

Sampling and Testing Guide-Minimum Frequency

**PORTLAND CEMENT CONCRETE PAVEMENT, PAVEMENT WIDENING, BASE WIDENING
CURB & GUTTER, AND PAVED SHOULDERS
Section 2122, 2201, 2213, 2301, and 2302**

Mats. IM 204
Appendix E (US) Units

October 21, 2003
Supersedes April 15, 2003

MATERIAL OR CONSTRUCTION ITEM	TESTS	METHOD OF ACCEPTANCE AND 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		REPORT	
SOURCE INSPECTION															
Aggregates-Fine (4110)		AS 209					Refer to IM 527 for report number								
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 qt	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		
SOURCE INSPECTION																	
Steel Reinforcement (4151) Dowels Tie Bars Continuous Reinforcement General Use	Quality	AS	451					Refer to IM 527 for report number									
	Quality	AS	451														
	Quality	AS	451														
	Quality	AS	451														
PLANT INSPECTION																	
Aggregates-Fine (4110/4111)	Grad *	302, 306 336		CONTR	3/lot	IM 301	CONTR	Refer to IM 527 for report number	ASSUR CORR V	DME CONTR DME	1/100,000 sy 1 st day+10% 1/QM-C proj.	IM 301 IM 301 IM 301	DME RCE CTRL		See Notes See IM 213		
	Moist ➡	308, 527		CONTR	1/half day	1000 gm	CONTR									Not applicable with probe	
	Sp. Gr.	307		CONTR	IM 527	1000 gm	CONTR										
	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	
PLANT INSPECTION														
Aggregates-Coarse (4115)	Grad *	302 306 336	CONTR	3/lot	IM 301	CONTR	Refer to IM 527 for report number	ASSUR CORR V	DME CONTR DME	1/100,000 sy 1 st day+10% 1/QM-C proj.	IM 301 IM 301 IM 301	DME RCE CTRL		See Notes
	Moist	308	CONTR	1/half day	2000 gm	CONTR								1000gm may be used (IM 301)
	Sp. Gr.	307	CONTR	IM 527	2000 gm	CONTR								1000gm may be used (IM 301)
	Quality	AS 209						V	DME	1/100,000 sy	50 lb	CTRL		
Portland Cement (4101)	Quality	AS Cert D		Each Load				V	DME	1/100,000 sy	15 lb	CTRL		
	Cement Yield		CONTR	1/10,000 cy		CONTR								
Fly Ash	Quality	AS Cert D		Each Load				V	DME	1/100,000 sy	15 lb	CTRL		
GGBFS(Ground Granulated Blast Furnace Slag)	Quality	AS Cert		Each Load				V	DME	1/100,000 sy	15 lb	CTRL		
Air Admixture	Quality	AB 403	DME	1/lot	1 pint	CTRL								
Water Reducer	Quality	AB 403	DME	1/lot	1 pint	CTRL								
Retarding Admixture	Quality	AB 403	DME	1/lot	1 pint	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 Engr. 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 sq. yds.

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			SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY	REPORT	S&T TYPE	SAMPLE BY	FREQ.	SAMPLE SIZE	TEST BY		REPORT
GRADE INSPECTION														
Chloride Solution	Concentration	373	RCE	1/day			Refer to IM 527 for report number							
Wire Mesh		AS CERT A						V	DME	1/Project/Yr	2 ft X 2 ft	CTRL		
Steel Reinforcement: Dowels	Quality	AS 451.03B						V	DME	1/District/Yr	2 ft	CTRL		Steel sampling
Dowel Basket Assembly	Quality	AS 451 Cert D 451.03B												
Tie Bars	Quality	AS 451						V➡	DME	1/District/Yr	2 ft	CTRL		Frequency
General Use	Quality	AS 451						V➡	DME	1/District/Yr	48 in	CTRL		Minimum of one per District per year
Continuous Reinforcement	Quality	AS 451						V➡	DME	1/District/Yr	2 - 2 ft pcs.	CTRL		
Plastic Concrete	Air	318 327	RCE	➡ 1/1000 cy		RCE			ASSUR	DME	1/100,000 sy		DME	1/100 cy for transit mixer min 1 per day
	Grade Yield		RCE	1/1000 cy		RCE								
	Beams**	316, 327, 328	RCE	2/day		RCE								
Hardened Concrete	Thickness*➡	346, 347	CONTR	1/2000 sy	IM 346	RCE		ASSUR	CONTR		10%	DME	Monitor Sampling	
	Smoothness	341 Cert. Test Report	CONTR			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 sq. yds.