

Standard Definitions For Seal Coats

Seven definitions outlining the construction procedures and materials used in seal coats.

It's always nice to talk the same language. It helps us communicate and share our thoughts and experiences. One thing which assists in this process is to maintain standard definitions. Among other things, they can be used to assist in discussing road surface maintenance treatments with individuals who may be less familiar with road terminology than we are.

■ **Seal Coat**— A thin liquified asphalt surface treatment used to waterproof and give it the texture of an asphalt wearing surface. Depending on the purpose, seal coats may or may not be covered with aggregate. The main types of seals are sand seals, slurry seals, fog seals, and aggregate seals, (the latter are sometimes referred to as chip seals or armor coats).

■ **Prime Coat**— A fairly heavy application (quantity wise) of a dilute or thin liquid asphalt of low viscosity to an unbound granular base like gravel. The objective being to penetrate the gravel an inch or two in depth thus water-proofing it and enhancing its structural strength properties. It also saturates the surface so asphalt in a subsequent liquid asphalt treatment will not be absorbed into the gravel. Rates vary (.30 to .50 gal/yd²) depending on the tightness of a gravel base or its capacity to absorb the asphalt.

■ **Fog Seal**— A light application of slow-setting emulsified asphalt diluted with water. It is used to renew old asphalt surfaces and seal small cracks and surface voids on open graded pavements. It must be applied with extreme caution so as not to create a slippery surface (its usage is rare in the northeast where dense, tight pavement surfaces are the most prevalent types). Application rates are light (0.10 to 0.15 gal/yd²) and sand blotter is recommended. It is intended to fill very small cracks and voids and adds little as a surface improvement.

■ **Sand Seal**— An application of a low viscosity or moderately diluted asphalt covered with fine, (sand gradation) aggregate. The low viscosity and sand combination is designed to fill many fine cracks on the existing surface. Application rates

are in the order of 0.18 to 0.25 gal/yd² with 18 to 25 lbs. of sand cover. This amounts to a new layer about 3/16 of an inch thick and is intended for lower volume roads.

■ **Slurry Seal**— A mixture of slow setting emulsified asphalt (cut-backs are never used), fine aggregate, mineral filler, and water. It is used to fill cracks in old pavements, restore a uniform surface texture and seal the surface to prevent moisture and air intrusion into the pavement. A single slurry seal applies 10-15 lbs/yd² of asphalt and aggregate for about 1/8". A double slurry seal yields about 25 lbs/yd² or a layer 3/16" to 1/4" in thickness.

■ **Single Surface Treatment**— A single application of liquified asphalt to any unpaved road surface followed by a single layer of aggregate of a uniform size as practicable. The thickness of the treatment is about the same as the maximum size of the aggregate particles. A single surface treatment is used as a wearing and waterproofing course. When it is applied to an existing paved surface it should technically be called an **AGGREGATE SEAL**. Since the stone size aggregate looks like chips this kind of treatment is commonly called a **CHIP SEAL**. While 3/8" to 1/2" size stone is the most common used and yields about 35-45 lbs/yd² or 3/8 of an inch in thickness, some lighter applications using 3/16 to 5/16 size aggregates are used occasionally. The yield would, accordingly, be much less.

■ **Multiple Surface Treatment**— Two or more surface treatments placed one on the other. In its most common form, the maximum aggregate size of each successive treatment is usually one half that of the previous one. The total thickness is about the same as the nominal maximum size of aggregate particles of the first course. A double surface treatment (chip seal), ranges from 1/2" to 3/4" in thickness depending on the size of stone chosen. Total application coverage would be in the order of .40 to .65 gallons of asphalt and 45 to 75 lbs/yd² of aggregate.

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(10) **Notify your public:** The policy should be communicated to local newspapers and radio and television stations so they may in turn inform the public about the level of service the municipality is applying.

(11) **Outline special practices:** If a municipality has followed practices such as not salting new concrete streets for one or two winters, or not removing snow piles at intersections or on medians until all snow routes have been completed, these practices should be spelled out in the policy.

(12) **Treat bridges specifically:** A municipality should consider including in its policy specific bridge deck frost and ice control procedures.

(13) **Set road clearing priorities:** A municipality should consider a policy based on road clearing priorities rather than tying the policy to specific time periods or specific snow depths that may or may not be meaningful in certain circumstances. This is best amplified in an Operations Manual.

(14) **Determine a means to verify events:** If a municipality adopts a level of service which is triggered by a natural event(s), a means of measuring, documenting, and recording that event should be established. As a suggestion, municipalities can use records published in local newspapers or broadcast by local TV or radio stations to establish or verify the weather conditions.

(15) **Be realistic:** A municipality should not adopt a policy which is so unrealistic it can't comply with that policy because of unusual circumstances.

(16) **Include complaint procedures:** A snow and ice control policy should include a standard complaint procedure, especially if complaints will result in a deviation from the normal policy. As a policy matter, it is desirable to identify who should receive complaints, the circumstances under which complaints call for deviation from the normal policy, and means for verifying complaints.

(17) **Document and spell out parking ordinances:** If a municipality has a specific restrictive parking ordinance to facilitate snow and ice removal which is initiated by an official announcement, the wording should be clear and concise, and an official record should be kept of its implementation and termination.

The above material was presented at the 1986 annual NHPWA meeting by L. David Minsk of the Cold Regions Research and Engineering Laboratory. ■