Standard Method of Test
for
Quality of Water to Be Used in Concrete
Reference AASHTO T26-79 (2008)

ASTM Section	***Illinois Modification***
3.1.1 General note	Method A is performed only if Method B electrometric pH fails the 4.5-8.5 range. This is performed using a 200mL sample volume. Acidity testing uses methyl orange and 0.1N NaOH. Alkalinity testing uses phenolphthalein and 0.1N HCl. Acidity has a 2mL max and alkalinity a 10mL max (to neutralize 200mL sample) according to Standard Specifications for Road and Bridge Construction manual 1002.02 Water quality section.
3.1.2 General note	For routine analysis, Method B hydrogen ion concentration (which has greater accuracy) is determined using a pH meter following the manufacturer's instructions and purchased pH 4, 7, and 10 reference standard solutions. If the pH range is less than 4.5 or more than 8.5, method A is also done.
3.2 General note	Chloride ion concentration is determined by ASTM D512 Method C Ion-Selective Electrode (ISE) methods using an automatic titrator. Standard Specifications for Road and Bridge Construction has a chloride max of 0.06% in section 1002.02 Water quality.
4.1. Referee Method B General Note	ASTM D516 Referee gravimetric method was discontinued in 1988 because there were insufficient labs interested in another collaborative study to obtain necessary precision and bias. Historically, however, the gravimetric method has been the primary measure of sulfate ion in water as it is not prone to the interferences turbidimetric and volumetric methods are. Therefore, Method A gravimetric remains the most reliable of the test methods and is the one chosen for testing here. Standard spec section 1002.02 Water quality specifies D516-82 specifically for the referee gravimetric method with a limit on sulfates of 0.05% max.
5.1. & 5.2	Due to limited water sample amount submitted for testing and volume of platinum dishes, the following method replaces that in the text: 1. Fire a large platinum dish in 950°C muffle, cool in desiccator ~20min., and weigh. 2. Mix/shake sample well. Measure out a 100mL sample using a graduated cylinder. Transfer this quantitatively to dish and set on below boiling hotplate to evaporate to dryness. 3. When dry, place in moisture loss drying oven (110±5°C) and dry 1hr. after temperature stabilizes. After the 1hr., cool in desiccator ~20min. and weigh. 4. Place dish in preheated 550°C muffle oven for 2hrs., cool in desiccator ~20min. and weigh.

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5.1 & 5.2 (continued)	To clean platinum dish, scrub with hot soapy water, then place on hot plate with hot water and add a little HCl concentrated. Heat gently then pour acid wash into waste container adjusting pH before drain disposal. Scrub dish again and rinse thoroughly. Dry on hot plate, then place in 950° C muffle for ~20min. before returning to safe. Calculations: %Inorganic = [(Dish weight after 550°C) – (Dish weight empty)]/100mL sample x 100 %Organic = [(Dish weight after 110°C) – (Dish weight 550°C)]/100mL sample x 100 (g) Note: Standard spec section 1002.02 water quality has a 0.02% max limit for organic and 0.30% max limit for inorganic.
5.3.	Disregard this section.
5.4.	Disregard this section.
6. Added section	To address Standard spec 1002 designation of “clean, clear”, we characterize odor and sediment. Odor for water is characterized using descriptive terms like none, musty, mossy, grassy, moldy, earthy, stale, etc. Sediment for water is characterized based on settled solid matter on bottom of sample container using the descriptive terms like none, slight, moderate, or heavy.