
مطالعه عوامل مؤثر بر مقدار کلر بحرانی یک سازه بتنی قدیمی آسیب دیده در جزیره کیش

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pH ()

مقدمه

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(DuraPGulf)

[]

خواص بتن [۵،۶]

C₂S

C-S-H

C₃S

Na₂O

pH , K₂O

[]

pH

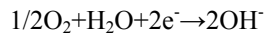
;

()

pH

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•

واکنش کاتدی:



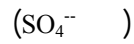
(۳)

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مکانیزم حمله کلر به آرماتور

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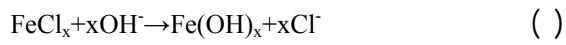
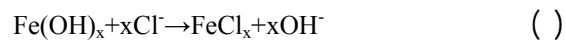
خوردگی فولاد در بتن



pH

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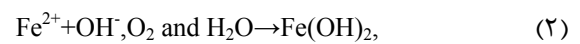
(

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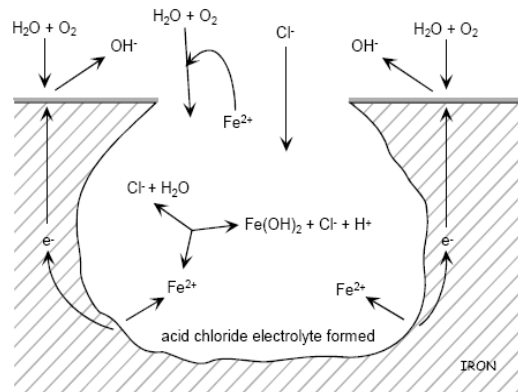


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واکنش آندی:



pH (Ca^{++}, K^+, Na^+)
 .[]



ASTM C114

شکل ۱: فرآیند خوردگی فولاد در بتن تحت اثر یون کلر [15].

مکانیزم حمله دی اکسید کربن به بتن

کلر آزاد و مقید

CO_2
 () CO_2

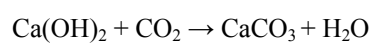
:[]

NaCl

.[]

() $3CaO \cdot Al_2O_3 \cdot CaCl_2 \cdot 1H_2O$

C_3A



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C-S-H



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کلر بحرانی برای شروع خوردگی فولاد در بتن

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C₃A

()

pH ()

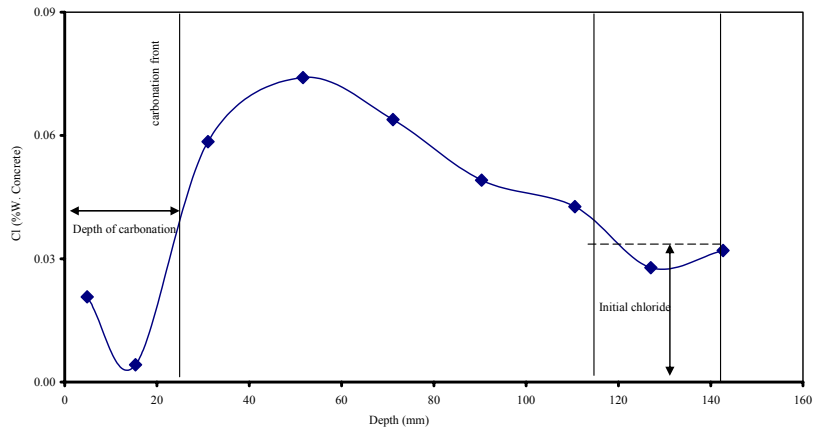
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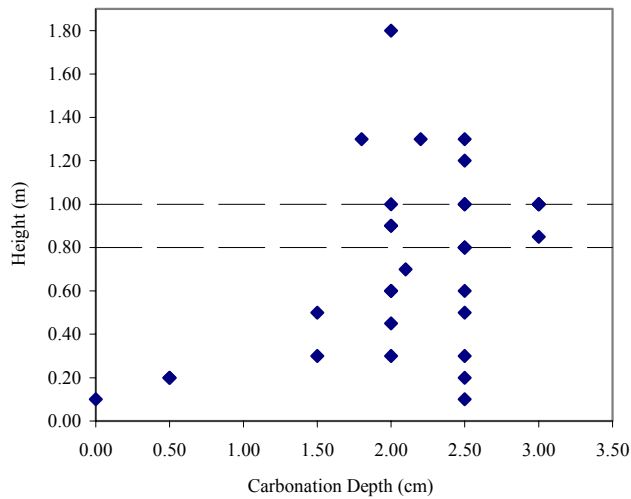
[]

pH

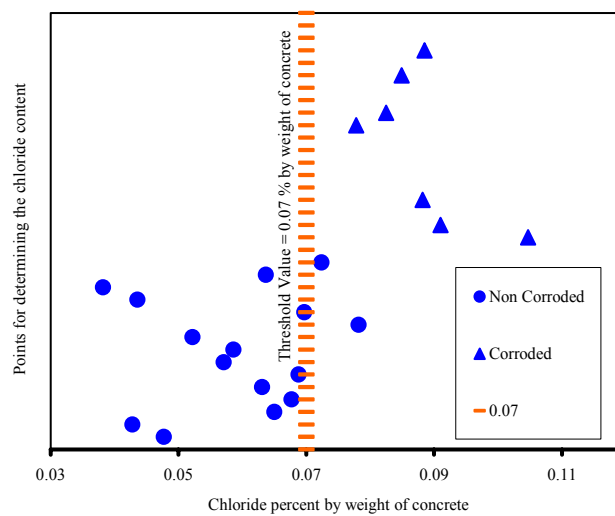
/ :	•	.[]
/ :	•	pH
:	•	pH .[]
/ :	•	
تعیین مقدار کلر بحرانی در سازه بتنی		
	pH	.[]
ASTM C114	/	/
	pH	/
pH		.[]
/		C ₃ A
		.[]
		C ₃ A
		(ASTM A605)
		(ASTM A706)
		.[]
		.[]
/	/	
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شکل ۲: پروفیل یون کلر در دیوار داخلی.



شکل ۳: نمودار تغییرات عمق کربناتاسیون بر حسب فاصله از کف در المان‌های بررسی شده در زیر زمین سازه مورد بررسی.



شکل ۴: نمودار تغییرات مقدار کلر در نواحی خورده شده و بدون خوردگی.

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تقدیر و تشکر

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