

For the time being we discuss in Denmark how to combine energy production and environmental protection. If we do not take into consideration all the damage that - for instance - coal firing could make on human beings, on nature, on materials and on buildings, the costs will be unbearable in the future.

There now seems to be a similar situation with concrete for which the annual costs of maintenance and construction will triple within the next 10-20 years.

You represent the concrete research and the constructors of concrete structures and you know the technical aspect of concrete.

But you also know that there is more to it than the technical aspects.

The participants in this conference are "professionals from research and practice".

This combination with the attendance from both producers and scientists means - in my opinion - that this conference will lead to useful conclusions, which - I hope - will result in firm agreements about the use of fly-ash in the cement and concrete industry.

I extend to you our heartfelt welcome and wish you a successful and fruitful conference, and I hope that you - in spite of your busy conference program - will take the time to see "Wonderful Sunny Copenhagen".

## Organization

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THE DANISH CONCRETE ASSOCIATION

The conference is co-sponsored by several Danish Authorities, public and private organizations and companies.

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## Background and Purpose

### Background

A large number of concrete structures erected during the last decades have for some years shown serious signs of premature decay. The yearly costs of keeping such structures in satisfactory operation have thus increased considerably and there are strong indications that these costs will double during the eighties and treble in the nineties. This increase shows no signs of levelling off before well into the next century if the present state of concrete technology is not improved dramatically and soon.

The premature deterioration originates from a number of causes of which various types of alkali-aggregate reactions are some of the more significant ones, partly because damages from these reactions often act as an opener to other forms of deterioration, e.g. frost-thaw action and chemical attack.

Available quality aggregates are becoming scarce and search for new deposits leads increasingly to quarries with aggregates which are susceptible to alkalis, moving the problem of alkali-aggregate reactions to a number of countries without previous experience in this field.

The large amount of fly ash from power plants is becoming an environmental problem, and the alkali contents in concrete are increasing. It is known, however, that the use of pozzolan in the form of fly ash or the use of slag in concrete can prevent adverse alkali-aggregate reactions and possibly also produce more durable concrete, but little is known how.

### Purpose

The 6th INTERNATIONAL CONFERENCE ON ALKALIS IN CONCRETE endeavours to pursue a turn to these problems.

Researchers must come together with practising engineers to bridge the gap of knowledge, to exchange views on the importance of future research and development and to report on results of recent and ongoing research.

There is an obvious need for a more thorough understanding of the effects of pozzolan and slag on alkali-aggregate reactions to make the advantages operational under practical conditions with varying qualities of aggregates. Further, there is a need to overcome the present abundance of testing methods and to converge future development towards more reliable testing procedures.

The 6th INTERNATIONAL CONFERENCE ON ALKALIS IN CONCRETE aims to create a dialogue between researchers and users of research, and to establish a platform for presenting results from recent and ongoing research.