DRAFT TANZANIA STANDARD

Standard Specification for Fine Aggregate for Asphalt Paving Mixtures.

TANZANIA BUREAU OF STANDARDS

1st Edition

0 National Foreword

The Tanzania Bureau of standards is the statutory national standards body for Tanzania, established under the act.No.3 of 1975, amended by act.No.2 of 2009.

This draft Tanzania Standard is being prepared by BCDC 5 Roads Technical Committee under the supervision of the Building and Construction Divisional Standards committee (BCDC).

In the preparation of this draft Tanzania Standard assistance was derived from ***ASTM D1073-16 (reapproved 2022) Standard Specification for Fine Aggregate for Asphalt Paving Mixtures. published by American Society for Testing and Materials (ASTM).***

1 Scope

This test method covers the sieve analysis of mineral fillers used in asphalt paving mixtures.

1.1 This specification covers fine aggregate for use in asphalt paving mixtures.

1.2 This specification is intended to describe material from a single source. When material from two or more sources is to be blended to produce a grading to meet requirements in other specifications for asphalt paving mixtures, the grading requirements of Table 1 of this specification are not applicable.

NOTE 1—When obtaining materials from two or more sources that are to be blended to produce the final mix, it is recommended that the specifying or the ordering agency specify the alternative grading and blend ratios to be supplied.

2 Normative references

The following referenced documents are indispensable for application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ASTM Standards

C88/C88M Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate

C117 Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing

C125 Terminology Relating to Concrete and Concrete Aggregates

C136/C136M Test Method for Sieve Analysis of Fine and Coarse Aggregates

C294 Descriptive Nomenclature for Constituents of Concrete Aggregates

D8 Terminology Relating to Materials for Roads and Pavements

D75/D75M Practice for Sampling Aggregates

D3665 Practice for Random Sampling of Construction Materials

D4318 Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

3 Terminology

For definitions of terms used in this standard, see Terminology D8.

3.1 Definitions:

3.1.1 For defining aggregate types, see Descriptive Nomenclature C294, and Terminologies D8 and C125.

3.1.2 expanded shale, n; expanded clay, n; expanded slate, n; the product resulting from the expanding of selected materials (shale, clay, or slate) in a rotary kiln at temperatures over 1000 °C

4 Ordering Information

4.1 Orders for material under this specification shall include the following:

4.1.1 This specification designation including year,

4.1.2 Grading (6.2 and Table 1), or alternative grading designated by the purchaser,

4.1.3 Supplementary requirement for sulfate soundness, if required, including salt to be used (See Supplementary Requirement S1), and

4.1.4 Any exceptions or additions to this specification.

TABLE 1 Grading Requirements for Fine Aggregates

Sieve Size	Amounts Finer Than Each Laboratory Sieve (Square Openings), mass %				
	Grading No. 1	Grading No. 2	Grading No. 3	Grading No. 4	Grading No. 5
9.5 mm (⅜ in.)	100	....	....	100	100
4.75 mm (No. 4)	95 to 100	100	100	80 to 100	80 to 100
2.36 mm (No. 8)	70 to 100	75 to 100	95 to 100	65 to 100	65 to 100
1.18 mm (No. 16)	40 to 80	50 to 74	85 to 100	40 to 80	40 to 80
600 µm (No. 30)	20 to 65	28 to 52	65 to 90	20 to 65	20 to 65
300 µm (No. 50)	7 to 40	8 to 30	30 to 60	7 to 40	7 to 46
150 µm (No. 100)	2 to 20	0 to 12	5 to 25	2 to 20	2 to 30
75 µm (No. 200)	0 to 10	0 to 5	0 to 5	0 to 10	....

5 General Characteristics

Fine aggregate is aggregate passing the 9.5 mm sieve and almost entirely passing the 4.75 mm (No. 4) sieve. It shall consist of natural sand; or of manufactured fine aggregate from crushed stone, crushed blast-furnace slag, or crushed gravel; or crushed or uncrushed expanded shale, expanded clay, or expanded slate; or combinations thereof. It shall consist of hard, tough grains, free of injurious amounts of clay, loam, or other deleterious substances.

6 Physical Properties

6.1 To determine conformance to this specification, each value for grading (and sulfate soundness, when required) shall be rounded to the nearest 1 %, and each value for the plasticity index shall be rounded to the nearest 0.1 unit, both in accordance with the rounding-off method of Practice E29.

6.2 Grading—Grading of fine aggregate shall conform to the grading in Table 1 for the Grading Number specified in the order, or other grading designated by the purchaser.

6.3 Grading Variability Limits—For continuing shipments of fine aggregate from a given source, the fineness modulus shall not vary more than 0.25 from the base fineness modulus. The base fineness modulus shall be that value that is typical of the source, and shall be determined from previous tests, or if no previous tests exist, from the average of the fineness modulus values for the first ten samples (or all preceding samples if less than ten) on the order. The base fineness modulus shall not be changed except when approved by the purchaser.

N OTE 2—The proportioning of an asphalt mixture may be dependent on the fineness modulus of the fine aggregate to be used. Therefore, when it appears that the base fineness modulus is considerably different from the value used in the design of the asphalt mixture, a suitable adjustment in the mixture may be necessary.

6.4 Plasticity Index—The plasticity index of the fraction passing the 425 µm (No. 40) sieve shall not exceed 4.0.

7 Methods of Sampling and Testing

7.1 The aggregate shall be sampled and the properties enumerated in this specification shall be determined in accordance with the following ASTM methods:

7.1.1 Sampling—Practice D75/D75M,

7.1.2 Random Sampling—Practice D3665,

7.1.3 Grading—Test Method C136/C136M and Test Method C117, Procedure A,

7.1.4 Fineness Modulus—Test Method C136/C136M, and

7.1.5 Plasticity Index—Test Method D4318.