

Sampling and Testing Guide-Minimum Frequency

**PORTLAND CEMENT CONCRETE PAVEMENT, PAVEMENT WIDENING, BASE WIDENING  
CURB & GUTTER, AND PAVED SHOULDERS**

Matls. IM 204  
Appendix E (Metric) Units

Section 2122, 2201, 2213, 2301, & 2302

April 19, 2005  
Supersedes October 21, 2003

MATERIAL OR CONSTRUCTION ITEM	TESTS	METHOD OF ACCEPTANCE & RELATED IMs	QC/ACCEPTANCE S&T					ASSURANCE, CORRELATION AND VERIFICATION S&T					REMARKS ➔
			SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	
<b>SOURCE INSPECTION</b>													
Aggregates-Fine (4110)		AS 209											
Aggregate-Coarse (4115)		AS 209											
Portland Cement (4101)	Quality	AS 401											
Fly Ash (4108)	Quality	AS 491.17											
GGBFS (Ground Granulated Blast Furnace Slag)	Quality	AS 491.14											
Curing Compounds (4105)	Lab-Tested												
Clear Curing Compounds (4105)		AB 405.07											
Air Entraining Admixture (4103)	Quality	AB 403											
Water Reducing Admix. (4103)	Quality	AB 403											
Retarding Admixture (4103)	Quality	AB 403											
Joint Sealer (4136.02)	Lab Tested	436.01, 436.02 436.03											
Backer Rod (4136.02)	Lab Tested	AB 436.04											
Mixing Water (4102)	Lab Tested		RCE	➔➔1/source	1 L	CTRL							Not required for potable water from municipal supply
AS-Approved Source AB-Approved Brand ASD-Approved Shop Drawing S&T-Sampling & Testing		Cert A-Type A Certification Cert C-Type C Certification Cert D-Type D Certification					RCE-Resident Construction Engineer DME-District Materials Engineer CTRL-Central Materials Office CONTR-Contractor						ASSUR-Independent Assurance VERIF-Verification CORR-Correlation MON-Monitor

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			SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT		
<b>SOURCE INSPECTION</b>															
Steel Reinforcement (4151)															
Dowels	Quality	AS 451													
Tie Bars	Quality	AS 451													
Continuous Reinforcement	Quality	AS 451													
General Use	Quality	AS 451													
<b>PLANT INSPECTION</b>															
Aggregates-Fine (4110/4111)	Grad *	302, 306 336	CONTR	3/lot	IM 301	CONTR	800240	ASSUR	DME	1/100,000 m <sup>2</sup>	IM 301	DME		See Notes See IM 213	
	Moist ➡	308, 527	CONTR	1/half day	1000 gm	CONTR		CORR	CONTR	1 <sup>st</sup> day+10%	IM 301	RCE			Not applicable with probe
	Sp. Gr.	307	CONTR	IM 527	1000 gm	CONTR		V	DME	1/QM-C Proj.	IM 301	CTRL			
	Quality	AS 209													
AS-Approved Source AB-Approved Brand ASD-Approved Shop Drawing S&T-Sampling & Testing		Cert A-Type A Certification Cert C-Type C Certification Cert D-Type D Certification			RCE-Resident Construction Engineer/Project Engineer DME-District Materials Engineer CTRL-Central Materials Office CONTR-Contractor			ASSUR-Independent Assurance VERIF-Verification CORR-Correlation MON-Monitor							

\* A system approach may be applied, at the discretion of the DME.

Note 1: When Certified Plant Inspection is not provided, the Engineer is responsible for performing sampling and testing.

Note 2: When the project engineer does the acceptance gradation testing, the assurance sample is to be split with the project engineer. This split sample is for correlation purposes, and if it is not a routine lot sample, should not be used for determining specification compliance of a lot. However, any non-compliant test result is to be resolved.

Note 3: If a third aggregate is used on a QM-C project, individual verification samples of the third aggregate must be obtained by the DME at a rate of 1/QM-C project for gradation and quality testing by CTRL.

