



Federal Aviation Administration

Memorandum

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To: Airports Regional Division Managers

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Subject: Engineering Brief No. 44A Revised Coal-Tar Sealer/Rejuvenator
Specification

Attached is Engineering Brief No. 44A. The attached cancels the specification attached to Engineering Brief# 44, however the revised specification places additional material submittal and testing requirements into the original specification attached to Engineering Brief #44. The new submittal and testing requirements are considered mandatory until further notice. The revision will be incorporated into Engineering Brief No. 44 and posted on the Airports website.

Any comments you have concerning this brief will be appreciated.

Attachment

ENGINEERING BRIEF NO. 44A (May 9, 2006)

Attached is a specification for coal-tar sealer/rejuvenator for your use.

COAL-TAR SEALER/REJUVENATOR

DESCRIPTION

1.1 This item consists of a coal-tar sealer/rejuvenator applied on a previously prepared bituminous surface, in accordance with these specifications, for the areas shown on the plans or as designated by the Engineer. The purpose of this sealer is to provide a fuel resistant surface and to rejuvenate the asphalt binder.

MATERIALS

2.1 **BITUMINOUS MATERIALS.** The bituminous material must be composed of coal-tar oils and coal-tar prepared from a high temperature coal-tar pitch conforming to the requirements of ASTM D 490, Grade RT-12. The material must meet the requirements of Table 1.

Table 1. Property Requirements

Test Property	Test Method	Requirements
Specific Gravity @ 25/ 25 °C	ASTM D 70	1.04 min.
Viscosity Engler 50 cc @ 50° C	ASTM D 1665	8.0 max.
Water, % by volume	ASTM D 95	2.0 max
Distillation % by weight to 170°C % by weight to 270°C % by weight to 300°C	ASTM D 20	20 max 20 – 50 60 max..
Softening Point of Residue) Residue above 300 °C, °C	ASTM D 36	65 max

The material must not exceed the Volatile Organic Compound (VOC) Content limit established for the airport location.

NOTE TO ENGINEER. The material in this specification is defined as a bituminous coating and mastic according to Code of Federal Regulations (CFR) Title 40 Protection of Environment PART 59—NATIONAL VOLATILE ORGANIC COMPOUND EMISSION STANDARDS FOR CONSUMER AND COMMERCIAL PRODUCTS. The limit in the CFR for bituminous coatings and mastics is 500 grams VOC per liter (4.2 pounds VOC per gallon). The airport location may have more restrictive limits than listed in the CFR.

The manufacturer must certify that the product does not contain, mercury, lead, halogenated solvents, any added creosote, or any added crude tar. The manufacturer must identify the inclusion of any recovered and or post consumer use materials in the mixture.

CONSTRUCTION METHODS

3.1 WEATHER LIMITATIONS. The coal-tar sealer must be applied only when the existing surface is dry and the pavement surface temperature is above 50 degrees F.

3.2 EQUIPMENT. The Contractor must furnish all equipment, tools, and machines necessary for the performance of the work.

a. Pressure Distributor. The distributor must be designed, equipped, maintained, and operated so that coal-tar sealer at even heat may be applied uniformly on variable widths of pavement at the specified rate.

b. Power Broom. The Contractor must provide a power broom and/or blower for removing loose material from the pavement surface.

3.3 CLEANING EXISTING SURFACE. Prior to application of the sealer, the surface of the pavement must be clean and free from dust, dirt, or other loose foreign matter. When directed by the Engineer, the Contractor must clean the surface with a power broom.

3.4 APPLICATION RATE TEST SECTIONS. Prior to full application, the Contractor must apply the material to a series of one-square yard test sections at the rate of 0.05, 0.06, and 0.075 gallons per square yard. The area to be tested will be designated by the Engineer and will be located on the existing pavement. The Engineer will examine the test sections 24 hours after application and advise the Contractor of the application rate for the remainder of the project and/or for additional friction survey testing, as appropriate. A test section is required for each different type of pavement surface.

3.5 TEST SECTION FOR FRICTION SURVEYS. Prior to full application on any runway or high speed taxiway exit, the Contractor must apply the material to a test section for friction survey testing at the application rate approved by the Engineer in paragraph 3.4. The area to be tested will be designated and tested by the Engineer and located on the existing runway or high speed taxiway exit pavement. Application rates that result in an average Mu

value on the wet runway pavement surface less than the Maintenance Planning Friction Level in Table 3-2 of Federal Aviation Advisory Circular 150/5320-12, "Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces" must not be approved for full application.

NOTE TO ENGINEER. A friction survey test is mandatory for applications to runways and high speed taxiway exits. The Engineer may require friction survey tests on other pavement, as deemed necessary.

3.5 APPLICATION OF SEALER/REJUVENATOR. The sealer/rejuvenator must be uniformly applied with a bituminous distributor at the rate determined in paragraph 3.4. The application rate must not be varied without the approval of the Engineer. The application temperature shall be between 60 and 120 degrees F.

Following the application, the surface must be allowed to cure without being disturbed until the sealer has dried. This period will be determined by the Engineer. Surface protection precautions must be taken by the Contractor during this period, including the application of any sand necessary to blot up excess material.

3.6 BITUMINOUS MATERIAL CONTRACTOR'S RESPONSIBILITY. The Contractor must furnish the manufacturer's certification that each consignment of coal-tar sealer shipped to the project meets the requirements of the specification, together with a statement as to their sources. The manufacturer's certification will not be interpreted as a basis for final acceptance.

3.7 BITUMINOUS MATERIAL ENGINEER'S RESPONSIBILITY. The Engineer will take samples of bituminous materials proposed for use upon delivery in accordance with ASTM D 140 and conduct verification testing. Testing results from all test methods contained in paragraph 2.1 must be approved by the Engineer before using the material. Verification testing for Table 1 properties must be performed on samples taken during full application for each 50,000 square yards or fractional part of treated pavement. 3.8 FREIGHT AND WEIGH BILLS. The Contractor must furnish the Engineer receipted bills when railroad shipments are made, and certified weigh bills when materials are received in any other manner, of the coal-tar sealer used in the construction covered by the contract. The Contractor shall not remove material from the tank car or storage tank until the initial outage and temperature measurements have been taken by the Engineer, nor shall the car or tank be released until the final outage has been taken by the Engineer.

METHOD OF MEASUREMENT

4.1 The coal-tar sealer will be measured by the [gallon (liter)] [square yard{square meter}].

BASIS OF PAYMENT

5.1 Payment will be made at the contract unit price per [gallon (liter)] [square yard(square meter)] for the coal-tar sealer.

Payment will be made under:

Item 5.1 Coal-Tar Sealer--per[gallon(liter)][square yard(square meter)]

TESTING REQUIREMENTS

ASTM D 20	Distillation of Road Tars
ASTM D 36	Softening Point of Bitumen
ASTM D 70	Specific Gravity of Semi-Solid Bituminous Materials
ASTM D 95	Water in Petroleum Products and Bituminous Materials by Distillation
ASTM D 140	Sampling Bituminous Materials
ASTM D 1665	Engler Specific Viscosity of Tar Products

MATERIAL REQUIREMENTS

ASTM D 490	Road Tar
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End of Specification