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Concrete curing compounds: how to assess their effectiveness?

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Why is concrete curing so important?



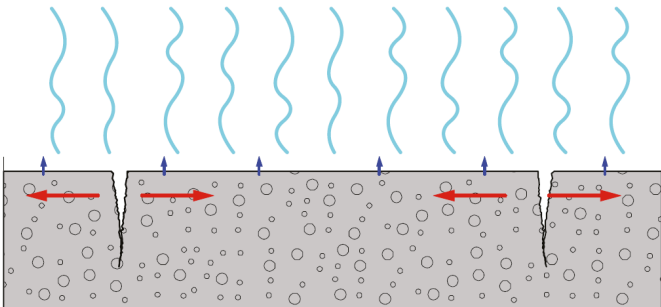
Strength



Lifetime

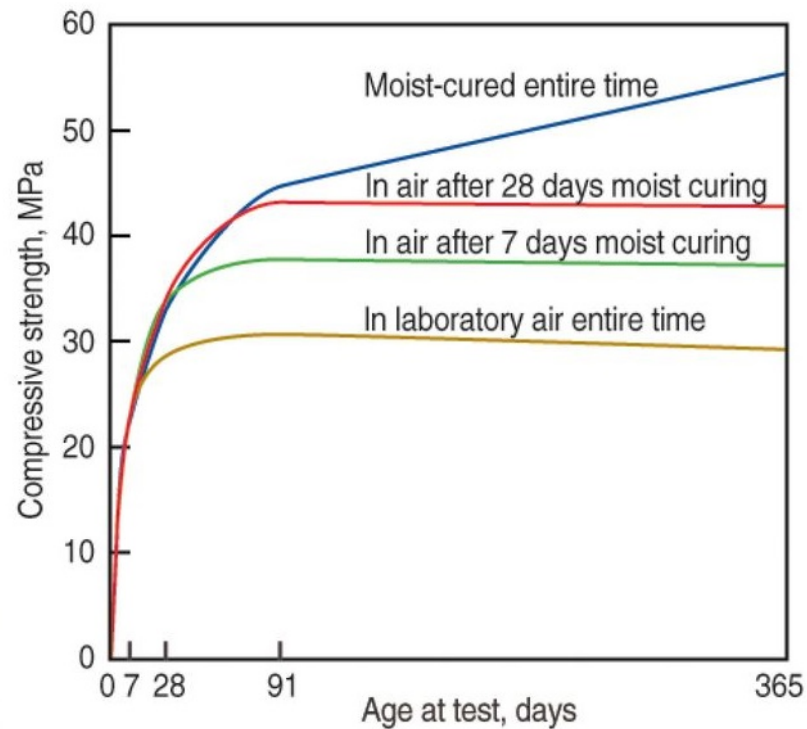


Aesthetics



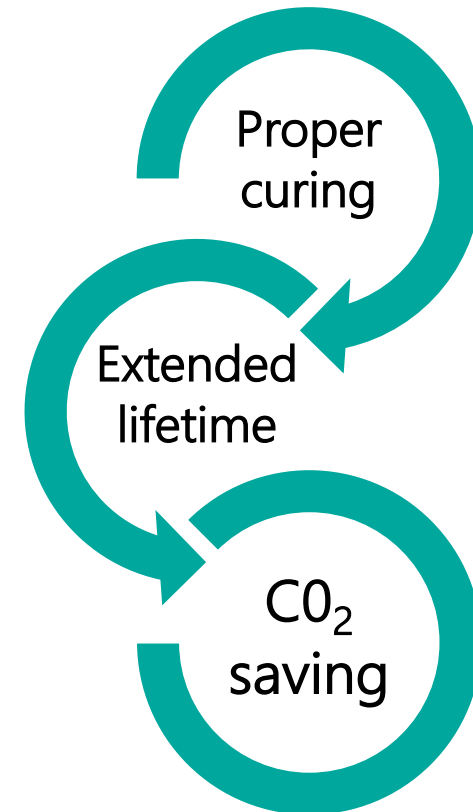
Why is concrete curing so important?

Effect of curing on strength development (example)



Why is concrete curing so important?

