897.13 DPWH
11-29-2007

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
OFFICE OF THE SECRETARY
MANILA

NOV 2 8 2007

DEPARTMENT ORDER)
No. 63)
Series of 2007 11-29-07)
X-X-X-X-X-X-X-X-X-X-X

SUBJECT: DPWH Standard Specifications for Pavement Dressing Conditioner (PDC) and its Use on Bituminous Pavement, Item 726

In line with the continuing efforts to upgrade the construction technology thru adoption of successful research studies, this Department has approved the use of **Pavement Dressing Conditioner (PDC) on Bituminous Pavement, Item 726** to improve the quality of asphalt, subject to the specifications hereto attached. A Certificate of Conditional Approval had been issued by this Department, accrediting the use of Pavement Dressing Conditioner (PDC) in DPWH Projects, from April 2007 until April 2012.

This order shall take effect immediately.

HERMOGENES E. ERDANE, JR.
Secretary

WIN7U00244

DPWH STANDARD SPECIFICATIONS FOR ITEM 726 – PAVEMENT DRESSING CONDITIONER (PDC) AND ITS USE ON BITUMINOUS PAVEMENT

726.1 Description

This item shall consist of a surface treatment on an asphalt concrete pavement using Pavement Dressing Conditioner (PDC), a coal-tar asphalt pavement rejuvenator/sealer, on previously prepared surfaces in accordance with this Specification for the areas shown on the Plans or as designated by the Engineer.

Pavement Dressing Conditioner (PDC) is an asphalt pavement rejuvenator/sealer consisting of a blend of COAL TAR and petroleum oils. It is designed to penetrate the pavement surface to replace critical elements necessary to rejuvenate and rehabilitate the asphaltic binder thereby increasing pavement plasticity and flexibility while reducing viscosity. And, since it already became an integral part of the pavement, it does not wear off under traffic such as chipping, peeling, flaking or delaminating.

726.2 Material Requirements

Pavement Dressing Conditioner (PDC) is a patented complex blend of coal tar, solvents and coal tar oils meeting the requirements detailed below.

The PDC is composed of the following range of materials:

Materials	Range
1. Refined Coal-tar (Grade RT-12)	30% - 50%
2. Light aromatic solvent naptha or coal-tar solvent naptha	30% - 40%
3. Blend of tar oils as described below meeting requirements of Table 1	15% - 40%
4. Elastomer	0.01% - 13%

The coal-tar oils are a composition for rejuvenating asphalt paving comprising a mixture of di-, tri- and tetracyclic aromatic compounds and their alkyl homologs containing lower alkyl groups together with a significant amount of phenolic and

hydroxy derivatives. Said mixture being derived from the distillation of coal tar, has the following characteristics:

Specific Gravity at 25/25^{0}C, min.	1.06
Brookfield Viscosity at 25^{0}C, cps; max.	60
Initial Boiling Point ^{0}C, min.	108
Continuous Boiling Range ^{0}C, min.	300

1. The coal-tar pitch shall conform to the requirements of ASTM D 490, Grade RT-12.

2. A. Light Aromatic Solvent Naptha:

API Gravity at 16^{0}C	11-30
Specific Gravity 16/16^{0}C	0.876-0.993
Distillation Range, ^{0}C	155-233
IBP (initial boiling point), ^{0}C	180-300
DP (dry point), ^{0}C	45-122
Flash Point , ^{0}C/TCC	45-122

B. Coal-tar solvent naptha:

Specific Gravity at 16/16^{0}C	0.94-0.099
Distillation Range, ^{0}C	122-199
Initial Boiling Point, ^{0}C	35-44
Flash Point , ^{0}C/TCC	35-44

Table 1 – Coal-Tar Oil Properties

	Requirements	Test Method
Specific Gravity @ 25/25^{0}C, min.	1.06	ASTM D-86
Water % by weight, max.	2.0%	ASTM D-86
Brookfield Viscosity @ 25^{0}C, max.	60cps	ASTM D-86
Soluble in CS2 by weight, min.	95%	ASTM D-86
Flash Point COC min.	82^{0}C	ASTM D-86
Distillation, 160^{0}C Initial Boiling Point	Requirements, %	Test Method
180^{0}C	0-2	ASTM D-86
190^{0}C	0-3	ASTM D-86

