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:

Type 1M	% By Weight
Aggregates	93.0 – 95.0
Asphalt	5.0 – 7.0

Type 6M	% By Weight
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 the Approved Materials List. 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. S. Sieve	% Passing By Wt. Type 1M	Type 6M
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 PG 70-22m or PG 76-22m polymer modified asphalt cements may be substituted for Type 1M mix.

(b) Asphalt: Asphaltic material shall be PG 67-22 asphalt cement from the Approved Materials List, and conforming to Table 1, except as provided elsewhere herein.

(c) Additives: Anti-stripping additive shall be from the Approved Materials List added at approximately 0.6% by weight of asphalt cement unless a lower rate is allowed by the Department.

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 1" 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 PG 67-22 asphalt cement shall be used. Grade PG 58-28 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 502 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, PG 58-28 AND PG 67-22

Property	AASHTO Test Method	PG67-22		PG58-28	
		Spec.	Deviation	Spec.	Deviation
		100	90 or Remove	100	90 or Remove
Tests on Original Binder:					
Rotational Viscosity @ 135°C, Pa·s [2]	T 316	3.0-	---	3.0-	---
Dynamic Shear, 10 rad/s, G*/Sin Delta, kPa	T 315	1.00+ @ 67°C	0.99-	1.00+ @ 58°C	0.99-
Flash Point, °C	T 48	232+	---	232+	---
Solubility, %	T 44	99.0+	---	99.0+	---
Tests on Rolling Thin Film Oven Residue:	T 240				
Mass Change, %	T 240	1.00-	---	1.00-	---
Dynamic Shear, 10 rad/s, G*/Sin Delta, kPa	T 315	2.20+ @ 67°C	2.19-	2.20+ @ 58°C	2.19-
Ductility, 25°C, 5 cm/min, cm	T 51	90+	89-	---	---
Tests on Pressure Aging Vessel Residue:	R 28				
Dynamic Shear, @ 26.5°C, 10 rad/s, G* Sin Delta, kPa	T 315	5000-	---	5000- @ 19°C	---
Bending Beam Creep Stiffness, S, MPa @ -12°C.	T 313	300-	---	300- @ -18°C	---
Bending Beam Creep Slope, m value,@ -12°C	T 313	0.300+	---	0.300+ @ -18°C	---

[1]Tank mixers are required. Submit written documentation of tank cleaning annually.

[2]The rotational viscosity will be measured to determine product uniformity. The rotational viscosity measured by the supplier shall be noted on the Certificate of Delivery. A binder having a rotational viscosity of 3.0 Pa·s or less will typically have adequate mixing and pumping capabilities. Binders with rotational viscosity values higher than 3.0 Pa·s should be used with caution and only after consulting with the supplier as to any special handling procedures and guarantees of mixing and pumping capabilities.