|  |  |  |
| --- | --- | --- |
|  |  | **Field / Lab Gradations** |
|  | I.D. Number(1) |  |
|  |  |  |  |  |  |  |  |  |  |  |
| Inspector No.(2) |       |  | Inspector Name(3) |       |  | Date Sampled(4) |       | Seq. No.(5) |       |  |
|  |  |  |  |  |  |  |  |  |  |  |
| Mix Plant No.(6) |       |  | Mix Plant Name(7) |       |  | \*Contract No.(8) |       |  | \*Job No.(9) |       |
|  |  |  |  |  |  |  |  |  |  |  |
| Responsible Loc.(10) |     |  | Lab(11) |    |  | Lab Name(12) |       |  | Source Name(13) |       |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Source(14) | Mat. Code #(15) | Type Test(16) | Orig. I.D. #(17) | Insp. Qty(18). | Spec.(19) | Article(20) | Sampled From(21) | **W**ash/**D**ry(22) |
|       |       |     |       |       |       |       |       |   |

**(23)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| CAFA | 75 (3) or6.3 (1/4) | 63 (2.5) | 50 (2)25 (1) | 45 (1.75)9.5 (3/8) | 37.5 (1.5)4.75 (4) | 25 (1)2.36 (8) | 19 (3/4)2 (10) | 16 (5/8)1.18 (16) | 12.5 (1/2)0.6 (30) | 9.5 (3/8)0.425 (40) | 4.75 (4)0.3 (50) | 2.36 (8) | 1.18 (16)0.18 (80) | 0.6 (30) | 0.3 (50)0.15 (100) | 0.15 (100) | .075 (200).075 (200) |
|  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |
| Wash - 0.075(24) |      | PI Ratio(25) |      | Test Results(26) |      | Remarks(27) |       |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Sieve | Indiv. Wt. | Cumul. Wt. | Cumul. % | Percent % | Spec. Range |  | **Sampled From Codes** |
| CA | FA | Retained(28) | Retained(29) | Retained(30) | Passing(31) | % Passing(32) |  | BR | Barge | RD | Road |
| 63 (2.5) |  |       |       |       |       |       |  | BE | Belt Stream | SI | Silo/Bin |
| 50 (2) | 25 (1) |       |       |       |       |       |  | CF | Cold Feed | SP | Stockpile |
| 45 (1.75) | 9.5 (3/8) |       |       |       |       |       |  | HB | Hot Bin | TD | Truck Dump |
| 37.5 (1.5) | 4.75 (#4) |       |       |       |       |       |  | OB | On Belt (Stopped) | TK | Truck |
| 25 (1) | 2.36 (#8) |       |       |       |       |       |  | PR | Production | WB | Weigh Belt |
| 19 (3/4) | 2 (#10) |       |       |       |       |       |  | CR | Rail Car |  |  |
| 16 (5/8) | 1.18 (#16) |       |       |       |       |       |  |  |  |  |  |  |  |
| 12.5 (1/2) | 0.6 (#30) |       |       |       |       |       |  |  | 0.075 |  |  |  | (Mix Plant Only) |
| 9.5 (3/8) | 0.425 (#40) |       |       |       |       |       |  |  | (37)0.425 |  |       |  |  |
| 6.3 (1/4) |  |       |       |       |       |       |  | Lot(38) |       |  |
| 4.75 (#4) | 0.3 (#50) |       |       |       |       |       |  | Bin(39) |       |  |
| 2.36 (#8) |  |       |       |       |       |       |  |  |  |  |
| 1.18 (#16) | 0.18 (#80) |       |       |       |       |       |
| 0.6 (#30) |  |       |       |       |       |       |  |  |  |  |  |
| 0.425 (#40) |  |       |       |       |       |       | Copies(40): |       |  | Tester(41) |       |
| 0.3 (#50) | 0.15 (#100) |       |       |       |       |       |  |       |  |  |  |
| 0.15 (#100) |  |       |       |       |       |       |  |       |  | Agency(42) |       |
| 0.075 (#200) | 0.075 (#200) |       |       |       |       |       |  |  |  |  |  |
| Pan |       |       |  |  |
| Total Dry Wt.(33) |       |  |  |  | MISTIC INPUT |  |  |
| Total Washed Wt.(34) |       |  |  |  | Date Entered(43) |  |  |
| Diff. -0.075(-200)(35) |       | % Washed - 0.075(36) |       |  | Initials(44) |  |  |  |
|  |  |  |  |  |  |  |  |  /FOR DTY03504 |

