KANSAS DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION TO THE
STANDARD SPECIFICATIONS, EDITION 2007

SECTION 1103

AGGREGATES FOR HOT MIX ASPHALT (HMA)

Page 1100-11, replace subsection 1103.2a.(1)(e) with the following:

(e) Produce Crushed Steel Slag (CSSL) by crushing electric furnace steel slag. Some sources of steel slag are angular when produced and may be treated the same as crushed gravel and manufactured sand. Use steel slag with an Uncompacted Void Content of the Fine Aggregate "U" Value, determined by test method KT-50, of more than 42 and the Coarse Aggregate Angularity greater than the minimum specified value. The maximum allowable quantity of crushed steel slag is 50% of the total aggregate weight.

Page 1100-11, replace subsection 1103.2a.(1)(f) with the following:

(f) Manufactured sand shall have an Uncompacted Void Content of the Fine Aggregate "U" Value, determined by test method KT-50, greater than or equal to 42. Produce manufactured sand by crushing siliceous sand and gravel (designate as crushed gravel (CG-2, CG-3, etc) in the mix design), or by washing or screening crushed stone (designate as crushed stone (CS-2, CS-3, etc) in the mix design), or by washing or screening chat (designate as chat (CH-2, CH-3, etc) in the mix design).

Page 1100-11, replace subsection 1103.2a.(2)(b) with the following:

(b) Provide Natural Sand consisting of particles formed by the natural disintegration of siliceous and/or calcareous materials. Use natural sand with an Uncompacted Void Content "U" value of less than 42.

Page 1100-11, subsection 1103.2a.(3). In the first sentence, change "subsection 1103.02c". to "subsection 1103.2c."

Page, 1100-12, replace subsection 1103.2a.(4) with the following:

(4) Reclaimed Asphaltic Pavement (RAP). Use RAP in HMA only when such an option is permitted by Contract Special Provision. Subject the RAP to the limitations (i.e. source, max. percent allowed in mix, etc.) shown on the Contract Documents and contained in the appropriate Contract Special Provisions. Screen the RAP through a 2 ¼ inch screen or grizzly before it enters the HMA plant.

Fractionated Reclaimed Asphaltic Pavement (FRAP) is defined as having two or more RAP stockpiles, where the RAP is divided into a minimum of two fractions consisting of coarse and fine fractions. Subject the FRAP to the same limitations shown on the Contract Documents and contained in the appropriate Contract Special Provisions for RAP. Comprise the maximum percentage of FRAP of coarse or fine FRAP or a combination of coarse and fine FRAP, unless otherwise stated in the Contract Documents. Utilize a separate cold feed bin for each stockpile of FRAP used. Add FRAP to the mix through the RAP collar. Include the processing requirements for each FRAP stockpile within the Quality Control Plan.

Page, 1100-12, add subsection 1103.2a.(5):

(5) Recycled Asphalt Shingles**.** Recycled Asphalt Shingles (RAS) are allowed in any mixture specified to use RAP. The Contractor may use the %RAP as shown in the Contract Special Provision **or** a maximum of 5% RAS and 10% RAP.

Follow the guidelines in AASHTO PP 53 except as modified in this Special Provision. Drop the grade of the virgin binder one grade from both the top and the bottom grade specified for 0% RAP. For example, if a PG 64-22 is specified for 0% RAP, then the virgin grade of the binder for up to 5% RAS and 10% RAP is PG 58-28.

Comply with the Kansas Department of Health and Environment's Bureau of waste Management Policy 2011-P3 or current version and other regulations pertaining to the recycling of shingles.

Grind the shingles to a minus ½-inch size. Remove deleterious materials from waste, manufacturer, or new shingles. Use post-consumer RAS that contains less than 1.5% wood by weight or less than 3.0% total deleterious by weight. Determine the gradation of the aggregate by solvent extraction of the binder or using TABLE 2 as a standard gradation:

TABLE 2: SHINGLE AGGREGATE GRADATION

Sieve Size	Percent Retained
3/8 in.	0
No. 4	5
No. 8	15
No. 16	30
No. 30	50
No. 50	55
No. 100	65
No. 200	75

Page 1100-12, subsection 1103.2b. In the first bullet, Soundness, change "0.90%" to "0.90".

Page 1100-13, add the following to subsection 1103.2e.:

e. Special Requirements for aggregates used in ultrathin bonded asphalt surface (UBAS).

TABLE 1103-3: INDIVIDUAL COARSE AGGREGATE PROPERTIES

Property	Test Method	Limits
Coarse Aggregate Angularity (% min.)	KT-31	95/90 [a]
Los Angeles Abrasion (% max.) [b]	KTMR-25	35 [c,d]
Micro-Deval,(% max.) [b]	AASHTO T-327	18[d]
Soundness (% min.)	KTMR-21	0.90 [d]
Absorption (% max.)	KT-6	4.0 [d]
Methylene Blue (% max.)	AASHTO TP-57	10 [e]

An individual aggregate will be considered a coarse aggregate source if it contributes more than 5% of the total plus No. 4 sieve material of the combined aggregate (individual aggregate contribution No. 4 / total JMF retained No. 4 > 5%).

a – 95% of the coarse aggregate has one fractured face & 90% has two or more fractured faces.
b – Sample from stockpiled material with top size aggregate not larger than the maximum aggregate size for the mix designation type from **TABLE 613-1**.
c - For calcitic or dolometic cemented sandstone “quartzite”, the maximum percent is 40.
d - May use KDOT’s Official Quality results
e – Perform this test on all individual aggregates that contribute more than 1.0% to the JMF for the material passing the No. 200 sieve.

TABLE 1103-4: INDIVIDUAL FINE AGGREGATE PROPERTIES		
Property	**Test Method**	**Limits**
Methylene Blue (% max.)	AASHTO TP-57	10
Soundness (% min.)	KTMR-21	0.90 [a]
Los Angeles Abrasion (% max.)	KTMR-25	40 [a]
Absorption (% max.)	KT-6	4.0 [a]

a –May use KDOT's Official Quality results.

- The above requirements for wear do not apply for aggregates having less than 10% material retained on the No. 8 sieve.
- The above requirements for soundness do not apply for aggregates having less than 10% material retained on the No. 4 sieve.

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