200°C	0-4	ASTM D-86
210°C	0-5	ASTM D-86
220°C	0-6	ASTM D-86
230°C	0-8	ASTM D-86
240°C	0-12	ASTM D-86
250°C	0-20	ASTM D-86
260°C	5-30	ASTM D-86
270°C	10-40	ASTM D-86
280°C	15-50	ASTM D-86
290°C	20-60	ASTM D-86
300°C	25-60	ASTM D-86

Table 2 – Bituminous Material Properties

Test Property	Requirements	Test Method
Specific Gravity @ 25/25°C, min.	1.04	ASTM D 70
Viscosity Engler 50 cc @ 50°C, max.	4.5	ASTM D 1665
Water % by volume, max.	2.0	ASTM D 95
Distillation % by weight 170°C, max. 270°C 300°C	 20 25-45 30-55	ASTM D 20
Flash Point, min. PMCC, °C	51.66°C	ASTM D93
Softening Point of residue from 300°C distillation test	40-55°C	ASTM D 36

726.3 Construction Requirements

726.3.1 Weather Limitations – The sealer/rejuvenator shall be applied only when the existing surface is dry and the air temperature is at least 10°C or higher and rising.

726.3.2 Equipment – The Contractor shall furnish all equipment and hardware necessary for the performance of the work. The product shall be delivered in dedicated tankers and/or containers with filters. The distributor shall be designed and equipped as follows:

a. Adequate heating capability for rapid heating of the sealer rejuvenator to the proper application temperature.

b. A positive displacement pump capable of pumping low viscosity material and providing a pre-selected constant pressure of 20-60 psi to deliver the specified rates of application.

c. A full circulation spray bar and applicator which maintains proper nozzle that can provide the specified rate of application.

d. A hooded spray bar and applicator which maintains a proper nozzle height.

e. A positive shut-off for the spray bar.

f. A hand spray, with hose, equipped with a positive shut-off at the spray gun.

g. A thermometer installed in the distributor tank to measure the temperature of the sealer/rejuvenator at the time of application.

h. A tachometer calibrated to a minimum of tenths of miles per hour.

i. A chart listing the capacity of the tank, in liters, shall be earned each unit. This chart shall allow liters for each 2.54 cm of depth, a chart showing speed pressure application rates will also be included.

j. The distribution shall be equipped with filters which shall be fully functional during both the loading and unloading of the product.

726.3.3 Cleaning Existing Surfaces – Prior to placing the sealer/rejuvenator, the Contractor shall clean the surfaces of the pavement to be treated and assure that it is free of all debris, dust, dirt or other loose matter.

726.3.4 Application – Prior to full production the Contractor shall place one or more test sections on a surface selected by customer and Contractor at various application rates to develop the proper rate. Pavement Dressing Conditioner is applied evenly with a specialized bituminous distributor approved by manufacturer-authorized contractor at the rate so determined. The application temperature shall be between 21^0C and 35^0C.

For quality control, Pavement Dressing Conditioner may be applied only by the manufacturer or authorized contractor/distributor.

726.4 Method of Measurement

The quantity to be measured and paid for shall be the number of square meters of pavement applied with Pavement Dressing Conditioner (PDC) as shown on the plans.

726.5 Basis of Payment

The accepted quantity measured as prescribed in Section 724.4, Method of Measurement shall be paid for at the contract unit price per applied square meter of pavement dressing conditioner which price and payment shall be full compensation for furnishing and placing all materials, including all labor, equipment, tools and incidentals necessary to complete this item.

Payment will be made under:

Item Number	Description	Unit of Measurement
726	Pavement Dressing Conditioner	Square Meter

Republic of the Philippines
Department of Public Works and Highways
OFFICE OF THE SECRETARY

CERTIFICATE OF CONDITIONAL APPROVAL

Product Accreditation

This Certify that

PAVEMENT DRESSING CONDITIONER (PDC)

Which is exclusively distributed in the Philippines by:

AGA K., INC.
#5 Saint Andrew Street, Don Bosco Village
Better Living Subdivision, Parañaque City, Metro Manila

is duly accredited for use in DPWH projects as an asphalt pavement rejuvenator/sealer, subject to its specifications (hereto attached) pursuant to the provisions of DPWH Department Order No. 189, series of 2002.

This accreditation shall remain in force until expiry date printed below, subject to compliance with the requirements of the aforementioned Department Order.

Conditional Approval No.	:	**011**
Date Issued	:	**April 2007**
Expiry Date	:	**April 2012**

MANUEL M. BONOAN
Officer-In-Charge

WIN7U00198