This form has instructions hidden in red. To view the hidden text, the “hidden text” option must be on. Select the Office button (upper left corner of your screen), select “Print”, select “Options” (lower left corner of the dialog box), select “Hidden text” (under the “Always show these formatting marks on screen” heading) and select “OK”. “Close” out of the print menu to view only. To print the hidden test, select “Print hidden text” (under the “Printing options” heading) and select “OK”.

 **FIELD/LAB GRADATIONS**

**INSTRUCTIONS**

**BMPR MI504**

1. **I.D. NUMBER:** MISTIC test identification number. Leave blank because the MISTIC system will generate the test identification number.

2. **INSPECTOR NO.:** Identify the individual who took the sample. For split samples, the same inspector number should be used for both halves of the sample.

 a) IDOT personnel enter their MISTIC inspector number.

 b) Contractor, Subcontractor and Producer personnel enter a “9”, followed by the District number and seven zeroes (0’s).
Example: 960000000 for District 6.

 c) Consultant personnel enter their company’s MISTIC inspector number.

 d) Local agency personnel enter a “9”; followed by the District number, which is repeated until field is filled.
Example: 966666666 for District 6 local agency.

3. **INSPECTOR NAME:** Enter the name of the inspector who took the sample.

4. **DATE SAMPLED:** Enter the date the sample was taken as month, day, and year in mmddyy format. Example: 103112

5. **SEQ. NO.:** Sequence number. Enter any combination of letters and/or numbers up to 6 characters in length. It is used to differentiate multiple samples of the same gradation, taken on the same day. For a split sample, both halves of the split shall have “**SPLIT**” in this field.

6. **MIX PLANT NO.:** Enter the MISTIC code number for the Concrete or Hot Mix Asphalt Producer. Only one plant may be shown on one report.

7. **MIX PLANT NAME:** Enter the name of mix plant.

8. **CONTRACT NO.:** Leave blank unless the gradation has been sampled at a jobsite for a specific contract. Enter the 5 digit contract number. If it is a local agency contract without a 5 digit number, then enter the 16 or 17 character MFT (Motor Fuel Tax) contract number.

9. **JOB NO.:** Leave blank unless gradation sampled at the jobsite for a specific contract. Enter the 8 character number that corresponds with the 5 digit contract number. If the contract number is not 5 digits, leave this field blank.

10. **RESPONSIBLE LOC.:** Enter the District identification number as a “9” followed by the District number. Example: 96 for District 6

11. **LAB:** Enter the 2 letter MISTIC lab code.

Laboratory Locations MISTIC Lab Codes

Producer Plant Site Laboratory PP

Producer NonPlant Site Laboratory PL

Producer Construction Site PC

Producer Quarry Laboratory PQ

Independent Plant Site Laboratory IP

Independent NonPlant Site Laboratory IL

Independent Construction Site IC

Independent Quarry Laboratory IQ

Independent Laboratory IN

IDOT/Local Agency Plant Site Laboratory FP

IDOT/Local Agency Construction Site FC

IDOT/Local Agency Quarry Laboratory FQ

District Laboratory DI

District Satellite Laboratory DS

NOTE**:** A Contractor, Subcontractor, and Producer are to use one of the “Producer” lab codes.

An IDOT Consultant, Contractor Consultant, Subcontractor Consultant, and Producer Consultant are to use one of the “Independent” lab codes.

12. **LAB NAME:** Enter the name of the company which cannot exceed 20 characters.

13. **SOURCE NAME:** Enter the name of the aggregate producer.

14. **SOURCE:** Enter the MISTIC code number of the aggregate producer.

