

## Specification for Coating Steel Pipe

Each section of pipe after all caulking has been completed and tested and all grease, dirt, loose scale and rust removed, shall be heated to about 300° F. by a method which will not injure it and then dipped vertically in a hot bath of "PIONEER" MINERAL RUBBER PIPE COATING (manufactured by The Canadian Mineral Rubber Co., Ltd. of Toronto, Can.) or a Coating material equal thereto, the Coating being maintained at a temperature of between 400° and 425° F. The pipe must remain in the bath a sufficient length of time to attain the full temperature of the Coating material and then raised from the bath just sufficiently fast enough to allow the Coating to solidify evenly over the surface of pipe. It is advisable to avoid any direct currents of air striking the pipe in the course of withdrawing same from the molten bath and in this way prevent an uneven coating. Coating must not be "flashed", must be durable, smooth, glossy, hard and strongly adhesive to the metal. The pipe must be thoroughly coated and the utmost care exercised after it has been applied, to avoid any injury to the surface while being handled in transportation and in the trench; any injury to the Coating in transportation or hauling must be repaired in the field by the use of the same material, applied hot in the field with ordinary paint brushes, or "PIONEER" MINERAL RUBBER FIELD PAINT (to be applied cold and to be made of the same basic materials as the Pipe Coating material) produced by the same Company. It may be necessary from time to time to temper the Pipe Coating material with a "flux" manufactured by the same Company.

The Engineer must be satisfied that the Pipe Coating to be used will be supplied by a Company who can show that they have been manufacturing it for at least the past ten years, and that it has been successfully used during that time and is made by the same processes, formulae, and materials from which the Pipe Coating used upon the Minneapolis, Minn., Pipe Line in 1896 was made.

The Chemical Analysis of the Pipe Coating shall be approximately as follows:

Pipe Coating shall be uniform, homogeneous, free from water, insoluble salts or any other impurities.

Specific Gravity (by suspension in water method) shall not be more than one (1).

It shall contain at least 99% Bitumen, soluble in cold Carbon Di Sulphide.

It shall contain Petrolene, soluble in Petrolic Ether to the extent of between 60% and 68%.

The melting point shall be not lower than 235° F. (Per test recommended by Am. Soc. C. E.)

It shall contain not more than 12% of fixed Carbon (Per test recommended by Am. Soc. of Testing Materials).

It shall contain not over 1 per cent of Free Carbon.

Penetration by Dow Standard will not vary more than five (5) points from the following:—

No. 2 N. 5 sec. 100 gms.	77° F.	-----25
No. 2 N. 1 min. 200 gms.	32° F.	-----10
No. 2 N. 5 sec. 50 gms.	115° F.	-----40

Evaporation Test:—20 gms. of the Compound when heated 5 hours in a flat bottom dish 2½ inches in dia. 1 inch high in a regulated oven having a temperature of 205° C. shall not lose over 3½%.

With a view of determining whether the Coating material will withstand the action of the alkali and acid salts found in the earth the following test is recommended:—

Immerse a cubic inch of the Pipe Coating for twenty-four (24) hours in a fifty per cent ammonium solution or 35% Hydro-Chloric acid solution. The material must show no effects from the immersion and the solution must not be discolored.