
CVG 2141 – CIVIL ENGINEERING MATERIALS

Quiz IV

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1. **What is the difference between consistency and workability?**
2. **What is self-consolidating concrete (SCC)? When should one use it in practice?**
3. **When do I need to use chemical admixtures in concrete? What are the three main types of chemical admixtures?**
4. **Air-entraining admixtures can protect concrete against freeze-thaw cycles due to :**
 - (a) minimal % of air voids
 - (b) maximal % of air voids
 - (c) distance among voids (spacing factor) < critical distance
 - (d) all the answers
5. **How does the water-reducing admixtures work?**
 - (a) by physical effect (barrier)
 - (b) by chemical effect (repulsion of grains)
 - (c) a et b, depending on the admixture type
 - (d) attracting cement grains
6. **When should one select an accelerating admixture to be used? What are the potential problems of its use?**
7. **You work for a consulting company that is participating in a project with a contractor to build a concrete tunnel (total thickness: 60 cm; concrete cover: 10 cm). You were told that the structure will be in contact with a soil in presence of a high amount of sulphates. Moreover, the service life (i.e. life span) of the structure should be 75 years or more. What are the advices you would provide the contractor with regarding the materials selection? Please, discuss on the selection of the following materials:**
 - a) Type (s) of chemical admixture (s) to be used.