

**KANSAS DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION TO THE
STANDARD SPECIFICATIONS, 1990 EDITION**

SUBSECTION 1103

AGGREGATE FOR BITUMINOUS MIXTURES

Page 740, subsection 1103.02(a)(1.2). Delete this subsection and replace with this:

(1.2) *Crushed gravel* shall be produced by the mechanical crushing of silicious gravel and shall contain not more than 15% non-silicious material. Ninety-five percent (95%) or more of the material retained on the 4.75 mm sieve shall have one or more crushed faces when tested in accordance with KT-31. The material passing the 4.75 mm sieve shall have sufficient angularity to yield a "U Value" of 46 or greater when tested in accordance with KT-50.

Note: The following three notes are intended to give the Engineer latitude in performing KT-31 and KT-50 when testing would require the processing of a large quantity of crushed gravel:

- If 5% or less of the sample is retained on the 4.75 mm sieve, it will not normally be necessary to determine crushed faces on the plus 4.75 mm portion of the sample and the plus 4.75 mm portion may be considered to have 100% crushed faces.
- If 95% or more of the sample is retained on the 2.36 mm sieve, it will not normally be necessary to determine uncompacted voids, and the sample may be considered to have a "U" value of 46. The portion of the sample passing the 4.75 mm and retained on the 2.36 mm will be included with the plus 4.75 mm portion and will be tested in accordance with modified KT-31 (modify KT-31 by revising the sieve size, throughout the test, from the 4.75 mm sieve to the 2.36 mm sieve).
- The Engineer may choose to test portions of the sample irrespective of the conditions noted in A. and B. above.

Failure to comply with the above requirement for uncompacted voids and crushed faces will result in the reduction in Contract payment shown below:

<u>Percent of plus 4.75 mm</u> <u>Material with crushed faces</u>	<u>*Contract Price Reduction</u>
94.0 to 94.9	\$1.00/metric ton
93.0 to 93.9	\$2.25/metric ton
92.0 to 92.9	\$3.50/metric ton
91.0 to 91.9	\$5.00/metric ton
less than 91.0	The material may be used at a \$7.00/metric ton contract reduction or rejected at the Engineer's option.

U Value of minus

4.75 mm Material

45.00 to 45.99

44.00 to 44.99

less than 44.00

*Contract Price Reduction

\$1.00/metric ton

\$3.50/metric ton

The material may be used at a \$7.00/metric ton contract reduction or rejected at the Engineer's option.

* The contract price reduction for the plus 4.75 mm, or the minus 4.75 mm material, whichever is larger, shall be applied at the same percentage rate that the non-complying crushed gravel is used in the mix. For example, in a mix having 50% crushed gravel which has minus 4.75 mm material with a U value of 44.75, and a crushed faces content on the plus 4.75 mm material of 93.0 percent, the contract price reduction would be $\$3.50 \times 0.50 = \1.75 . The dollar value derived will be assessed for each metric ton of bituminous mixture in which the material was used.

Page 741, subsection 1103.02(a). Add this to the subsection:

(1.6) Crushed steel slag shall be produced by the mechanical crushing of electric furnace steel slag.

Page 743, Table 5. Add this to the table:

CSSL	Crushed Steel Slag	Gradation shall blend with other aggregates in the mix
------	--------------------	--

Delete individual aggregate designations CG-1, CG-2, CG-3, CG-4 and CG-5 from Table 5 and add this:

CG	Crushed Gravel	Gradation shall blend with other aggregates in the mix.
----	----------------	---

Page 744, subsection 1103.02(b)(1.3). Add this paragraph to the subsection:

The quantity of crushed steel slag (CSSL) used in the mix shall not exceed 50%.

Page 745, subsection 1103.02(b)(1.4.4). In this subsection, change the sentence that begins "The primary aggregate shall....." to read:

The primary aggregate shall be chat, crushed sandstone, crushed gravel, crushed steel slag, and crushed porphyry (rhyolite, basalt, granite, and Iron Mountain trap rock are examples of crushed porphyry).

