

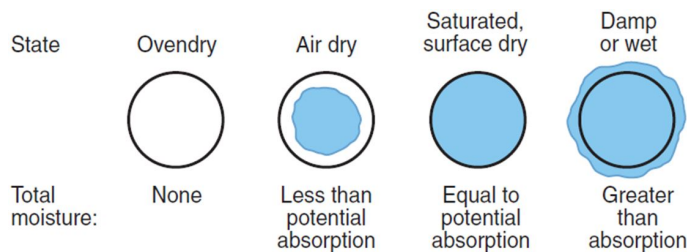
Aggregate Moisture

What is Aggregate Moisture?

The moisture content of concrete aggregates is an important factor that should be monitored by concrete producers on a regular basis and used as a control provision in the production of quality concrete.

Why Monitor Aggregate Moisture?

Monitoring aggregate moisture is essential for producing consistent and high quality concrete. Variations in aggregate moisture directly affect the water to cementitious materials ratio, which in turn influences strength, durability, workability, finishing characteristics, and yield. Unaccounted surface moisture can lead to higher than intended slump and reduced strength, while dry aggregates can result in stiff mixes and poor consolidation. Regular monitoring allows producers to make real time water adjustments and maintain tight quality control.



Varying States of Aggregate Moisture

How Frequently Should Concrete Aggregate Moistures be Monitored?

Aggregate moisture should be checked frequently enough to capture changes caused by weather, stockpile management, and production rates. At a minimum, daily measurements are recommended, with increased frequency during periods of rain, drying conditions, or significant temperature changes. Continuous or automated moisture monitoring systems are commonly used at ready mix plants to provide ongoing data

throughout the day to adjust concrete mixture proportions in real time.

How is Moisture Content Measured?

Moisture content can be measured using several methods including CSA A23.2-11A, Test Method for surface moisture in fine and coarse aggregate.

Three Rules to Consider:

1. Check aggregate moisture frequently, at least daily, and more during rain or hot/dry conditions
2. Adjust mix water based on measured aggregate moisture to maintain the correct water-cement ratio
3. Use proper testing methods, such as CSA A23.2-11A, to ensure accurate moisture measurements

References

1. CSA A23.1 A23.2 2024. *Concrete materials and methods of concrete construction Test methods and standard practices for concrete.* CSA Group
2. *Design and Control of Concrete Mixtures. 9th Edition.* Cement Association of Canada

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