

SPECIFICATIONS FOR ASPHALT BINDER AND REFINED AND BLENDED COAL TAR

IN the report made to the Engineering Institute of Canada by the Committee on Roads and Pavements, the following specifications are advocated for asphalt binder (penetration method) and for refined and blended coal tar:—

Specification for Asphalt Binder

Penetration Method

1. It shall be homogeneous and free from water, and shall not foam when heated to a temperature of 150°C. (302°F.).
2. It shall have a specific gravity at 25°C. (77°F.) of not less than 0.98.
3. It shall have an open flash point of not less than 190°C. (375°F.).
4. It shall have a penetration (No. 2 needle, 100 grams, 5 secs., 25°C.) of not less than 130° nor more than 180°.
5. It shall have a ductility at 25°C. (77°F.) of not less than 75 centimetres.
6. It shall be soluble at room temperature in chemically pure carbon disulphide to the extent of not less than 99.5 per cent. by weight in the case of oil asphalt, and native asphalts shall show a percentage of the products of the fields from which they come.
7. Of the material soluble in carbon disulphide not less than 14 per cent. nor more than 30 per cent. by weight shall be insoluble at room temperature in 76° Baume paraffine petroleum naphtha distilling between 60°C. and 88°C. (140°F. and 190°F.).
8. It shall show not less than 10 per cent. nor more than 18 per cent. by weight of fixed carbon on ignition.
9. When fifty grams of the material are heated in a cylindrical vessel 5.5 centimetres in diameter and 3.5 centimetres deep, for 5 hours at a temperature of 163°C. (325°F.) the loss in weight shall not exceed 5 per cent., nor shall the penetration of the residue (No. 2 needle, 100 grams, 5 secs., 25°C.) be less than 50 per cent. of the original penetration.

Specification for Refined and Blended Coal Tar

Cold Application

1. It shall be homogeneous and free from water.
2. It shall have a specific gravity at 25°C. (77°F.) of not less than 1.14 nor more than 1.18.
3. It shall have a specific viscosity for 50 cubic centimetres at 40°C. (104°F.) of not less than 20 nor more than 30.
4. On distillation the percentages by weight of distillate at the following temperatures shall be:—

| | | |
|--------------------|---------------|-------------|
| To 170°C. (338°F.) | not more than | 5 per cent. |
| " 235°C. (455°F.) | " " " | 18 " " |
| " 270°C. (518°F.) | " " " | 25 " " |
| " 300°C. (572°F.) | " " " | 32 " " |
- (a) The residue from the foregoing distillation shall have a melting point of not more than 70°C. (158°F.).
- (b) The distillate from the foregoing distillation shall have a specific gravity at 25°C. (77°F.) of not less than 1.01.
5. It shall be insoluble in chemically pure carbon disulphide at room temperature to the extent of not more than 15 per cent. weight.

Hot Application

1. It shall be homogeneous and free from water.
2. It shall have a specific gravity at 25°C. (77°F.) of not less than 1.20 nor more than 1.27.
3. It shall show a float test at 50°C. (122°F.) of not less than 65 seconds and not more than 85 seconds.
4. On distillation the percentages by weight of distillate at the following temperatures shall be:—

| | | |
|--------------------|---------------|---------------|
| To 170°C. (338°F.) | not more than | 0.0 per cent. |
| " 235°C. (435°F.) | " " " | 10 " " |
| " 270°C. (518°F.) | " " " | 17 " " |
| " 300°C. (572°F.) | " " " | 22 " " |
- (a) The residue from the foregoing distillation shall have a melting point of not more than 75°C. (167°F.).

(b) The distillate from the foregoing distillation shall have a specific gravity at 25°C. (77°F.) of not less than 1.03.

5. It shall be insoluble in chemically pure carbon disulphide at room temperature to the extent of not more than 20 per cent.

Binder

Penetration Method

1. It shall be homogeneous and free from water.
2. It shall have a specific gravity at 25°C. (77°F.) of not less than 1.20.
3. It shall have a melting point of not less than 28°C. (83°F.) nor more than 35°C. (95°F.).
4. On distillation the percentages by weight of distillate at the following temperatures shall be:—

| | | |
|--------------------|---------------|-------------|
| To 170°C. (338°F.) | not more than | 0 per cent. |
| " 235°C. (455°F.) | " " " | 3 " " |
| " 270°C. (518°F.) | " " " | 11 " " |
| " 300°C. (572°F.) | " " " | 15 " " |

(a) The residue from the foregoing distillation shall have a melting point of not more than 75°C. (167°F.).

(b) The distillate from the foregoing distillation shall have a specific gravity at 25°C. (77°F.) of not less than 1.03.

5. It shall be insoluble in chemically pure carbon disulphide at room temperature to the extent of not more than 22 per cent. by weight.

PUBLICATIONS RECEIVED

PRODUCTION AND TREATMENT OF VEGETABLE OILS.—By T. W. Chalmers. Published by Constable & Co., Ltd., London, Eng. 152 pages, with nine folding plans and 95 illustrations; 7½ x 11 ins., cloth, \$5 net. The following chapter titles indicate the scope of the work: Principal Vegetable Oils; Preparatory Machinery for Copra and Linseed; Preparatory Machinery for Palm Fruit and Palm Kernels; Preparatory Machinery for Cotton Seed and Castor Seed; Some Special Forms of Reduction Machinery; Meal Kettles, Receiving Pans and Moulding Machines; Oil Presses, Anglo-American Type; Oil Presses, Cage Type; General Arrangement of Oil Mills; Extraction of Oils by Chemical Solvents; Refining of Oils; Hydrogenation or Hardening of Oils; Generation of Hydrogen for Oil Hardening Purposes; Manufacture of Soap; Glycerine Recovery and Refining and the Splitting of Oils; Index.

AIR-LIFT SYSTEM OF PUMPING.—Catalogue No. 900 issued by the Canadian Ingersoll-Rand Co. Ltd., Sherbrooke, P.Q. 32 pages and cover, 3½ x 6 ins., coated paper. Chapters on the advantages of the air-lift, principles of operation, requirements of the wells, necessary equipment and booster pump, reports on numerous installations with photographs, and the uses of the air-lift other than for pumping water.

AIR COMPRESSORS.—Catalogue No. 14 published by Alley & MacLellan, Ltd., Glasgow, Scotland. 160 pages, 6 x 9 ins., coated paper, sewn binding, half cloth, stiff covers. A well-illustrated and fully detailed volume, with useful tables on air compressors, air reservoirs, air piping, pumping motors, after-coolers, vacuum pumps, forge hammers, water traps, air check valves and meters.

At a meeting of representatives of the Ontario Provincial Division of the Engineering Institute of Canada, held last week at Ottawa, the following officers were elected for the ensuing year: J. B. Challies, Ottawa, chairman; E. R. Gray, Hamilton, vice-chairman; George Hogarth, Toronto, secretary-treasurer.

The council of the Township of York, at a meeting held last Monday, instructed their engineers, Frank Barber and R. O. Wynne-Roberts, of Toronto, to prepare preliminary sewerage schemes for the urban portions of the township. These portions include East Toronto, Todmorden, Woodbine Heights, Oakwood, Fairbank, Silverthorne, Runnymede, Swansea, Cedar Vale, Mount Dennis and Lambton Mills.