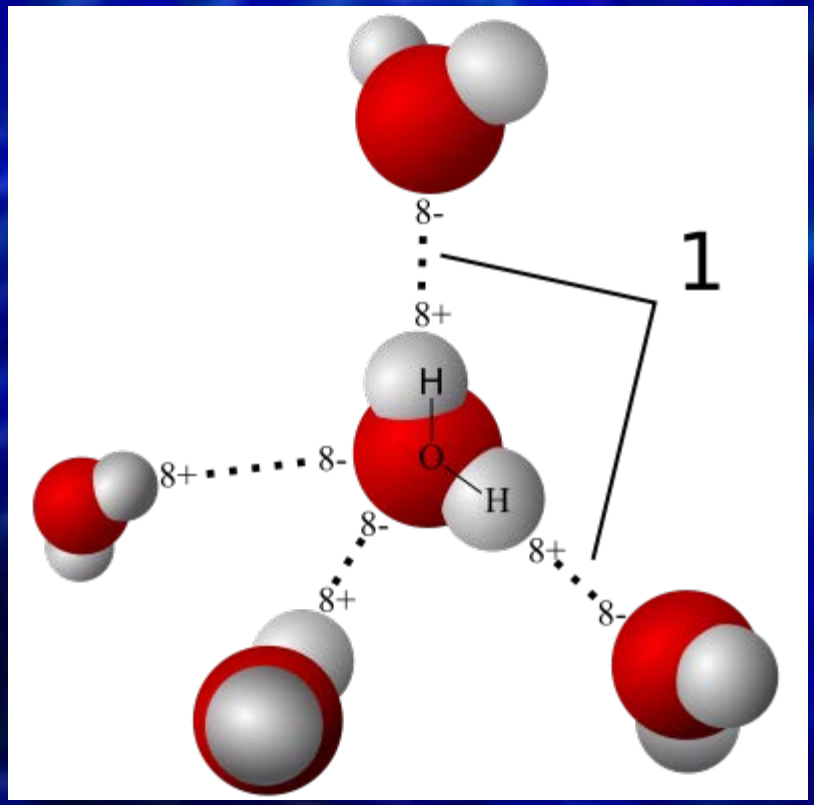
Savings

per m³
= 4,20 €

per year
= 105.000 €

How does that work?

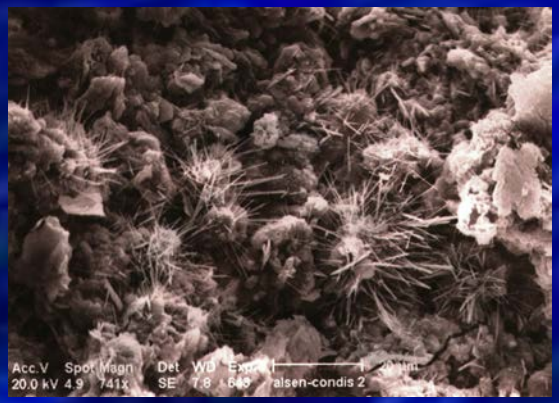
- **CWE** affects the mixing water for your concrete through an electro-dynamic process.
- The different frequency and pulse patterns change the behavior of the ions and water molecules.
- Surface tension, viscosity and wetting behavior are positively altered.



Quelle:
http://commons.wikimedia.org/wiki/File:3D_model_hydrogen_bonds_in_water.svg

Crystallization Photographs

Before:
REM photograph
of the base concrete
(normal
mixing water)