Curing is a simple step that is often neglected
but can make a **huge difference**
with respect to the **lifetime** of concrete !



Concrete curing compounds

How?

By spraying on concrete surface shortly after placing and finishing.



Why?

Surface film that reduces evaporation of moisture from concrete.

What?

- Waxes, natural and synthetic resins, ...
- Water-based or solvent-based
- Pigmented or not
- Permanent or not

Concrete curing compounds

Roads / bridge decks



Walls



How to assess their effectiveness (lab test)?



Slabs

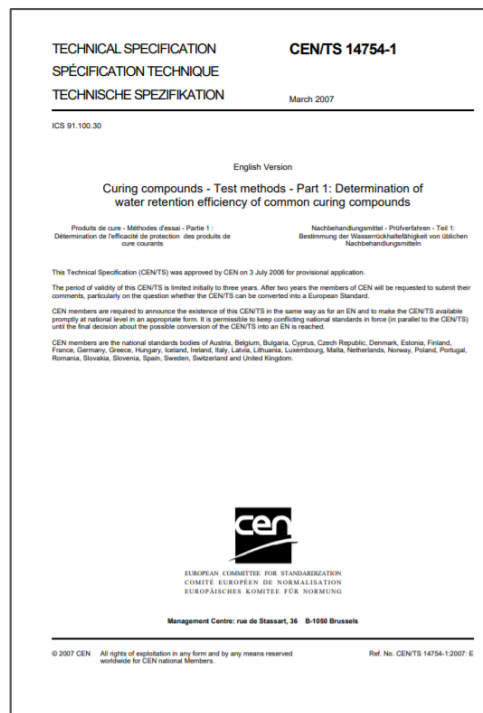
Belgian Research Project 'ConCure'

- 4-year project (until end 2022)
- Partnership: BBRI / CRIC-OCCN
- Main goals:
 - Refining the test method
 - Reviewing the effectiveness criterion

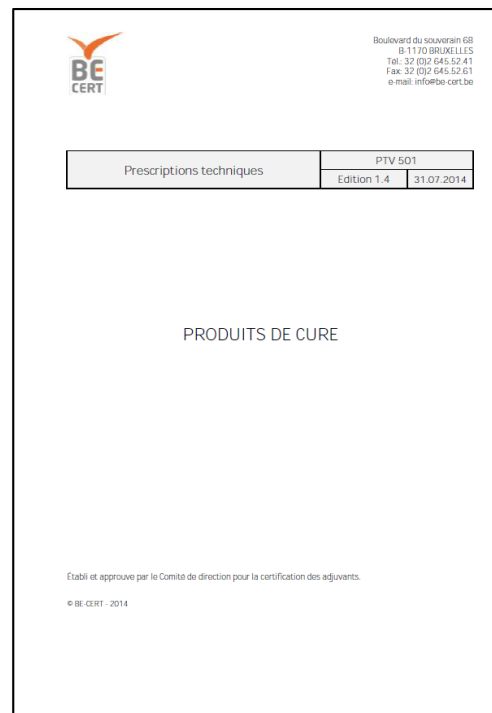


Belgian Research Project 'ConCure'

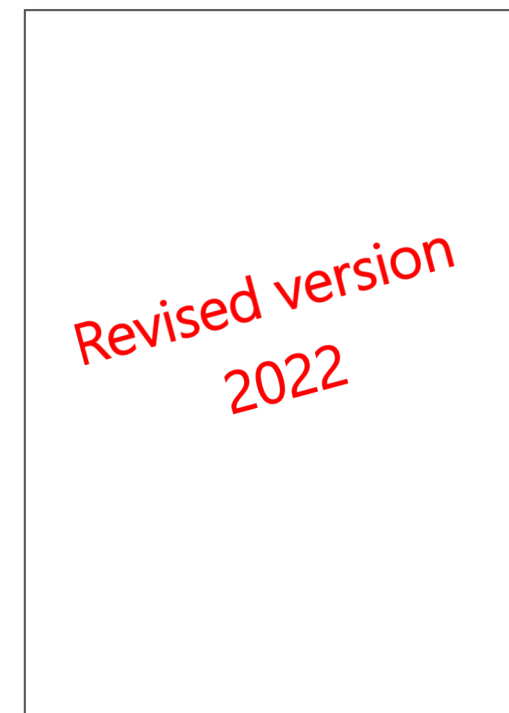
CEN/TS 14754-1 (2007)



