

### Contributions to the Design and Structural Rehabilitation of the Industrial Chimneys

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#### Summary

The objective of this thesis is to investigate the issues encountered by the behaviour of industrial concrete chimneys under seismic and wind actions, technologic and climatic temperature variations. In time, normal usage and environmental influences the industrial chimney may affect the strength and the functionality of these slender structures.

The thesis presents both traditional and modern methods for structural rehabilitation of chimneys with their advantages and disadvantages.

The details regarding the types of polymeric composite material constituents, reinforcing products, their properties, location on the industrial chimney height and application procedures of the strengthening systems are also given in the work.



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A numerical analysis using finite elements method has also been performed. Various models of the chimneys according to the expected behaviour and the type of action, have been utilised.

*Keywords:* structural repair, chimneys strengthening, numerical analysis.

