

# Contents

## Foreword

<b>1</b>	<b>Introduction</b>	<b>1</b>
<b>2</b>	<b>Summary of relevant parameters on the risk of hydrogen-induced stress corrosion cracking of prestressing steel</b>	<b>4</b>
2.1	Hydrogen evolution at the surface of prestressing steel	4
2.1.1	Hydrogen evolution caused by steel corrosion	4
2.1.2	Hydrogen evolution caused by zinc corrosion	5
2.1.2.1	Zinc corrosion in the atmosphere	6
2.1.2.2	Zinc corrosion in fresh cementitious grout or concrete	7
2.1.2.3	Hydrogen evolution caused by grout admixtures	8
2.2	Susceptibility of prestressing steel to hydrogen	8
2.2.1	General	8
2.2.2	Testing	9
2.2.2.1	FIP test	9
2.2.2.2	DIBt test	9
2.3	Thickness of zinc coating on prestressing steel	10
2.4	Level of tensile stress in prestressing steel	10
2.5	Detailing aspects	10
2.5.1	Distance of prestressing steel to embedded galvanized components	11
2.5.2	Ratio of surface area of prestressing steel (cathode) versus zinc (anode)	11
<b>3</b>	<b>Assessment of particular applications</b>	<b>11</b>
<b>4</b>	<b>Summary and conclusions</b>	<b>14</b>
4.1	Relevant parameters on the risk of hydrogen-induced stress corrosion cracking	14
4.2	Conclusions for particular applications	16
<b>5</b>	<b>References</b>	<b>17</b>