 Example: 50912-02

15. **MAT. CODE # :** Material code for the aggregate product. Enter the 8 to 10 character code number of the material being tested.

 The following information will help you determine if you have the correct material code number.

 • The first space is a “0” to indicate the material is an aggregate.

 • The second space indicates the QUALITY LEVEL of the aggregate. Concrete coarse and fine aggregates are always “A” quality. Cement aggregate mixture II coarse aggregate is “D” quality “stabilized,” and fine aggregate is “A” quality. Controlled low-strength material fine aggregate is “A” quality, unless alternate fine aggregate materials are used. Hot mix asphalt surface coarse and fine aggregates are generally “B” quality. Hot mix asphalt binder coarse aggregates are generally ”C” quality and fine aggregates are “B” quality. (see below).

 • The third space indicates the Type of Material (see below).

 • The fourth space indicates the Aggregate Type (see below).

 • The fifth space indicates the Specification of the aggregate (see below).

 • The sixth space may be a “M” to indicate **Metric**.

 • The seventh and eighth spaces are the Gradation Number of the aggregate. See Articles 1003.01(c) and 1004.01(c) of the Standard Specifications.

 • The ninth and tenth spaces indicate superstructure quality aggregate for concrete use. Always enter “01” if testing superstructure quality aggregate.

 **QUALITY LEVEL** **TYPE OF MATERIAL** **AGGREGATE TYPE**

 0 & 1 Have No Quality 0 = Gravel C = Coarse Aggregate

 2 = A Quality 1 = Crushed Gravel F = Fine Aggregate

 3 = B Quality 2 = Crushed Stone

 4 = C Quality 3 = ACBF Slag

 5 = D Quality 5 = Recycled

 6 = D Quality Stabilized 7 = Natural Sand

 8 = Stone Sand

 9 = Special Aggregate

 **SPECIFICATION**

 A = Standard Specification

 M = Modified or QC/QA Specification

16. **TYPE INSP:** Type of inspection (see below). For additional information see Attachment 4 in the Project Procedures Guide.

 **AGENCY** **QC/QA** **NON QC/QA**

 Contractor/Producer/

 Consultant PRO -----

 IDOT/Consultant

 at Aggregate Source IND (split), INV PRO

 IDOT/Consultant

 at Mix Plant IND (split), INV IND (split-share), INV

17. **ORIG. I.D. #:** Original identification number. Use for resample tests only. Enter the original MISTIC test identification number of the failing test.

18. **INSP. QTY.:** Inspected Quantity. Leave blank. IDOT personnel may enter the quantity that is represented by the gradation test but it is not required.

19. **SPEC.:** Specification. Leave blank. IDOT aggregate personnel should enter the master band ranges under a “PRE” test at the beginning of each production season.

 Example: MB2036

20. **ARTICLE:** Leave blank. IDOT aggregate personnel should enter the warning band ranges under a “PRE” test at the beginning of each production season.

 Example: WB2234

21. **SAMPLED FROM:** Enter the 2 character designation in the first two spaces. Refer to “Sampled From Codes” box, which is on the form.

22. **WASH/DRY:** Enter a “W” for a washed gradation, or “D” for a dry gradation.

23. **GRADATION RESULTS INPUT TABLE:** Enter the percent passing test results, “percent % passing”, from the calculation table for all sieves. All test results shall be reported to the nearest 1%, except for the 0.075 mm (or 75µm) sieve, which shall be reported to the nearest 0.1%.

24. **WASH - 0.075:** Enter the washed minus .075 mm value from the calculation table to the nearest 0.1%.

25. **PI RATIO:** Plasticity index ratio. Leave blank. IDOT personnel, when appropriate, should enter the PI ratio value.

26. **TEST RESULTS:** Enter “APPR” for results meeting specifications or “FAIL” for failure to meet specifications. Show under “Remarks” action taken for samples not meeting specifications. For example, retest, checked equipment, test method incorrect, will monitor.

27. **REMARKS:** This space should be used to record any comments about the aggregates, or the stockpiling and handling methods used.

