

**FIRST SCREEN TO APPEAR AFTER OPTION I LINK SELECTED.**

- Four ways to navigate through the Materials Testing Manual:
1. Left mouse click once on one of the menu items in the "Book Mark" window.
    - a. Left mouse click once on the to extend viewable selections.
  2. Use scroll button on mouse to navigate up and down on the document.



3. Use "Windows" scroll bar to navigate up and down on the document.
4. Left mouse click once on the "Table of Contents" bookmark. Single left mouse click on the "Subsection".
  - a. On the "Table of Contents" page(s) please note the far left hand side column labeled "Print Pages". To print a specific "Subsection", note the page numbers and left mouse click once anywhere in the column underneath "Print Pages" to bring up the print screen window. Type in the noted page numbers and print.

**#4**

WYOMING TRANSPORTATION DEPARTMENT  
MATERIALS TESTING MANUAL  
TABLE OF CONTENTS

	NEW WYDOT No.	OLD WYDOT No.	Last Revised	TITLE
<b>100 Section - General</b>				
				Definitions
				Soils Tests and Their Indications
				Soil Classification System
				Materials Acceptance - Construction Test And Certification Requirements
				Materials Acceptance - Manufactured Products: Materials Certifications, Form T-168 - Certification Of Materials
				Materials Acceptance - Manufactured Products: Qualified Suppliers
				Materials Acceptance - Manufactured Products: Qualified Products
				Materials Acceptance - Manufactured Products: Pre-Certified
				Field Laboratory Testing Equipment: Standard Soils Kit
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				Field Laboratory Testing Equipment: Standard Concrete Kit
				Investigation Of Gravel Deposits
				Correlation Between An Automatic Sampler And A Conveyor Belt Cut
				Correlation Of Aggregate Gradation Test Results
				Assessment Of Field Labs Performing Mix Volumetric Quality Acceptance Testing
				Miscellaneous Items - Sample Size
				SI (Modern Metric) Conversion Factors
<b>200 Section - Earthwork</b>				
				Soil Behavior
				Moisture - Density Method Selection And Borrow Moisture Test
				Standardization Of Sand
				Sand Cone Method Field Density Test
				Moisture - Density Relations Of Soils Method "A"
				Moisture - Density Relations Of Soils Method "C"
				In - Place Density And Moisture Content Of Soil And Soil - Aggregate By Nuclear Methods (Shallow Depth)
				Check Curve - Embankment (CC - E)
				Family Of Curves

**#4a**

DEFINITIONS

**Admixtures** - Materials other than cement, aggregate and water in concrete used to entrain air, retard setting, or accelerate setting.

**Anchorage** - That portion of a reinforcing bar and any attachment thereto, designed to resist pulling out or slipping of the bar when subjected to stress.

**Asphalt Cement (AC), Asphalt Binder, PGAB, etc** - Asphalt Binder is considered to be practically pure bitumen which is in a semi-solid state at ordinary temperatures. Selection of the asphalt binder to be used in the HPM is based on environmental and traffic loadings.

**Base, Base Course (CB, CTB, PMB)** - Intermediate layer between subgrade and surfacing (concrete pavement or plant mix pavement) and contributes to the load bearing capacity of the surfacing section. This material is usually a granular material with the material above the No. 4 being at least partially crushed and may be stabilized using Portland cement, asphalt, emulsion, lime, etc. In the case of a gravel road, the base material will be the top layer and has similar material properties, although retain the natural cohesiveness to deter wash-boarding and rutting, which may mean higher PI.

**Batch (Concrete)** - The quantity of mix discharged from the mixer in one complete operation of the plant before additional materials are introduced.

**Bedrock/Pit Floor** - Unusable material, such as shale or native consolidate rock, that underlies the construction material and delineates the depth of rock deposit or vertical limit.

**Bleeding (HPM & Chip Seals)** - Characterized by the presence of an excessive amount of asphalt on the surface. Typically due to either an excessive amount of prime coat or tack coat or excessive asphalt in the mix.

**Bleeding (Concrete)** - The escape of water from freshly placed concrete commonly observed as an accumulation upon a horizontal surface.

**Blow-Up (Concrete)** - Localized buckling or shattering of rigid pavement caused by excessive longitudinal pressure.

**Borrow Special Excavation (BSE)** - This may be the same material as used in the sub-base, but is usually considered to be subgrade material that replaces inferior or problematic soil. This material may be of the same type as the sub-base, however a non-granular soil may be specified. This layer is not to be included as part of the surfacing section as determined during the pavement structural design; it is included as subgrade if the depth is 24 inches or greater.

