SECTION 32 05 17

ASPHALTS, OILS AND EMULSIONS

PART 1 - GENERAL

1.1 DESCRIPTION

A. This item establishes the requirements for oil asphalts, cut-back asphalts, flux oils, and emulsified asphalts to be used.

1.2 MEASUREMENT AND PAYMENT

A. Asphalts, Oils and Emulsions will be paid for in accordance with the governing Specifications for the item(s) of construction in which they are used.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Terms relating to oil asphalt shall be as defined in the current "Definition of Terms Relating to Materials for Roads and Pavements", A.S.T.M. Designation D-6.

B. The asphaltic material shall be of the grade and type shown on the Plans and/or otherwise specified, and shall meet the following requirements:

1. Oil Asphalt: The material shall be homogeneous, shall be free from water, shall not foam when heated to 347° F., and shall meet the following requirements:

TYPE-GRADE	OA-55 Min-Max	OA-65 Min-Max	OA-75 Min-Max	OA-90 Min-Max	OA-135 Min-Max	OA-175 Min-Max
Penetration at 77° F., 100 gm, 5 sec.	50 - 60	60 - 70	70 - 85	85 -100	120-150	150-200
Ductility at 77° F., 5cm/min, cms	100 ---	100 ---	100 ---	100 ---	100 ---	70 ---
Flash Point C.O.C., ^{o} F.	450 ---	450 ---	450 ---	450 ---	450 ---	450 ---
Softening Point R. & B., ^{o} F.	113-140	113-140	113-140	113-140	113-140	113-140
Loss at 325° F., 50 gm., 5 hrs.,%	-- 0.75	-- 0.75	-- 0.75	-- 0.75	-- 0.75	-- 0.75
Penetration of Residue, 77° F. 100 gm, 5 sec.	30 ---	40 ---	45 ---	50 ---	70 ---	90 ---
Solubility in CCl 4, %	99.5 --	99.5 --	99.5 --	99.5 --	99.5 --	99.5 --

2. Cut-Back Asphalt: The material shall be free from water and shall meet the following requirements:

TYPE-GRADE	RC-1 Min-Max	RC-2 Min-Max	MC-1 Min-Max	MC-2 Min-Max	MC-3 Min-Max
Flash Point T.O.C., ^{o} F.	80 ---	80 ---	80 ---	150 ---	150 ---
Furol Viscosity at 77° F., Sec.	-------	-------	110-150	-------	-------
Furol Viscosity at 122° F., Sec.	100-160	200-275	-------	-------	-------
Furol Viscosity at 140° F., Sec.	-------	-------	-------	150-250	300-500
The distillate shall be as follows, expressed as percent by volume of total cut-back:					
Off at 437° F.	12 ---	10 ---	--- 10	--- 2	--- 2
Off at 600° F.	25 ---	-------	25 ---	10 - 20	8 - 20
Off at 680° F.	--- 40	--- 30	--- 50	--- 27	--- 25
Off between 600° F. and 680° F.	-------	--- 5	-------	-------	-------
Tests on residue:					
Penetration at 77° F., 100 gm, 5 sec.	70 100	120-150	100-200	100-200	100-200
Ductility at 77° F., 5 cm/min., cms.	100 ---	100 ---	100 ---	100 ---	100 ---
Solubility in CCl 4, %	99.5 --	99.5 --	99.5 --	99.5 --	99.5 --

3. Flux Oil: Fluxing material shall be homogeneous. It shall show no separation of asphalt after thorough mixing and shall meet the viscosity requirements at any time within thirty (30) days after delivery.

	Min.	**Max.**
Furol Viscosity at 122° F., Sec.	50	100
Flash Point C.O.C., ^{o}F.	250	---
Loss on Heating, 50 gms., 5 hrs., at 325° F., %	0	5

4. Emulsions: The material shall be homogeneous. It shall show no separation of asphalt after thorough mixing and shall meet the viscosity requirements at any time within thirty (30) days after delivery.

TYPE-GRADE	EA-HVRS Min-Max	EA-HVMS Min-Max	EA-10S Min-Max	EA-11M Min-Max
Furol Viscosity at 77° F., Sec.	-------	-------	30-100	30-100
Furol Viscosity at 122° F., Sec.	100-300	100-300	-------	-------
Residue by Distillation, %	60 ---	60 ---	57.5-65	57.5-65
Oil Portion of Distillate, %	-------	-------	--- 2	--- 2
Sieve Test, %	--- 0.05	--- 0.05	--- 0.05	--- 0.05
Miscibility (Standard Test)	--------	--------	Passing	Passing
Coating	--------	--------	Passing	Passing
Cement Mixing, %	--------	--------	--- 2	--------
Demulsibility 50 cc of N/50 CaCl 2, %	--------	--------	--------	--- 70
Demulsibility 35 cc of N/50 CaCl 2, %	30 ---	30 ---	--------	--------
Settlement, 5 days, %	--- 3	--- 3	--- 3	--- 3
Freezing Test 3 cycles (*)	--------	--------	Passing*	Passing*
Tests on residue:				
Penetration at 77° F., 100 g, 5 Sec.	100-200	100-200	100-175	100-175
Solubility in CCl 4, %	97.5 ---	97.5 ---	97.5 ---	97.5 ---
Ductility at 77° F., 5 cm/min., cms.	40 ---	40 ---	40 ---	40 ---

(*) Applies only when Engineer designates material for winter use.

2.2 TESTING REQUIREMENTS

A. The properties enumerated herein for Asphalts, Oils and Emulsions shall be determined in accordance with the applicable current A.A.S.H.O. methods except where otherwise specified.

PART 3 – EXECUTION

3.1 GENERAL

Oil Asphalts, Cut-Back Asphalts, and the temperatures which provide optimum fluidity for uniform and easy application. ~~No Rapid Curing Cut Back Asphalt shall be applied at a temperature in a temperature in excess of 275° F~~. ~~Recommended~~ application temperature ranges for the types and grades of asphalts are as follows:

TYPE	GRADE	APPLICATION TEMPERATURES Minimum	Maximum
Oil Asphalts - All Types	All Grades	275° F	375° F
Cut-Back Asphalts - Rapid Curing	RC-1 RC-2	80° F 100° F	150° F 175° F
Cut-Back Asphalts - Medium Curing	MC-1 MC-2 MC-3	70° F 100° F 175° F	150° F 200° F 250° F
Emulsified Asphalts - All Types	All Grades	50° F	140° F

All asphaltic materials which have been heated above 400° F. will be rejected.

END OF SECTION