Specifications For Manufactured Materials

Section: CUTBACK ASPHALT

Subject: SLOW CURING GRADES

1. PRODUCT DESCRIPTION

1.1 Description

The specification for Slow Curing (SC) Cutback Asphalts applies to liquid asphaltic materials in the form of an asphalt cement combined with diesel type petroleum solvents. SC Cutback Asphalts are specified by the following grades: SC-70, SC-250, SC-800, SC-3000.

1.2 Composition/Characteristics

Slow Curing Cutback Asphalts shall consist of an asphalt cement which has been liquified by blending with a diesel type of petroleum solvent. They may also be produced from residual oily asphalt directly from the refining process.

1.3 Application/Use

The SC Cutback Asphalt described herein shall be suitable for use as outlined in Table 1 - Principal Uses of Asphalt Materials of the National Standard of Canada CAN/CGSB-16.6-M89, PRINCIPAL USES AND TERMINOLOGY FOR ASPHALT MATERIALS FOR ROAD PURPOSES.

1.4 Method of Production

SC Cutback Asphalt is a mixture of an asphalt cement and diesel type solvents or a direct product of the refining process using residual oily asphalts.

If the supplier elects to use non traditional material components in SC Cutback Asphalts, the Province must be advised in writing before any material is shipped to Department destinations.

1.5 Definitions

Asphalt Cement: A dark brown to black solid or semi-solid cementitous material which gradually liquifies when heated. One type of bitumen that is obtained as residue in refining crude oil.

Bitumen: Any mixture of hydrocarbons of natural or pyrogenous origin or both which is completely soluble in carbon disulphide.

Residual Bitumen: The residual material which remains after the distillation of a cutback asphalt as described by the test methods referenced in this specification.

Cutback Asphalt: Asphalt cement which has been liquified by blending with petroleum solvents or oils of low volatility or equivalent material.

2. PRODUCT SPECIFICATION

2.1 General Requirements

2.1.1 Uniformity

All grades of SC Cutback Asphalts described herein shall be free of contamination and shall be homogeneous and uniform in character throughout.

2.1.2 Delivery

The specified material shall be delivered in accordance with the Department's Specifications for Manufactured Materials (SMM) 104 General Provisions for Asphalt Supply Contracts.

2.1.3 Prequalification Samples

First time suppliers of products described in the specification shall comply with the prequalification requirements described in SMM 104.

2.2 Material Characteristics and Properties

TABLE 1

Requirement of Slow Curing Cutback Asphalts

GRADE	SC-70		SC-250		SC-800		SC-3000		Test
Property	Min	Max	Min	Max	Min	Max	Min	Max	
Flash Point (C.O.C.) (^{o}C)	65	-	80	-	90	-	105	-	ASTM D92
Kinematic Viscosity @ 60^{o} C. (mm^2/s)	70	140	250	500	800	1600	3000	6000	ASTM D2170
Distillation Test: Total Distillate to 360^{o} C. (% by volume)	10	30	4	20	2	12	-	5	ASTM D402
Distillation Residue: Kinematic Viscosity @ 60^{o} C. (mm^2/s)	400	7000	800	10 000	2 000	16 000	4 000	35 000	ASTM D2170
Asphalt Residue									
Residue of 100 penetration, (% by mass)	50	-	60	-	70	-	80	-	ASTM D243
Tests on Residue from Distillation									
Ductility of 100 penetration residue at 25^{o} C. (cm)*	100	-	100	-	100	-	100	-	ASTM D113
Solubility of distillation residue to 360^{o} C in Trichloroethylene (% by mass)	99.0	-	99.0	-	99.0	-	99.0	-	ASTM D2042
Water (% by volume)	-	0.5	-	0.5	-	0.5	-	0.5	ASTM D95

*If the ductility at 25^{o} C is less than 100, the material will be acceptable if its ductility at 15 ^{o} C is more than 100.

3. QUALITY ASSURANCE

3.1 Samples

Samples for quality assurance testing will be collected in accordance with Standard Testing Procedure (STP) 102 Sampling Asphalt Materials.

3.2 Testing

3.2.1 Sample Preparation

The samples shall be stirred prior to testing to ensure a homogeneous and uniform character throughout.

3.2.2 Pay Reduction Tests

The Province has the option to do any one of, or any number of tests listed in Table 1 on any of the samples obtained by it. Pay reductions will be based on results of the tests performed.

