



IDOT Policy and Testing Procedures

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Illinois Department of Transportation

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IDOT Aggregate Policy & Specifications

Quality Aggregates Make Quality Roads

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Illinois Department of Transportation

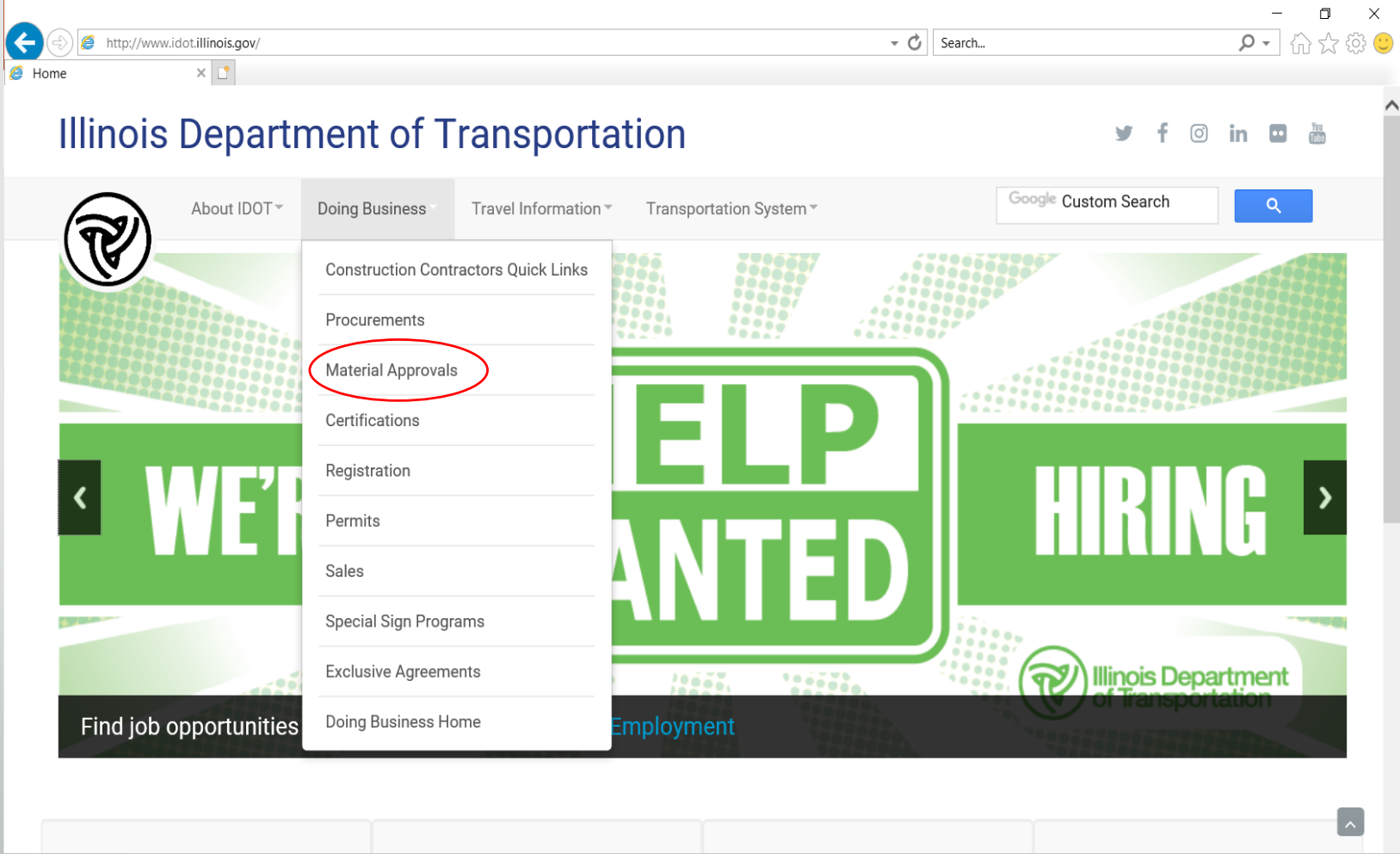
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- Construction Contractors Quick Links
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Producer/Supplier Approval

Producer/Suppliers interested in providing materials to be used in IDOT construction projects must obtain approval from IDOT. Please navigate to the [Producer/Supplier Approval](#) page to learn more.