**California Bearing Ratio (CBR)** - A test to determine the bearing capacity of a soil compared to a standard, well-graded, crushed stone.

**Carry-over** - Deposition of finer material into a bin that should contain larger size aggregate.

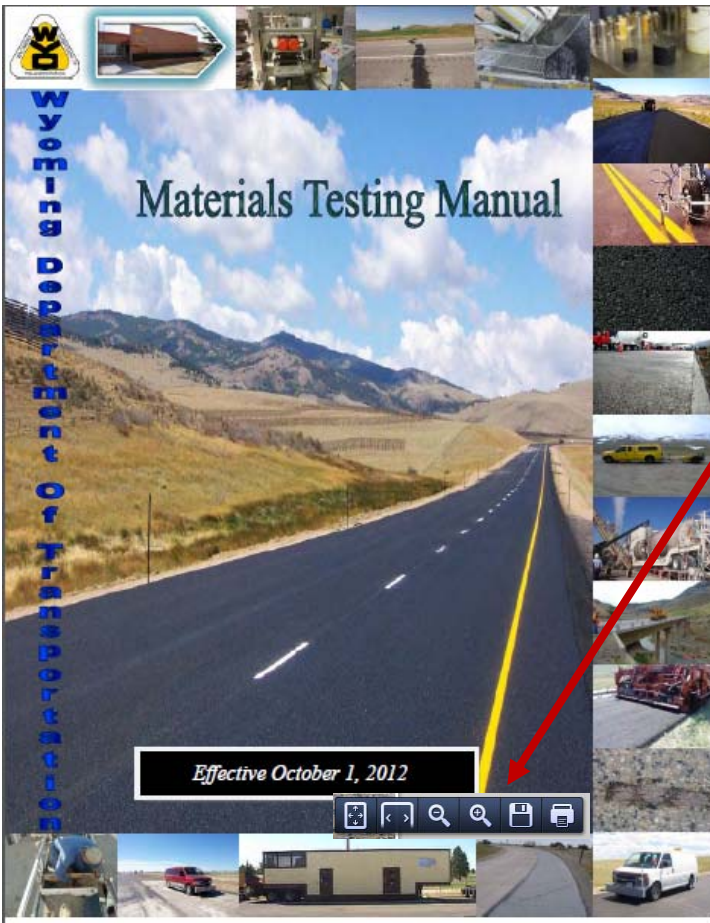
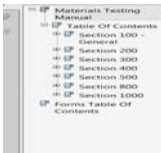
A window displaying the linked "Subsection" from the above selection will be displayed.

To return to the "Table of Contents",

Use the Windows scroll bar ,

scroll mouse , or

bookmarks on left hand side to navigate back and forth in the document.



To change the screen and view levels or save or print the Materials Testing Manual use this bar.



This bar will display when the mouse pointer is dragged to the bottom of any page in the manual.



Left mouse click once and the screen will shrink.



Left mouse click once and the screen will expand.



Left mouse click once or multiple times to zoom out.



Left mouse click once or multiple times to zoom in.

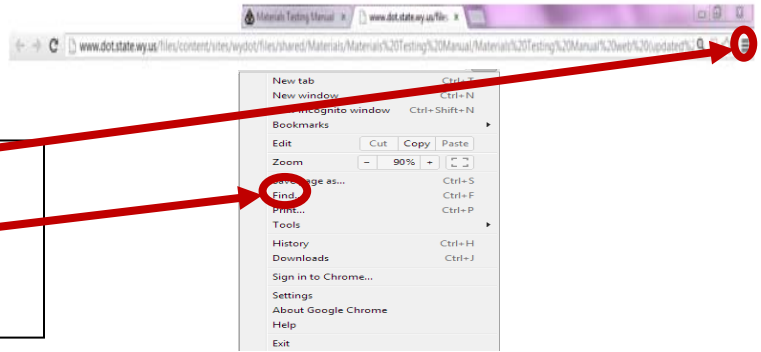



Left mouse click once and Windows Explorer window will popup so can save entire .pdf document.



Left mouse click once and print popup will appear so can print entire .pdf document or user specific pages.

Search and find specific text in the document







Right mouse click once on . Left mouse click once on "Find" in the drop down window. A popup window will appear.



Left mouse click once in the blank text box and type in search criteria. The text box will display the number of instances the search criteria appears in the document.

The document will advance to the first occurrence of the typed in search criteria and hi-lite it.

Use search bar icons to go backward  or forward  or close  the find box.