If a test result is found to fall outside of the specification limits, a second test will be done on another portion of the same sample and the results averaged to assess the pay adjustment.

Should the duplicate test results differ by more than the tolerances for repeatability stated in 3.2.3 of this specification, then the average of the two test values shall not be used and instead the test result numerically nearest the specification limit shall govern.

3.2.3 Interpretation of Results

The criteria for judging the acceptability of test results for each property specified herein shall be the tolerances for repeatability specified in the most recent American Society for Testing and Materials (ASTM) standard test method for that property.

3.2.4 Loads on which no tests are performed or where tests have not been made within four weeks of sampling date, will be accepted without pay adjustment.

3.3 Acceptance and Rejection

Pay reductions on SC cutback asphalts which do not meet specifications will be calculated as outlined in the attached form - FORM FOR DETERMINING THE PAY REDUCTION FOR SC CUTBACK ASPHALT THAT DOES NOT MEET SPECIFICATION.

4. MEASUREMENT

Measurement of SC Cutback Asphalt will be in accordance with SMM 104.

5. DELIVERY

Delivery of SC Cutback Asphalt will be in accordance with SMM 104.

6. PAYMENT

Payment for SC Cutback Asphalt will be in accordance with SMM 104 and the following:

FORM FOR DETERMINING THE PAY REDUCTION FOR SC CUTBACK ASPHALT THAT DOES NOT MEET SPECIFICATION

MANUFACTURER _____ LAB ADMITTANCE NO._____

PRODUCT TYPE _____ CONTROL SECTION_____

DELIVERY SLIP NO. _____ DEPARTMENT CONTRACT NO._____

DATE SAMPLED _____ MAINTENANCE TANK LOCATION_____

DATE TESTED _____ PROJECT MANAGER_____

ADJUSTMENT TEST	SPECIFICATION LIMITS MIN	MAX	TEST RESULTS	NO. UNITS OUTSIDE SPEC LIMITS		MULTIPLICATION FACTOR	NO. OF POINTS
Flashpoint (C.O.C.), ^{o}C					(Note 1)		
Kinematic Viscosity @ 60 ^{o}C, (mm^2/s)					(Note 2)		
Total Distillate to 360^{o} C (% by Volume)					(Note 3)		
Residue Kinematic Viscosity @ 60^{o} C, (mm^2/s)					(Note 4)		
Residue of 100 Penetration (% by Mass)					100		
Ductility of 100 Penetration residue at 25^{o} C, (cm)					27		
Solubility of Distillation residue to 360^{o} C in Trichloroethylene (% by mass)					150		
Water (% by volume)					150		
				TOTAL ADJUSTMENT POINTS			

Note 1
No payment will be made for any product that has a flashpoint below the minimum specification.

Note 2
If test result < minimum specified value, Multiplication Factor are:
SC70 is 30
SC250 is 20
SC800 is 7
SC3000 is 2
If test result > maximum specified value, Multiplication Factors are:
SC70 is 20
SC250 is 7
SC800 is 2
SC3000 is 2

Note 3
If test result < minimum specified value, Multiplication Factors are:
SC70 is 275
SC250 is 675
SC800 is 1350
If test result > maximum specified value, Multiplication Factors are:
SC70 is 90

SC250 is 135
SC800 is 225
SC3000 is 550

Note 4
If test result < minimum specified value, Multiplication Factors are:
SC70 is 7.0
SC250 is 3.4
SC800 is 1.4
SC3000 is 0.7
If test result > maximum specified value, Multiplication Factors are:
SC70 is 0.4
SC250 is 0.25
SC800 is 0.17
SC3000 is 0.08

$$\text{PAY ADJUSTMENT POINTS} = \left(\frac{\textit{TOTAL ADJUSTMENT POINTS}}{100} \right)^{1.4}$$

If Pay Adjustment Points ≤ 5, Pay Factor is: 1

If Pay Adjustment Points > 5, Pay Factor is: $1 - \left(\frac{\textit{PAY ADJUSTMENT POINTS}}{100} \right)$

Payment = (Price/Kilogram) (Total Weight) (Pay Factor); except that, if the calculated pay adjustment points exceed 5, the pay reduction will be $200.00 or the calculated pay reduction, whichever is greater.