PTV 501 (2014)



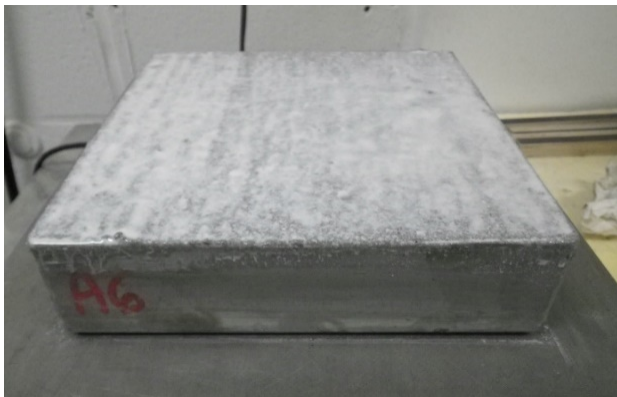
PTV 501



Belgian Research Project 'ConCure'

Water loss test

Often large variability in test results !



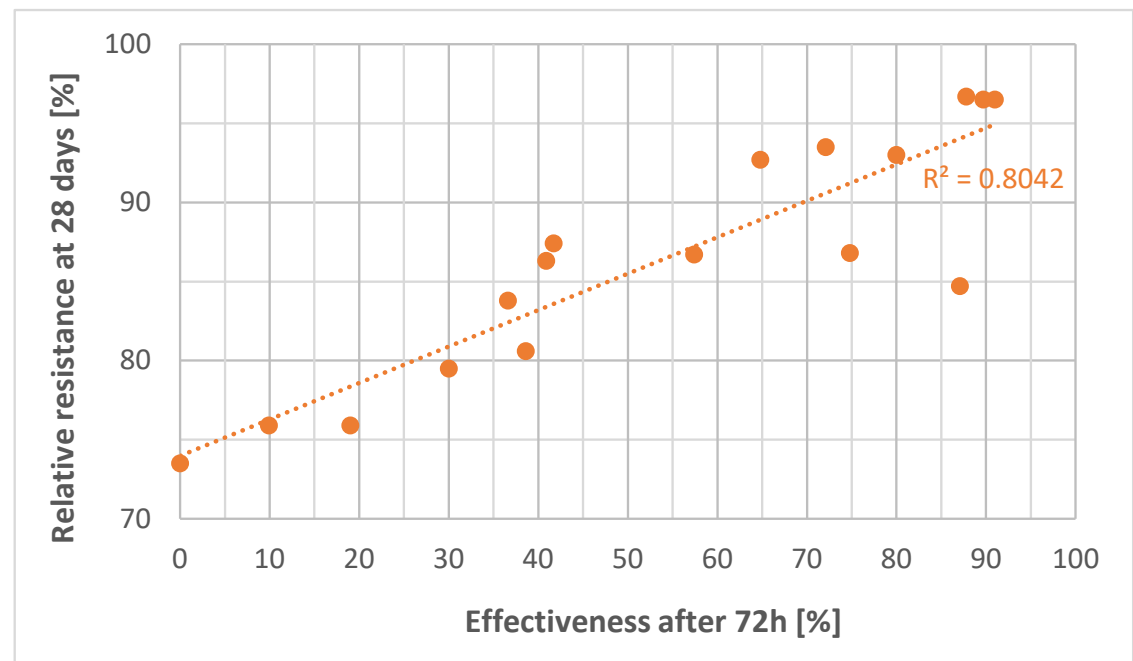
Belgian Research Project 'ConCure'

Criterion

Effectiveness

(> x % after x hours)

Assessment based on
durability parameters instead
of compressive strength?



[Audenaert & De Schutter, 2002]



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Questions / Suggestions / Lessons Learned?

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Thank you!