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			SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY		REPORT
<b>PLANT INSPECTION</b>														
Aggregates-Coarse (4115)	Grad *	302, 306 336	CONTR	3/lot	IM 301	CONTR	800240	ASSUR CORR V	DME CONTR DME	1/100,000 m <sup>2</sup> 1 <sup>st</sup> day + 10% 1/QM-C project	IM 301 IM 301 IM 301	DME RCE CTRL		See Notes
	Moist	308	CONTR	1/half day	1000 gm	CONTR								
	Sp. Gr.	307	CONTR	IM 527	1000 gm	CONTR								
	Quality	AS 209												
Portland Cement (4101)	Quality	AS Cert D		Each Load				V	DME	1/100,000 m <sup>2</sup>	7 kg	CTRL		
	Cement Yield		CONTR	1/7500 m <sup>3</sup>		CONTR	820912							
Fly Ash	Quality	AS Cert D		Each Load			800240	V	DME	1/100,000 m <sup>2</sup>	7 kg	CTRL		
GGBFS(Ground Granulated Blast Furnace Slag)	Quality	AS Cert		Each Load				V	DME	1/100,000 m <sup>2</sup>	7 kg	CTRL		
Air Admixture	Quality	A 403	DME	1/lot	0.5 L	CTRL								
Water Reducer	Quality	AB 403	DME	1/lot	0.5 L	CTRL								
Retarding Admixture	Quality	AB 403	DME	1/lot	0.5 L	CTRL								
AS-Approved Source AB-Approved Brand ASD-Approved Shop Drawing S&T-Sampling & Testing	Cert A-Type A Certification Cert C-Type C Certification Cert D-Type D Certification		RCE-Resident Construction Engineer/Project Engineer DME-District Materials Engineer CTRL-Central Materials Office CONTR-Contractor				ASSUR-Independent Assurance VERIF-Verification CORR-Correlation MON-Monitor							

\*A - System approach may be applied at the discretion of the DME.

Note 1: When Certified Plant Inspection is not provided, the Engineer is responsible for performing sampling and testing.

Note 2: When the project engineer does the acceptance gradation testing, the assurance sample is to be split with the project engineer. This split sample is for correlation purposes, and if it is not a routine lot sample, should not be used for determining specification compliance of a lot. However, any non-compliant test result is to be resolved.

Note 3: If a third aggregate is used on a QM-C project, individual verification samples of the third aggregate must be obtained by the DME at a rate of 1/QM-C project for gradation and quality testing by CTRL. Verification/Assurance samples not required when mix quantity is less than 2000 m<sup>2</sup>.

➡ = See Remarks Column.

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			SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	
<b>GRADE INSPECTION</b>													
Chloride Solution	Concentration	373	RCE	1/day									
Wire Mesh		AS Cert A						V	DME	1/Project/Yr	0.5 m x 0.5 m	CTRL	
Steel Reinforcement: Dowels	Quality	AS 451.03B						V	DME	1/District/Yr	0.5 m	CTRL	Steel sampling
Dowel Basket Assembly	Quality	AS 451 Cert D 451.03B											
Tie Bars	Quality	AS 451						V	DME	1/District/Yr	0.5 m	CTRL	Frequency
General Use	Quality	AS 451						V	DME	1/District/Yr	1 m	CTRL	Minimum of one per District per year
Continuous Reinforcement	Quality	AS 451						V	DME	1/District/Yr	2 - 0.5 m pcs.	CTRL	
Plastic Concrete	Air	318 327	RCE	1/750 m <sup>3</sup>		RCE	M115**	ASSUR	DME	1/100,000 m <sup>2</sup>		DME	1/75 m <sup>3</sup> for transit mixer minim 1 per day
	Grade Yield		RCE	1/750 m <sup>3</sup>		RCE							
	Beams**	316, 327, 328	RCE	2/day		RCE	M115**						
Hardened Concrete	Thickness*	346, 347	CONTR	1/2000 m <sup>2</sup>	IM 346	RCE		ASSUR	CONTR		10%	DME	Monitor Sampling
	Smoothness	341 Cert. Test Report	CONTR		100%	CONTR		CORR	DME		10%	DME	
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\*Thickness cores sent to Central Lab for additional project information testing. (Interstate and Primary only.) \*\*None required when maturity is used  
Verification/Assurance samples not required when mix quantity is less than 2000 m<sup>2</sup>.

➡ = See Remarks Column.

\*\* Available from the Office of Construction.