Experimental Features

Generally, an [Experimental Feature](#) is defined as a material, process, method, equipment item, traffic operational device, or other feature which: (1) has not yet been sufficiently tested under actual field and operational conditions to merit acceptance without reservations in normal highway construction; or (2) has been accepted, but needs to be compared with alternative acceptable features to determine relative merits and cost effectiveness.



Approved Testing Laboratories

There are approximately 25 external laboratories approved to conduct tests on behalf of IDOT. To become an approved lab please gain consultant prequalification/approval through the [Consultant Prequalification](#) process, for assistance contact Mark Gawedzinski at (217) 782-2799.



IDOT Material Labs


To ensure that quality materials are used in highway projects, IDOT maintains a system of sampling, testing, documentation, and reporting of test results. This section supplies the required forms, manuals and guides needed to comply with agency policies, and specifications and also houses qualified products lists by material laboratory. To learn more please select the appropriate lab:

- [Aggregate](#)
- [Analytical Chemistry](#)
- [Bituminous Chemistry](#)
- [Prequalified Structural Systems](#)
- [Cement](#)
- [Concrete](#)
- [Hot Mix Asphalt](#)
- [Metals & Miscellaneous](#)
- [Precast/Prestress](#)
- [Soils](#)



Aggregate

Various tests, including quality, freeze-thaw, and alkali-silica reactivity (ASR) are performed on aggregates used for road and bridge construction in Illinois. These tests quantify the physical characteristics of each aggregate product from each source. Development and evaluation of all statewide aggregate related policies, procedures and specifications are continually modified to keep them current with new technologies and test procedures. Aggregates focuses on: natural sands, gravels, crushed gravels, crushed stone, steel slag, air cooled blast furnace (ACBF) slag, recycled crushed concrete, rip rap, reclaimed asphalt pavement (RAP) used as aggregate.



Qualified Product Lists Procedures Forms References Training Contact Us

Qualified Product List

Clicking a hot link below will take you directly to the qualified list for the material/product referenced in the title.

- [Complete Index of Lists](#)
- [Aggregate Freeze Thaw Rating](#)
- [Aggregate Specific Gravity \(Gsb\)](#)
- [Agricultural Limestone Booklet](#) (Maintained by Department of Agriculture)
- [Alkali-Silica Potential Reactivity Rating](#)
- [Approved Aggregate Sources](#)

Aggregate

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- Qualified Product Lists
- Procedures**
- Forms
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Procedures

Below you will find information regarding the process and how to get materials approved.

Policy Memorandums


Clicking a hot link below will take you directly to the policy memorandum with specific information explaining the process to become a producer/supplier for the material listed in the title.

- [Complete List of Policy Memorandums](#)
- [Aggregate Gradation Control System \(AGCS\)](#)
- [Construction and Demolition Debris Sand as a Fine Aggregate for Trench Backfill](#)
- [Crushed Gravel Producer Self-Testing Program](#)
- [Crushed Slag Producer Certification and Self-Testing Program](#)
- [Designation of Aggregate Information on Shipping Tickets](#)
- [Inspection of Large Sized Aggregate and Rip Rap used for Erosion Protection, Sediment Control, Rockfill, and Aggregate Subgrade Improvement](#)
- [Minimum Private Laboratory Requirements for Construction Materials Testing or Mix Design](#)
- [Reclaimed Asphalt Pavement \(RAP\) for Aggregate Applications](#)
- [Recycling Portland Cement Concrete Into Aggregate](#)
- [Slag Producer Self-Testing Program](#)
- [Use of Non-Certified Aggregate Stockpiles Under the AGCS](#)

Laboratory/Field Test Procedures

Aggregate








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Qualified Product Lists Procedures **Forms** References Training Contact Us

Forms

Clicking a hot link below will take you directly to the form listed in the title. These forms are provided as tools to ensure that the correct data is supplied to IDOT when submitting samples.