Clicking the  will advance to the next instance of the search criteria. In this case the next instance was hi-lited as displayed. The "X – RAY FLUORESCENCE" was skipped because of the search criteria was different (spaces in the word x-ray). Case sensitivity has no relevance when searching.

First "Find"

<a href="#">434 - 437</a>	<a href="#">851.0</a>	426.0	02-12	Insoluble Residue By Wet Method Or By X - Ray Fluorescence Spectrometry
<a href="#">438 - 439</a>	<a href="#">838.0</a>	NEW	02-12	Percent Phosphoric Acid And Phosphorus Content In Asphalt By X-Ray Fluorescence Spectrometry
<a href="#">440 - 451</a>	<a href="#">840.0</a>	501.0	02-12	Liquid Asphalt Sampling
<a href="#">452 - 459</a>	<a href="#">841.0</a>	503.0	02-12	Asphalt Volume Correction Table

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WYDOT 837.0  
(Rev. 02-12)

Skipped  INSOLUBLE RESIDUE BY WET METHOD OR X-RAY FLUORESCENCE SPECTROMETRY

Second "Find"

scope: This method describes the quantitative determination of acid soluble and insoluble compounds found in aggregates used for surfacing, typically chip seal or plant mix wearing course. The standard procedure is adopted from ASTM D3042 *Standard Test Method for Insoluble Residue in Carbonate Aggregates*. This method is limited to quantitative determinations of the following analytes: SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, CaCO<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub>, MgCO<sub>3</sub>, Na<sub>2</sub>O and K<sub>2</sub>O.

Use: Wyoming requires ASTM D3042 Section 7, "Procedure for Determining Only the Plus 75 µm (No. 200) Size Fraction of Insoluble Residue".

Reference Documents: ASTM D3042 *Standard Test Method for Insoluble Residue in Carbonate Aggregates, Section 7*  
WYDOT T-107W *Report of Test on Aggregate*

Discussion: Acid solubility may be estimated by the quantities of certain compounds in an aggregate source. Aggregates containing high percentages of SiO<sub>2</sub> and Al<sub>2</sub>O<sub>3</sub> will be more acid insoluble as compared to samples containing high percentages of CaCO<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub>, and MgCO<sub>3</sub> (i.e., acid soluble).<sup>1</sup> Numerous reports indicate a strong correlation between acid insolubility of aggregates and a resistance to polishing.

The X-Ray Fluorescence Spectrometry (XRFS) method has the following limitations:

1. Inorganic, element analysis only (i.e., non-carbon);

Search and find FORMS in Excel (.xlsx or .xlsm) format or Adobe (.pdf) format.

Materials Testing Manual

- Table Of Contents
- Section 100 - General
- Section 200
- Section 300
- Section 400
- Section 500
- Section 800
- Section 1000
- Forms Table Of Contents

Navigate to the "Forms" Table of Contents by one of the following methods:

1. Single left mouse click on "Forms Table Of Contents" in the "Book Mark" menu.
2. Navigate to Page 5 of the Materials Testing Manual (page "iv." of the "Table of Contents", and single left mouse click on the **Forms** link.

466-.471	870.0	507.0	02-12	Emulsified Asphalt Field Procedure For Sampling Hot Poured Elastic Sealant And Hot Poured Crack Surfacing
472-.473	880.0	708.0	02-12	Deformed And Plain Billet - Steel Bars For Concrete - Reinforcement
<b>1000 Section - Preliminary</b>				
474-.475	1010.0	101.0	02-12	Alkali Sampling And Preliminary Pipe Selection
476-.481	1020.0	NEW	02-12	Determining Delamination In Bridge Decks By Chain Drag Method

Forms

The document will advance to first "Forms Table of Content" page "i."

Single left mouse click on the Form # link. A link will open the Material's FTP Forms Site.

Single left mouse click on the Form # in the format needed. The form in the .xls format will appear in a box at the bottom of the screen. Click on the box to open or save .xls file.

A .pdf file will open in another window in the format selected.

The Excel Forms are fillable and have calculations built into them.