 For “IND” inspection, a comparison remark is required, because the assurance test is from a split sample. For an acceptable comparison, enter the following:

 • Enter “C” when tests compare within acceptable limits of precision.

 • Enter date of comparison.

 • Enter initials for “IND” inspector.

 • If the sample was witnessed by the “IND” inspector, indicate as “ws.”

 • Example: C - 100197 TCS ws.

 For an unacceptable comparison, enter the following:

 • Enter “X” when tests do not compare within acceptable limits of precision.

 • Enter date of comparison.

 • Enter initials for “IND” inspector.

 • If the sample was witnessed by the “IND” inspector, indicate as “ws.”

 • Explain reason for unacceptable comparison.

 • Examples are: Producer obtained sample incorrectly; IDOT equipment required repair; Producer performed test method incorrectly; problem was not identified, will investigate further if problem continues.

 • Example: X - 100297 TCS ws Producer performed test method incorrectly.

28. **INDIV. WT. RETAINED:** Enter the weight of aggregate on each sieve individually, starting with the largest sieve first. Weigh coarse aggregate to the nearest 1 gram, and fine aggregate to the nearest 0.1 gram. If the sieve was overloaded and split into two or more portions to hand sieve, then write a “S” outside the table on that row (right or left side).

29. **CUMUL. WT. RETAINED:** Cumulative Weight Retained. Add the weight on each sieve, to the weight on any larger sieve(s), and enter that value.

30. **CUMUL. % RETAINED:** Cumulative Percent Retained. Divide the cumulative weight retained by the total dry weight, and multiply by 100, for each sieve. Round to the nearest 0.1%, and enter that value.

31. **PERCENT % PASSING:** Subtract the cumulative percent retained, from 100, for each sieve. Record to nearest 0.1%, and enter that value.

32. **SPEC. RANGE % PASSING:** Enter the specification range for all appropriate sieves. These may be from a Standard Specification, a modified Standard Specification, or a master band limit.

33. **TOTAL DRY WT.:** Enter the weight of the sample after it has been dried to a constant weight. Weigh coarse aggregate to the nearest 1 gram, and fine aggregate to the nearest 0.1 gram.

34. **TOTAL WASHED WT.:** Enter the weight of the sample after it has been washed, and dried back to a constant weight. Weigh coarse aggregate to the nearest 1 gram, and fine aggregate to the nearest 0.1 gram.

35. **DIFF. -0.075 (-200):** Subtract total washed weight from the total dry weight, and enter that value

36. **% WASHED -0.075:** Divide the “Diff. - 0.075” by the “Total Dry Wt.” and multiply by 100. Round to the nearest 0.1%, and enter that value.

37. **0.075 / 0.425:** Leave blank. IDOT personnel , when appropriate, enter the ratio of the percent passing the .075 mm (#200) sieve and the .425 mm (#40) sieve.

38. **LOT:** Leave blank. IDOT mix plant personnel use if performing individual hot bin “IND” tests. Enter the lot corresponding to the Daily Plant Output (MI 305). Also, enter this in the remarks.

39. **BIN:** Leave blank. IDOT mix plant personnel use if performing individual hot bin “IND” tests. Enter the appropriate hot bin number. Also, enter this in remarks.

40. **COPIES:** Enter the distribution of this report. The normal distribution for mix plant results is the **original** goes to the District Materials Engineer, a copy goes to the Resident Engineer(s), and a copy goes to the QC Manager(s). The distribution for aggregate source tests is the original goes to the District Materials Engineer and a copy goes to the source’s QC manager. Non-QC/QA - Same as above, except that the file copy stays with the tester or the individual who completed the report.

41. **TESTER:** Print the name of the individual who tested the aggregate. The individual’s signature is also required. If the test is run by a Gradation Technician, then the supervisor should sign here also.

42. **AGENCY:** Enter the tester’s employer.

43. **DATE ENTERED:** Leave blank. IDOT will enter the date the results are entered into MISTIC as month, day and year in mmddyy format.

44. **INITIALS:** Leave blank. IDOT will enter initials of the person entering the test results into MISTIC.