



SECTION 1001

GENERAL REQUIREMENTS FOR MATERIAL

1001.1 All requirements of [Sec 106](#) will apply to material hereinafter specified. Material or processes requiring pre-qualification or pre-acceptance shall be in accordance with the applicable sections of these specifications. After approval, the material or process will be placed on either the qualified list or the pre-acceptance list (PAL) maintained on MoDOT's web site by Construction and Materials. The contractor shall select materials or processes from the appropriate list for use in MoDOT work. Final acceptance may be based on field inspection.

1001.2 All packaged material shall be plainly marked showing the quantity and nature of the contents and shall be delivered intact.

1001.3 A description of the classification of deleterious material may be found in MoDOT's Materials Manual on MoDOT's web site.

1001.4 Chat will be defined as aggregate tailings from mills in which metallic minerals have been recovered.

1001.5 Crushed stone will be defined as the product obtained by the artificial reduction in the size of rock that has been mined or excavated from ledge formation. Chat as defined in [Sec 1001.4](#) is not included.

1001.6 Gravel will be defined as the coarse granular material, generally considered as material retained on the No. 4 or No. 10 (4.75 mm or 2.00 mm) sieve, but may include finer sizes, resulting from the natural disintegration and abrasion of rock, or from processing of weakly bound conglomerate. Gravel may include such material that has been further reduced in size by artificial means.

1001.7 Porphyry will be defined as a fine-grained, dense, igneous rock generally occurring in the Missouri counties of Iron, Madison, St. Francois and their adjacent counties.

1001.8 Wet bottom boiler slag will be defined as a hard, angular by-product of the combustion of coal in wet bottom boilers.

1001.9 Sieves specified for gradation requirements shall have openings as prescribed in AASHTO M 92.

1001.10 Storage and Handling of Aggregate. Aggregate shall be produced, handled and stockpiled to minimize segregation, degradation and contamination. Regardless of the method of storage and handling, all aggregate that is segregated, degraded or contaminated to the extent that the aggregate does not meet specifications, will be considered unacceptable. Aggregate may be reconditioned by any method that produces satisfactory material.

1001.11 Approval of Aggregate Sources. All sources of aggregate shall be evaluated by the engineer for initial approval and source approval as herein prescribed, prior to acceptance of aggregate from that source.

1001.11.1 Sources of crushed stone shall be evaluated for initial approval on a ledge by ledge basis. Each exposed ledge will be identified, and the engineer will describe the ledge boundaries. Only identified ledges shall be used in the manufacture of the final product. A sample for initial approval will be required from each ledge. Resampling will be required if source approvals indicate a significant change has occurred.

1001.11.2 Source approvals will be required a minimum of every year. Source approval samples will be required for each unique combination of ledges. Resampling will be required at closer intervals if, in the judgment of the engineer, any significant change has occurred to the source. Samples of aggregate for source approval shall be taken while the engineer is present.

1001.11.3 Sources approval of natural sand, gravel and manufactured lightweight aggregate shall be evaluated as the final product .

1001.11.4 Sources of aggregate such as chat, slag and other by-products from previously produced material or any other undefined sources will be evaluated on an individual basis.

1001.12 Mining By-Product Aggregate. Aggregate produced as a by-product from lead or zinc mining operations may be furnished under the following requirements. No blending or dilution of this aggregate with other material will be allowed in order to meet these specifications.

1001.12.1 The supplier shall separate out all aggregate to be furnished into individual stockpiles not exceeding 5000 cubic yards (4000 m³) each. No material will be accepted that has not been moved at least once to a stockpile area specifically for this purpose. The supplier shall randomly sample each stockpile by combining several small samples from the pile into one sample. The sample shall be tested by an approved laboratory for the required lead tests specified in [Sec 1001.12.2](#). A minimum of one set of tests shall be performed for each individual stockpile.

1001.12.2 For aggregate not encapsulated in asphalt or Portland cement mixtures and delivered to MoDOT construction projects or property, the concentration of leachable lead in the aggregate as determined by Method 1311, *Toxicity Characteristics Leaching Procedures (TCLP)*, 40 CFR 261, Appendix II, shall be less than 3.0 ppm, and the total lead content shall be less than 500 ppm as determined by EPA Method 3050A, *Acid Digestion of Sediments, Sludges, and Soils* (particle size reduced to 1 mm or less). For each individual aggregate meeting [Secs 1002, 1004 and 1005](#) which is encapsulated in asphalt or Portland cement mixtures and delivered to MoDOT construction projects or property, there will be no limit on the leachable lead, but the total lead content shall be less than 4500 ppm. No lead tests will be required and there will be no limits on leachable or total lead content for asphalt or Portland cement material milled from MoDOT projects and reprocessed into a mixture for re-use on MoDOT projects.

1001.12.3 Prior to any approval, shipment or use of this material, the supplier shall furnish to the engineer a report of the laboratory test results. The report shall specifically identify the stockpile, estimated quantity, location, date of sample, date of test and the specific test results for each lead test. Attached to the report shall be a certification from the supplier that the material furnished does not exceed the lead amounts specified. The supplier shall test as necessary beyond the requirements of this specification to ensure that this specification is met. All costs for setting the material aside for testing and for testing shall be borne by the supplier.

1001.13 Dust Suppressants. Approved dust suppressant additives may be used during the crushing or aggregate handling process provided there is no detrimental effect to the aggregate or subsequent products made from the affected aggregate.

1001.13.1 Manufacturer and Brand Name Approval. Prior to approval and use of a dust suppressant additive, the manufacturer shall submit to Construction and Materials a certified test report from an approved independent testing laboratory showing specific test results when tested in accordance with MoDOT Test Method TM 62. The certified test report shall contain the manufacturer's name, brand name of material, date tested, date of manufacture and dosage rate of the additive used. In addition, the manufacturer shall submit to Construction and Materials a sample representing the additive tested by the independent testing laboratory and accompanied by a material data sheet, an MSDS showing the brand name, composition or description of the product, the normal and maximum recommended dosage rates, the manner of identification on containers and a copy of the infrared spectrum. The manufacturer shall certify that the material, when used at or below the maximum dosage rate, does not affect the properties of the aggregate or subsequent products made from the treated aggregate. The manufacturer shall also guarantee that as long as the material is furnished under that brand and designation, the material will be of the same composition as originally approved and will in no way be altered or changed. Upon approval of the additive, the manufacturer and brand name will be placed on a list of qualified dust suppressant additives for aggregate.

1001.13.2 The aggregate supplier shall keep the inspector advised of the use of any dust suppressant material and shall provide for the inspection of such facilities. No dust suppressant shall be applied above the manufacturer's maximum recommended rate.