Aggregate Moisture Correction to Batch Water

Adjusted batch weights of fine and coarse aggregate and water when the aggregates are wet or dry, from their moisture contents and absorption.

Method: Moisture correction from SSD to stock condition (ACI 211.1; IS 10262 practice)

Input parameters

Unit system: SI

Parameter	Value	Unit
Fine aggregate, SSD weight in the design	700.00	kg
Coarse aggregate, SSD weight	1,150.0	kg
Free water in the design	180.00	kg
Moisture content of the fine aggregate (of dry mass)	4.0000	%
Absorption of the fine aggregate (of dry mass)	1.0000	%
Moisture content of the coarse aggregate (of dry mass)	0.50000	%
Absorption of the coarse aggregate (of dry mass)	0.80000	%

Calculated results

Parameter	Value	Unit
Fine aggregate to weigh (as it is)	720.79	kg
Coarse aggregate to weigh	1,146.6	kg
Water to add	162.63	kg
Free water brought in by the aggregates	17.369	kg

Notes for this case

- Weigh the aggregates as they are and add the corrected water.

Formula and method

$$M_{dry} = \frac{M_{SSD}}{1+a}, \quad M_{batch} = M_{dry}(1+m), \quad W_b = W - \sum (M_{batch} - M_{SSD})$$

Variables

F_{SSD}	Fine aggregate, SSD weight in the design	kg
G_{SSD}	Coarse aggregate, SSD weight	kg
W	Free water in the design	kg
m_f	Moisture content of the fine aggregate (of dry mass)	-
a_f	Absorption of the fine aggregate (of dry mass)	-
m_c	Moisture content of the coarse aggregate (of dry mass)	-
a_c	Absorption of the coarse aggregate (of dry mass)	-
F_b	Fine aggregate to weigh (as it is)	kg
G_b	Coarse aggregate to weigh	kg
W_b	Water to add	kg
ΔW	Free water brought in by the aggregates	kg

Method and standards

Mass balance on aggregate water.

Assumptions and limits

- Moisture as a share of dry mass.

References

- Moisture correction from SSD to stock condition (ACI 211.1; IS 10262 practice)

Report details

Report reference	FCC-PHZF-ERJR (the same inputs always give the same reference)
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Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/civil/concrete/aggregate-moisture-correction

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.