

# Content of the dissertation thesis

---

<b>1</b>	<b>Introduction .....</b>	<b>1</b>
<b>2</b>	<b>Theoretical background.....</b>	<b>1</b>
2.1	Lightweight concrete .....	1
2.2	Service life prediction of RC structures .....	2
2.3	Prescriptive methodology to ensure the durability of RC structures..	4
2.4	Chloride ingress into concrete .....	5
2.5	Corrosion of reinforcement.....	6
2.6	Fracture-plastic modeling of concrete.....	7
<b>3</b>	<b>Objectives of the dissertation thesis .....</b>	<b>8</b>
<b>4</b>	<b>Materials and methods.....</b>	<b>9</b>
4.1	Materials used .....	9
4.2	Testing methods.....	10
4.3	Models to determine chloride ingress .....	10
4.4	Inverse analysis to obtain the material model .....	11
<b>5</b>	<b>Results and discussion.....</b>	<b>12</b>
5.1	Mechanical and durability properties.....	12
5.2	Chloride diffusion coefficient and aging coefficient.....	14
5.3	Estimation of initiation time of reinforced LWC .....	15
5.4	Comparison of the influence of fibers on the chloride ingress .....	17
5.4.1	Material models.....	19
5.4.2	Service life estimations .....	19
5.4.3	Residual strength after the exposure to chlorides .....	21
<b>6</b>	<b>Conclusions .....</b>	<b>25</b>
<b>7</b>	<b>Future research directions.....</b>	<b>26</b>
<b>8</b>	<b>References .....</b>	<b>26</b>
<b>9</b>	<b>Publications and other activities – January 2024 .....</b>	<b>31</b>