

Troubleshooting Guide

This guide provides information to assist maintenance personnel in troubleshooting problems with chip seals. The guide, along with a related table on problems and solutions, addresses common problems encountered during the course of chip seal projects. The troubleshooting guide presented below associates common problems with their potential causes. One of the most common problems is flushing.

Note that some specifications described in the following content may not be the same as the specifications followed by your agency. Always check with your State agency's standards and specifications when using these guidelines.

Guide

Cause	Problem										
	Excessive Loss of Aggregate	Crushing of Aggregates	Pickup of Binder	Adhesion Problems	Raveling of Aggregates	Streaking of Binder	Transverse Patches	Flushing	Failure in Shade	Polishing of Aggregate	Poor Mosaic of Finished Mat
Poor Traffic Control	•		•		•				•		•
Poor Equipment	•		•		•		•	•	•		•
Spray Temperature	•		•		•	•	•		•		•
Vehicle Speeds	•				•	•	•	•	•		•
Distributor Nozzles	•				•	•		•	•		
Climatic Conditions											
Cold Surfaces	•			•	•				•		•
Wet	•			•	•				•		•
Windy	•			•	•				•		•

Flexible Pavement Preservation Treatment Construction – Chip Seals AT-TC3PP007-16-T1-JA02



Cause	Problem										
	Excessive Loss of Aggregate	Crushing of Aggregates	Pickup of Binder	Adhesion Problems	Raveling of Aggregates	Streaking of Binder	Transverse Patches	Flushing	Failure in Shade	Polishing of Aggregate	Poor Mosaic of Finished Mat
Binder											
Wrong Binder	•		•	•	•	•		•	•		•
Too Little Binder	•			•	•				•		•
Too Much Binder	•		•					•			•
Aggregate											
Too Little	•		•					•			•
Too Much	•	•		•	•		•		•		•
Wet	•			•	•			•	•		•
Dirty	•			•	•				•		•
Quality	•	•		•	•				•	•	
Wrong Size	•				•			•	•	•	•
Precoat											
Too Little	•			•	•				•		
Too Heavy	•				•						

Common Problems and Related Solutions

Problem	Solution
Streaking or drill marks in the emulsion	<ul style="list-style-type: none"> • Ensure emulsion is at correct application temperature. • Ensure the viscosity of the emulsion is not too high. • Ensure all the nozzles are at the same angle. • Ensure the spray bar is not too high or too low. • Ensure the spray bar pressure is not too high or too low. • Ensure nozzles are not plugged.
Exposed emulsion after chip application	<ul style="list-style-type: none"> • Ensure the chip spreader gate is not clogged or malfunctioning. • Ensure the chip spreader is covering all the binder
Excessive chips/many chips with small amounts of emulsion	<ul style="list-style-type: none"> • Ensure the chip spreader gate is not malfunctioning or chipper head is not overloaded. • Lower the chip application rate.
Uneven chip application	<ul style="list-style-type: none"> • Re-calibrate the chip spreader; ensure all spreader gates are set the same.
Emulsion on the top of chips	<ul style="list-style-type: none"> • Ensure the chip spreader is not operating too fast. • Ensure trucks, rollers, and pilot cars are operating correctly at low speeds.

**Flexible Pavement Preservation Treatment Construction –
Chip Seals
AT-TC3PP007-16-T1-JA02**



<p>Chips being dislodged</p>	<ul style="list-style-type: none"> • Ensure the emulsion application is not too light. • Ensure the chips are not dirty or dusty. • Ensure the traffic or equipment speeds are not too high. • Ensure brooming does not occur before the emulsion is properly set.
<p>Emulsion bleeding or flushing</p>	<ul style="list-style-type: none"> • Ensure the emulsion application is not too high. • Ensure the aggregate application is not too low.
<p>After brooming, loss of chip at centerlines</p>	<ul style="list-style-type: none"> • Check centerline procedure. • Check binder application rate.
<p>Excessive splattering of the emulsion</p>	<ul style="list-style-type: none"> • Lower the spray pressure.