Page 746, subsection 1103.02(b)(2.3). Delete the first paragraph of this subsection and replace it with this:

These mixes may be composed of any combination of aggregates and mineral filler supplements meeting the applicable requirements in TABLE 5, providing the mix meets the general composition requirements of 1103.02(b)(1.3); contains a minimum of 50% crushed for BM-2, BM-2B, BM-2C, and BM-2D, and 65% for BM-2A (unless specified otherwise in the Contract); and meets the following composition limits when applicable:

Page 750, subsection 1103.02 (c)(2). Add these paragraphs after the second paragraph from the top:

If liquid anti-strip additives are added at the Contractors' plant, a "totalizer" must be installed to monitor the amount of anti-strip additive being added. There will not be a price adjustment for use of liquid anti-strip additives or lime.

BM-1 produced for maintenance stockpiles is not subject to the TSR requirements.

Page 750, subsection 1103.02 (d). Delete the first sentence of this subsection and replace with this:

Except for bituminous mix designations BM-1, BM-1A, BM-1B, BM-1T, BM-2A, BM-2C, and BM-7, the Contractor may use all new materials or a blend of new materials in combination with a maximum of 10 percent reclaimed asphalt pavement (RAP).

Pages 752 and 753, Table 6. Revise the table to read:

**TABLE 6
 REQUIREMENTS OF COMBINED AGGREGATES FOR BITUMINOUS MIXTURES**

Mix Designation	Percent Retained - Square Mesh Sieves											
	25.0 mm	19.0 mm	12.5 mm	9.5 mm	4.75 mm	2.36 mm	1.18 mm	600 µm	300 µm	150 µm	75 µm	Max. Moist.
BM-1			0	0-8	18-39	35-53	50-68	60-80	72-90	82-95	92-98	0.5
BM-1A		0	6-13	14-23	32-47	49-65	62-76	72-85	81-91	86-96	92-98	0.5
BM-1B		0	0-10	7-22	41-59	61-79	75-89	82-94	86-97	89-99	93-99	0.5
BM-1T			0	0-14	39-59	57-72	70-85	78-91	87-99	90-99	92-98	0.5
BM-2		0		8-30		42-72		64-88			92-98	0.5
BM-2A		0		6-21	23-40	38-56		61-82		88-99	92-99	0.5
BM-2B	0	0-5		10-30		42-72		64-88			92-98	0.5
BM-2C	0	0-10	12-22	19-39	51-69	65-83	75-91	82-95	87-99	90-99	93-99	0.5

JOB MIX TOLERANCES

	25.0 mm	19.0 mm	12.5 mm	9.5 mm	4.75 mm	2.36 mm	1.18 mm	600 µm	300 µm	150 µm	75 µm
BM-1					±5	±5	±5	±5	±4	±3	±2
BM-1A					±5	±5	±4	±3	±3	±3	±2
BM-1B				±5	±5	±5	±4	±3	±3	±3	±2
BM-1T					±6	±5	±5	±4	±3	±3	±2
BM-2A				±5	±5	±5	±5	±4	±4	±3	±2
BM-2, 2B, 2D, 3				±6	±6	±6	±5	±5	±4	±4	±2
BM-2C				±6	±6	±6	±5	±5	±4	±3	±2

Page 753, TABLE 6. Below the table, delete the sentence that reads:

“The Plasticity Index (P.I.) shall not exceed 6 for any mix designation listed in the above table.”

Below the table, add this:

The Sand Equivalent (SE) shall be equal to or greater than 45.0 for any mix designation (combined gradation) listed in the above table.

If the District approves the use of MFS-4 (hydrated lime) as an anti-strip agent, then the lower gradation limit on the 75 µm sieve will be reduced 1 percent. For example: the specification limit for the 75 µm sieve for BM-2A will be changed from 92-99 to 91-99.