

HINCOL CHIP SEAL

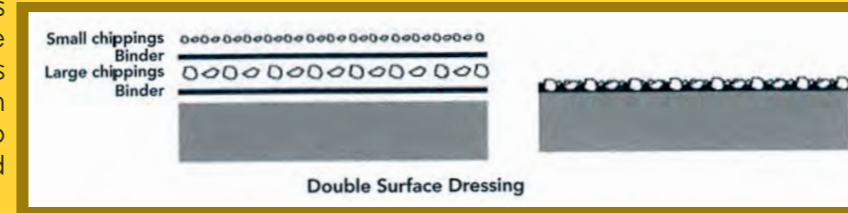
Chip Seal is the application of a bituminous binder and single size aggregate chippings to the surface of a road in one or more layers.

The main functions of Chip Seals are as follows:

- To improve skid resistance and texture of the road surface for enhanced user safety
- To seal and bind road surfaces. Chip Seal existing roads will prolong the service life of the road pavement by sealing the surface and protecting the underlying layers from the effects of water penetration
- To provide lane or carriageway delineation by varying color and/or texture

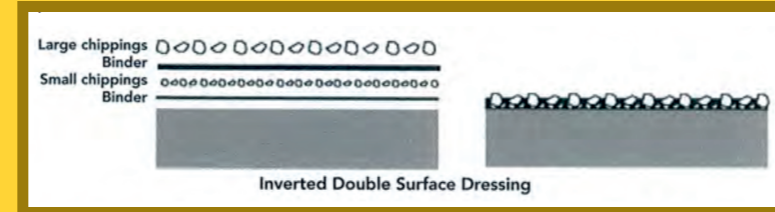
C. Double Chip Seal:

Recommended for highly stressed areas (junctions, sharp bends etc) or where enhanced durability of the Chip Seal is desired. The technique is suitable for high traffic. Double Chip Seal is also used to treat unbound surfaces, bitumen bound cold mixes and recycled surfaces.



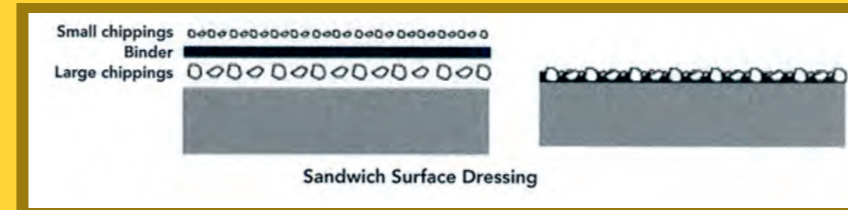
D. Inverted Double Chip Seal:

Recommended for very hard uniform surfaces (concrete surfaces, or hot rolled asphalt). Inverted Double Chip Seal is also used on recently laid AC to provide an initial seal which prevents the binder in the main dressing from penetrating into the porous surface of the AC. Polymer Modified Bitumen Emulsion should normally be used for this type of Chip Seal



E. Sandwich Chip Seal:

Recommended for fatted up surfaces or surfaces which are predominantly binder rich and dusty at all traffic levels and speeds.



Chipping Sizes:

Chippings must comply with standards. The following aggregate sizes are the most commonly used chipping sizes 2/6, 6/10, 10/14 and 14/20. The aggregate size is described by the lower and upper sieve sizes which include majority of the particle size distribution – oversize and undersize fractions being excluded.

Chipping Size	14/20	10/14	6/10	2/6
	% Passing	% Passing	Passing	% Passing
40	100			
31.5	98/100	100		
20	85/99	98/100	100	
16		Record Value		
14	0/20	85/99	98/100	
12.5		Record Value		
10		0/20	85/99	
8			Record Value	98/100
6.3	0/5		0/20	85/99
4		0/5	0/5	Record Value
2				0/20
1				0/5
Fine Dust 0.063	0/0.5	0/0.5	0/0.5	0/1
Flakiness Index	20	20	25	No requirement

Application Rate

The basic design outlines the appropriate rate of spread of chippings and binder for the various types of Chip Seal. These rates of spread assume a nominal binder content of 70% and the use of crushed rock chippings.

Basic Design	Single Layer	Chippings	Binder
	Chipping Size	Rate of Spread, l/m ²	Rate of spread, l/m ²
Single	10/14	9 - 11.5	1.8
	6/10	6 - 8.5	1.5
	2/6	4 - 5.5	1.3

Basic Design	Chipping Size		Rate of Spread of Chippings l/m ²		Rate of spread of Binder l/m ²	
	1st Layer	2nd Layer	1st Layer	2nd Layer	1st Layer	2nd Layer
Racked in	10/14	2/6	8 - 10.5	3.5 - 4.5	2	-
	6/10	2/6	5 - 7	3.5 - 4.5	1.7	-
Double	10/14	2/6	8.5 - 11	4 - 5.5	1.2	1.1
	10/14	6/10	8 - 10	5.5 - 8	1.2	1.2
	6/10	2/6	5.5 - 8	4 - 5.5	1	1
Sandwich	14/20	2/6	10.5 - 13	4 - 5.5	-	2
	10/14	2/6	8.5 - 11	4 - 5.5	-	1.8

Basic Design	Chipping Size		Rate of Spread of Chippings l/m ²			Rate of spread of Binder l/m ²	
	1st Layer	2nd Layer	1st Layer	2nd Layer	3rd Layer	1st Layer	2nd Layer
Inverted	2/6	10/14	3.5 - 4.5	8 - 10.5	3.5 - 4.5	0.9	2
Double	2.6	6/10	3.5 - 4.5	6 - 8.5	-	0.9	1.7

While Chip Sealing in itself has no strengthening ability, it is an integral element of many strengthening techniques including WMM, Emulsion Treated Bases and some bituminous mixes.

The durability and suitability of Chip Seal in certain site conditions may be greatly enhanced by using types of Chip Seal other than single Chip Seals and by using Polymer Modified Bitumen Emulsions.

Resurfacing existing roads to improve skid resistance and durability using

A. Single Chip Seal:

Recommended for roads with normal traffic stresses and with traffic volumes upto 2000 AADT. 6mm or 10 mm chippings are normally used. Polymer Modified Bitumen Emulsions recommended



B. Racked in Chip Seal:

Recommended to increase interlock and reduce risk of rip off on sites with traffic greater than 2000 AADT when using 6/10 chippings or greater than 500 AADT when 10/14 chippings are used

As one of the leading value-added bitumen supplier with an extensive global network and a major commitment to R&D – our aim is to provide solutions through a range of innovative products and services that will meet your needs today and tomorrow.

Global experience in more than 50 countries

- Advanced laboratories and research centres
- Expertise in quality system management
- Experience in advanced management in Health, Safety and Environmental Protection

HINCOL offer:

- **Pavement Condition Assessment Survey** Analysis of Pavement Condition before finalizing on Chip Seal Treatment
- **Design** in advanced laboratories having facilities for material and mix characterization.
 - **Aggregates** Hincol ensure supply aggregates as per the gradation by necessary adjustments at the quarry. Quality attributes of aggregates are taken care before finalizing the source for aggregates. Our extensive Quality Assurance process ensures compliance.