- [Aggregate Producer Certification Letter BMPR AGG06](#) 
- [Aggregate Shipping Tickets Form for Producers BMPR AGG01](#) 
- [Aggregate Shipping Tickets Form for Suppliers and Terminals BMPR AGG02](#) 
- [Aglime Submittal Form BMPR AGG03](#) 
- [Application for Aggregate Gradation Technician Course BMPR AGG04](#) 
- [Field/Lab Gradations BMPR MI504](#) 
- [Witness Verification of Aggregate Gradation Technician Course BMPR AGG05](#) 

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References

Below are reference materials to assist in getting materials approved and IDOT guidelines.

Guides/Spreadsheets

The following documents are provided as a tool to assist with identifying materials and/or ensuring that correct data is supplied to IDOT.

- [QC/QA Package Downloads](#)

Stay Connected and subscribe for updates:

- Subscribe subscribe-dot-qcqaupdates@lists.illinois.gov
- Unsubscribe unsubscribe-dot-qcqaupdates@lists.illinois.gov

Testing for Quality

- Quality Approval
 - Series of 6 samples for initial approval
 - Annual Samples
- Failing Samples
 - 2 Resamples taken - spaced apart
 - 2 Samples taken for Annual Quality the following year
- Borderline Results
 - Resample taken

Borderline Criteria – Coarse Aggregate

Borderline Criteria for Coarse Aggregate

	“A” Quality	“B” Quality	“C” Quality	“D” Quality
Soundness	13.5 to 15.4	13.5 to 15.4	18.5 to 20.4	23.5 to 25.4

Abrasion	38.5 to 40.4	38.5 to 40.4	38.5 to 40.4	43.5 to 45.4
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Deleterious Count	Shale	Clay Lumps	Coal & Lignite	Soft & Unsound	Other Del.	Total Del.
“A+” Quality						1.8 to 2.4
“A” Quality	0.8 to 1.0	0.20 to 0.25	0.20 to 0.25	3.5 to 4.0	3.5 to 4.0	4.0 to 5.0
“B” Quality	1.5 to 2.0	0.45 to 0.50		5.0 to 6.0	1.5 to 2.0	5.0 to 6.0
“C” Quality	3.5 to 4.0	0.45 to 0.50		7.0 to 8.0	1.5 to 2.0	9.0 to 10.0

Borderline Criteria – Fine Aggregate

Borderline Criteria for Fine Aggregate

	"A" Quality	"B" Quality	"C" Quality
Soundness	8.5 to 10.4	13.5 to 15.4	18.5 to 20.4

Deleterious Count	Shale	Clay Lumps	Coal, Lignite & Shells	Conglomerate	Other Del.	Total Del.
"A" Quality	2.5 to 3.0	0.8 to 1.0	0.8 to 1.0	2.5 to 3.0	2.5 to 3.0	2.5 to 3.0
"B" Quality	2.5 to 3.0	2.5 to 3.0	2.5 to 3.0	2.5 to 3.0	2.5 to 3.0	4.0 to 5.0

Specific Gravity (Gsb)

- Aggregates Used in a Mix (HMA or PCC)
 - A minimum of three Gsb samples to be taken annually from each production ledge as applicable
 - Specific Gravity results from an Annual Quality applies
 - Production of at least 10,000 tons of material between each “Gravity Only” sample

Specific Gravity List

- (District 1) – Average of results from previous 3 years
- (Districts 2-9) – Average of results from previous 5 years
- Cutoff date for sample submittal is September 30th
- Anything sampled after September 30th will not appear on the new list

Specific Gravity – Slag Producers

- Slag Producers Self Testing Program
 - Fine & Coarse Aggregate
 - 1 per 2,000 tons
- Must have split sample taken with IDOT every 20 production days
- Call your District for Specific Gravity results
 - Gsb Average not on Annual Specific Gravity List

Freeze Thaw - Sampling

- New Production Ledges
 - Full series of 5 samples must be completed before production method is approved
- A full Quality Series of 6 samples must be completed before the first Freeze Thaw is sampled
 - The first Freeze Thaw sample may be tested with the 6th sample of a Quality Series if there are no borderline results.

