

APP Cement Task Force's Project Final Report Form

Project Number: CMT 07-09	Title of Project: The effect of cement concrete as a CO ₂ sink															
Lead Partner Country: Korea																
Participating Partner Countries and Organizations: Australia, India, The US																
Project Location: Each partner country																
Project Manager Information Name: Mr. Choonsoo Cha Organization: Ssangyong Cement Ind.Co.,Ltd Address:	Phone: +82-2-2270-5600 Fax: +82-2-2270-5973 Email: cha@ssyc.co.kr															
Project Start Date: July 2007	Proposed Project End Date: October 2011															
Project Described :																
<p>Sep.2008 : Acquire financial support from the government grants of international joint R&D program</p> <p>Nov.2008 ~ Oct.2009 : Start quantitative analysis and verification of CO₂ sink capacity by cement paste and mortar CO₂ uptake by concrete carbonation mechanism of CO₂ carbonation</p> <p>Nov.2009 ~ Oct.2010 : Development of the quantitative analysis approach and prediction model for CO₂ sink capacity of concrete structure with different condition.</p> <p>Nov.2010 ~ Oct.2011: Development of the absorption prediction model for CO₂ dependent on the environment condition throughout the whole life cycle.</p>																
Project Status and Outcome:																
<ul style="list-style-type: none"> - Project status <ul style="list-style-type: none"> : CMT 07-09 is all right and according to international joint R&D program schedule. : 3rd step program(Until Oct. 2011) is going according to plan. : Content and progress : Lifetime Prediction, Carbonation ratio, and CO₂ balance by numerical model. Consideration of the carbonation coefficient by the service life and type of concrete structure. Development of numerical model for calculating CO₂ balance. - Outcome <ul style="list-style-type: none"> : result of emission – absorption prediction model (in Korea). 																
<table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="text-align: center;">Concrete strength (24 MPa)</th> <th colspan="3" style="text-align: center;">Ratio of absorption over emission of CO₂ (%)</th> </tr> <tr> <th style="text-align: center;">40 years</th> <th style="text-align: center;">60 years</th> <th style="text-align: center;">80 years</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Concrete building structure</td> <td style="text-align: center;">3.7</td> <td style="text-align: center;">4.5</td> <td style="text-align: center;">5.2</td> </tr> <tr> <td style="text-align: center;">Concrete bridge</td> <td style="text-align: center;">2.5</td> <td style="text-align: center;">3.1</td> <td style="text-align: center;">3.5</td> </tr> </tbody> </table>		Concrete strength (24 MPa)	Ratio of absorption over emission of CO ₂ (%)			40 years	60 years	80 years	Concrete building structure	3.7	4.5	5.2	Concrete bridge	2.5	3.1	3.5
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Future Direction and Recommendation:																
<p>Terminate – International joint R&D program(CMT-07-09) is nearly finished.</p>																
Other Information and Reference:																
<p>KICET(Korea Institute of Ceramic Engineering and Technology)carry out the international joint R&D Program.</p>																