

**LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
SPECIFICATIONS**

ASPHALTIC MIXTURES FOR HOT APPLICATION

DESCRIPTION:

The material shall consist of a mixture of aggregates and asphalt with additives.

Type 1M (Hard Rock) - Mix shall consist of one of the following combinations: crushed gravel, crushed stone, crushed slag, or a combination of these materials; sand; mineral filler; and asphalt with additives.

Type 6M (Sand) – Mix shall consist of crushed gravel, stone or slag; sand; mineral filler; and asphalt with additives.

COMPOSITION AND PROPORTIONING:

Aggregates and asphaltic material shall be combined in such proportions that the mixtures shall meet the following requirements:

<u>Type 1M</u>	<u>% By Weight</u>
Aggregates	93.0 – 95.0
Asphalt	5.0 – 7.0

<u>Type 6M</u>	<u>% By Weight</u>
Aggregates	91.0 – 94.0
Asphalt	6.0 – 9.0

MATERIALS:

Test methods shall be latest in effect.

(a) Aggregates: All aggregates, except fine sand, shall be from an approved source on Qualified Products List No. 2. Crushed aggregate shall have a minimum of 70% crushed faces as determined in accordance with DOTD TR 306.

Aggregates shall conform to the following gradation when tested in accordance with DOTD TR-113.

<u>U. S. Sieve</u>	<u>% Passing By Wt.</u>	
	<u>Type 1M</u>	<u>Type 6M</u>
1 Inch	100	---
3/4 Inch	98 – 100	---
1/2 Inch	90 – 100	---
3/8 Inch	70 – 100	100
No. 4	50 – 75	85 – 100
No. 10	32 – 55	50 – 75
No. 40	16 – 33	24 – 40
No. 80	10 – 20	16 – 28
No. 200	6 – 12	8 – 18

Any approved DOTD wearing course mixture that does not contain PAC-30 or PAC-40HG polymer modified asphalt cements may be substituted for Type 1M mix.

(b) Asphalt: Asphaltic material shall be Grade AC 30 asphalt cement from a source listed on Qualified Products List No. 41, and conforming to Table 1, except as provided elsewhere herein.

(c) Additives: Anti-stripping additive shall be an approved product on Qualified Products List No. 57 added at approximately 0.5% by weight of asphalt cement.

RECYCLED MIX:

At the producer's option, reclaimed asphaltic concrete may be used in the mixtures. Mixtures containing reclaimed asphaltic concrete will be subject to the requirements specified herein with the following modifications.

All asphaltic concrete mixtures (except final wearing course mixtures for travel lanes) may contain a maximum of 30% reclaimed asphaltic concrete; this includes mixtures for base course, binder course, and wearing course for shoulders and temporary detour roads. The final wearing course mixture for travel lanes, with or without friction course, may contain a maximum of 15% reclaimed asphaltic concrete; however, such reclaimed material shall contain no expanded clay aggregate.

Reclaimed material shall be stockpiled separately from other materials at the plant and will be subject to approval prior to use. Such stockpiles shall be uniform and free of soil, debris, foreign matter and other contaminants. Reclaimed materials that cannot be readily broken down in the mixing process or that adversely affect paving operations shall be crushed to pass a 2" sieve prior to use.

Mixing shall be performed in either a batch plant or a dryer-drum plant; however, the plant shall be modified as required to permit recycling operations in conformance with air pollution standards. A separate cold feed system, including weight indicating apparatus, shall be provided for recycled material.

The quantity of reclaimed asphaltic concrete used shall be at the contractor's option and shall be designated in the job mix formula. If mixtures contain less than 20% reclaimed materials, Grade AC-30 asphalt cement shall be used. Grade AC-10 asphalt cement shall be used in mixtures containing from 20 to 30% reclaimed materials. The mixture produced shall conform to requirements for the type mixture specified. The Department reserves the right to require the contractor to reduce the percentage of reclaimed asphaltic concrete such that control and acceptance criteria are consistently maintained.

New aggregates shall be dried and heated to a sufficiently high temperature to produce a mixture with a discharge temperature of at least 280° F.

PREPARATION AND PROCESSING OF MIXTURES:

Preparation and processing of mixtures shall be in accordance with Sections 501 and 503 of the Standard Specifications. Plants supplying asphaltic mixtures must be certified by the District Laboratory.

MEASUREMENT AND PAYMENT:

Asphaltic concrete will be measured and paid for by the ton of 2,000 pounds from printed weights as provided in Section 503.

If asphaltic material does not conform to specifications, the final test results will be applied to the appropriate schedule of Table 1 and any adjustment in unit price will be made as specified. If the test results are such that a penalty would result from more than one test value, only the price adjustment for the greatest reduction will apply.

SAMPLING:

Sampling shall be in accordance with the Materials Sampling Manual.

TABLE 1
ASPHALT CEMENT, MODIFIED AASHTO GRADES AC-10 AND AC-30

Test Method		Percent of Contract Unit Price/Ton Of Asphaltic Concrete					
		AC-10 ¹			AC-30 ¹		
		<u>Specifications</u> 100	<u>Deviations</u> 95 90 or Reject ²		<u>Specifications</u> 100	<u>Deviations</u> 95 90 or Reject ²	
Penetration, 25°C (77°F), 100 g, 5 sec.	AASHTO T-49	85+ ³		79-	55+ ⁴		49-
Viscosity, 135°C (275°F), SSF ⁵	ASTM E-102	125+			175+		
Viscosity, 135°C (275°F), cSt	AASHTO T-201	250+	200-249	199-	350+	300-349	299-
Viscosity, 60°C (140°F), Poises	AASHTO T-202	1000±200		799- 1201+	3000±600		2399- 3601+
Solubility in Trichloroethylene, %	AASHTO T-44	99.0+			99.0+		
Flash Point, COC, °C (°F)	AASHTO T-48	218(425)		217(424)-	232(450)+		231(449)-
Tests on Residue from Thin Film Oven Test:							
Viscosity, 60°C (140°F), Poises	AASHTO T-202	4000-		4001+	12000-		12000+
Ductility, 25°C (77°F), 5 cm/min.	AASHTO T-51	100+	70-99	69-	100+	70-99	69-
Thin Film Oven Test, % loss @ 325°F, 5 hr	AASHTO T-179	0.50-		0.51+	0.50-		0.51+
Spot Test (Standard Naphtha Solvent)	AASHTO T-102	Neg		Pos	Neg		Pos

¹ All values are inclusive.

² At the option of the Department.

³ For samples obtained at point of delivery, the penetration requirement shall be 80+.

⁴ For samples obtained at point of delivery, the penetration requirement shall be 50+.

⁵ For samples obtained at point of delivery, the viscosity @ 275° F may be determined using ASTM E 102.