Freeze Thaw – Failing Samples

- Failing results of a previously approved Freeze Thaw material
 - A Resample is taken immediately
 - Material shall not be sold as Freeze Thaw until the resample passes
 - If the Resample Fails – the failing production method is rejected
 - If the Resample Passes – the material is approved for Freeze Thaw
 - Increased sampling shall be done the following year

Freeze Thaw – List

- 20 Year Freeze Thaw List - Expansion ≤ 0.060
- 30 Year Freeze Thaw List - Expansion ≤ 0.040
 - Updated weekly unless there are no test results reported
 - Lists are found on the IDOT Website
 - Doing Business → Materials Approval → Aggregates

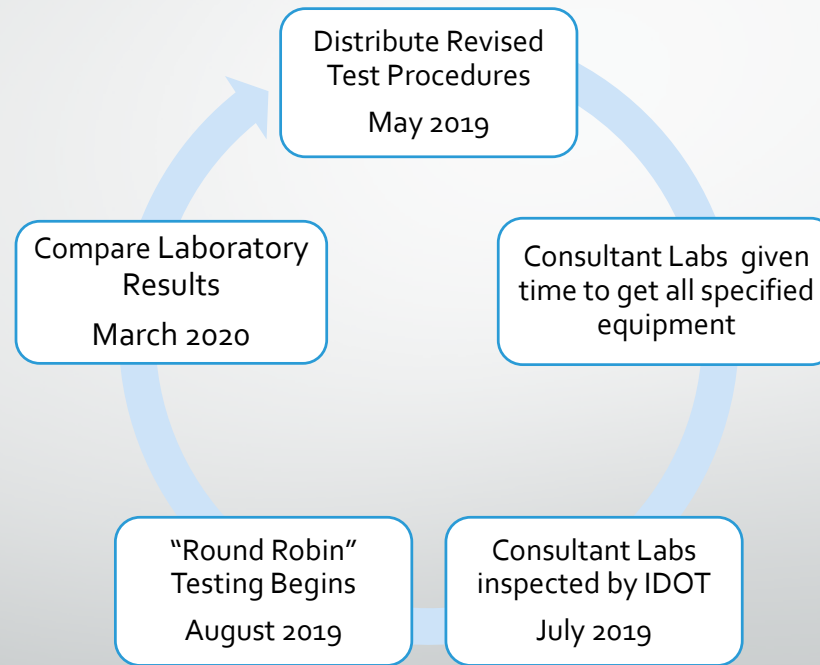
Alkali Silica Reactivity (ASR) ASTM C1260 & C1293

- Samples are currently backlogged
 - Approximate 2 month backlog
- Resamples take priority
- ASTM C1293 (Year Long Test)
 - Results are good for 2 Years

ASR Rating List

- Updated weekly unless there are no testing results
- Rating
 - A = Expansion of ≤ 0.16
 - B = Expansion of 0.17 to 0.27
 - C = Expansion of ≥ 0.28
- Lists are found on the IDOT Website
 - Doing Business → Materials Approval → Aggregates

MSE Wall Testing



MSE Wall Testing

- “Round Robin” Testing Completed as of February 2020
 - Consisted of 5 different aggregates (2 Coarse and 3 Fine Graded)
 - Each material was tested 5 times to demonstrate repeatability
 - 2 Coarse Aggregates
 - Materials was crushed and sent to other 2 labs
 - To show correlation of crushed material results

MSE Wall Testing

- Initial analysis shows better correlation between laboratories
- Some Reporting Errors
- Acceptable Range for Resistivity Results

Micro-Surfacing Gradations

- CA21 & CA22 have been replaced by FA23 & FA24 respectively
- The Gradation Limits remain the same
- Quality Series of 3 samples
 - If CA21 or CA22 was already tested and/or approved for quality test results will be transferred to FA23 & FA24

FINE AGGREGATE GRADATIONS											
Grad No.	Sieve Size and Percent Passing										
	3/8	No. 4	No. 8 ^{4/}	No. 10	No. 16	No. 30 ^{5/}	No. 40	No. 50	No. 80	No. 100	No. 200 ^{1/}
FA 23	100	80±10	57±13		39±11	26±8		18±7		12±6	10±5
FA 24	100	95±5	77±13		57±13	35±10		19±6		15±6	10±5



Questions?