WYOMING DEPARTMENT OF TRANSPORTATION  
MATERIALS TESTING MANUAL  
FORMS

Last Revised	Form #	Form TITLE
02-12	E-45	Concrete Mix Design
02-12	E-46	Hot Plant Mix Job Mix Formula
02-12	E-45A	Hot Plant Mix Job Mix Formula (Non-QCQA)
02-12	E-46A	Asphalt And Lume Report
02-12	E-221	Pay Adjustment For Performance Graded Asphalt Binder
02-12	E-1061	Pay Adjustment For Hot Poured Elastic Sealant
02-12	E-222	Pay Adjustment For Cutback Asphalt
02-12	E-1062	Pay Adjustment For Emulsified Asphalt
02-12	E-223	Pay Adjustment For Hot Poured Crack Surfacing
01-13	E-224	Pay Adjustment For Pavement Density (Created in the M&S Module)
01-13	E-225	Pay Adjustment For Aggregate Gradation (Created in the M&S Module)
02-12	E-226	Pay Adjustment For Asphalt Content (Created in the M&S Module)
02-12	E-229	Pay Adjustment For Structural Concrete
02-12	Form E-221	Forms Pending Final Design
02-12	Q10-Q17	Forms Pending Final Design
XPMS Preliminary Testing Calculations:		
Q10 - Asphalt Pavement Cores		
Q11 - Virgin Aggregate Gradations		
Q12 - Millfed Reclaimed Asphalt Pavement		
Q13 - Mix Design Batch Sheet		
Q14 - Virgin Bin Spins		
Q15 - Narrow Band Limits (NMF)		
Q16 - Virgin Aggregate Batch Sheet		
Q17 - Rag Batch Sheet		
02-12	T-100B	Report Of Tests On Concrete Aggregate
02-12	T-100C	Portland Cement Concrete Pavement Mix Design
02-12	T-100D	Structural Concrete Pavement Mix Design
02-12	T-101	Report Of Field Tests On Concrete Aggregate
02-12	T-102	Report Of Field Tests On Surfacing Materials
02-12	T-103	Report Of Test On Aggregate
02-12	T-104	Asphalt Binder - Pavement Density Report
02-12	T-105	Soil And Base Course Density Report
02-12	T-106	Concrete Paving Report
02-12	T-107	Soil Compaction Worksheet
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E-101 Daily Traffic Control Device Record Form Rev: 11-13.pdf	217 KB	11/18/13 12:00:00 AM
E-109 Current Work Affidavit Rev: 10-13.pdf	148 KB	10/21/13 12:00:00 AM
E-106 Haul Road Agreement.pdf	110 KB	8/23/12 12:00:00 AM
E-109 P&I Release Statement.pdf	28.9 KB	8/23/12 12:00:00 AM
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E-115A Water Agreement.pdf	105 KB	8/23/12 12:00:00 AM
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E-127 Surfacing Summary.pdf	61.5 KB	8/23/12 12:00:00 AM
E-132 Work Directive.pdf	4.1 KB	8/23/12 12:00:00 AM
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E-140 Completion Report.pdf	64.8 KB	8/23/12 12:00:00 AM
E-140A Under/Overload Certification Report.pdf	11.7 KB	8/23/12 12:00:00 AM
E-140B Architectural Contract Certification Report.pdf	93.3 KB	8/23/12 12:00:00 AM
E-141 Cooperative Agreement Request.pdf	31.2 KB	8/23/12 12:00:00 AM
E-15 Environmental Impact Evaluation Form.pdf	596 KB	8/23/12 12:00:00 AM
E-18 Suppliers Quote for Adjustment.pdf	6.9 KB	8/23/12 12:00:00 AM
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E-221Blank.xlsx	41.0 KB	10/3/14 10:27:00 AM
E-221Blank.xlsx	45.1 KB	10/3/14 10:27:00 AM
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E-40 Supplemental Payroll Letter.pdf	4.9 KB	8/23/12 12:00:00 AM
E-43 Bulletin Board Check List For Federal Aid Projects Rev: 10-13.pdf	537 KB	11/18/13 12:00:00 AM

WYOMING DEPARTMENT OF TRANSPORTATION  
PAY ADJUSTMENT FOR PERFORMANCE GRADED ASPHALT BINDER

Project No: \_\_\_\_\_ Engineer: \_\_\_\_\_

PGAB Grade: \_\_\_\_\_ Project Location: \_\_\_\_\_

SHEET \_\_\_\_\_ OF \_\_\_\_\_

DATE RECEIVED	REVISIONS	DATE	DESCRIPTION	LAB TEST REPORT	CONTRACTOR'S SIGNATURE	DATE	CONTRACTOR'S SIGNATURE	CONTRACTOR'S SIGNATURE	DATE	CONTRACTOR'S SIGNATURE	PAY ADJUSTMENT	REMARKS
SHEET TOTAL												
PREVIOUS TOTAL												
TOTAL TO DATE												

Submitted By: \_\_\_\_\_