After:
REM photograph
with conditioned
mixing water

Practical Application

with normal
mixing water

with conditioned
mixing water

SlumpTest in China

Concrete type: C40

with "normal" water

Slump Test (after 1 hour): 15 cm

with conditioned water, 3 kg water reduction

Slump Test (after 1 hour): 21,5 cm

Slump Test in Spain

with normal water

Slump: 8 cm

with conditioned water

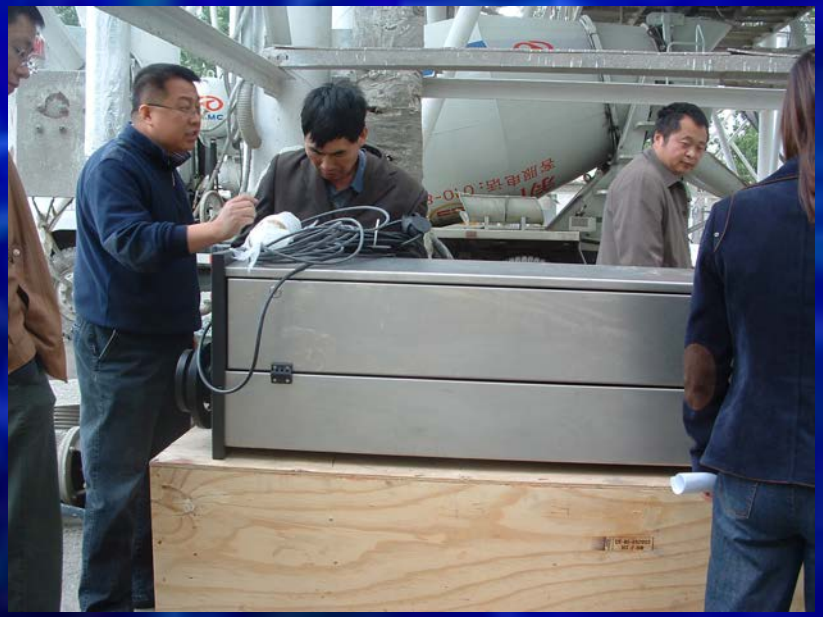
Slump: 13 cm

with conditioned water minus 10 l water

Slump: 9 cm

How to install the equipment?

The cwe-equipment can be easily connected to your production.



You just need
- **water,**
- **electrical power and**
- **pump for the circulation of the water.**

Technical Components

The devices consist of one or more conditioning units

and one control unit.

Examples in Practice & References

Kordes GmbH,
Deutschland

- **Cement: - 8% to - 10 %**
- **Improvement in processability**
- **Less porosity**
- **Notably higher strenghts**

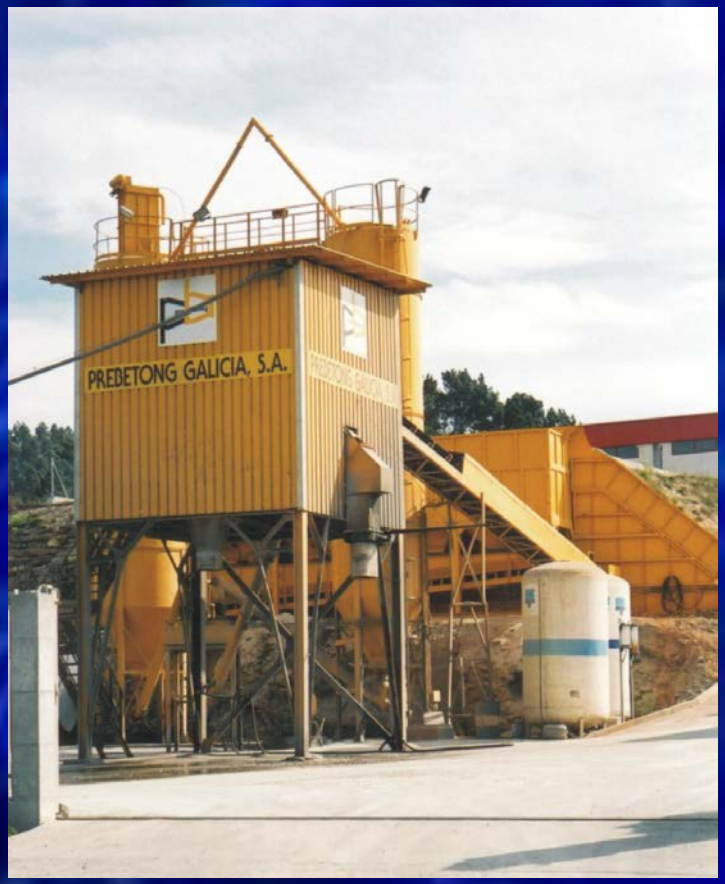
Westerwelle GmbH & Co., Germany

- **Concrete liquifier: - 75 %**
- **Cement: - 15 %**
- **unchanged high level of visual quality and green strength of the bulkhead elements**

Madeira Inerte,
Portugal

- **Concrete liquifier: - 50 %**
- **Cement: - 3 %**
- **Good processability**

Prebetong Galicia, Spain



- **Concrete liquifier: - 50 %**
- **Cement: - 6 % to - 7 %**

Olympic Stadium, Bejing, China

- **Concrete liquifier: - 20 %**
- **Cement: - 4 %**
- **Good processability**

Grand National Theater, Bejing, China

- **Concrete liquifier: - 20 %**
- **Cement: - 4 %**
- **Good processability**

After Installation:

Our services to you:

- **Help in adapting your formulation**
- **Broad access to our latest knowledge and experience**
- **Special problem solving through cooperation/participation in research projects**

Contact and Consultation:

cwe

conditioned water engineering
Messestraße 20
18069 Rostock
Germany
Telefon: +49 511 388 75 28
Telefax: + 49 381 795 33 37
Mobil: + 49 171 196 66 39
e-Mail: u.rethwilm@cwe-rostock.de
www.cwe-rostock.de