

Arizona AGC Pavement Preservation Series

Crack Sealing and Crack Filling Guide - Application and Construction

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Crack Sealing and Crack Filling Guide - Application and Construction



Foreward

This guide is a collection of crack sealing and crack filling best practices and recommendations for the state of Arizona. There will be instances where conditions or materials dictate that the contractor or supplier may need to deviate from these recommended ranges. It is important that the contractors, suppliers, and agencies work together and use common sense to modify these recommendations as needed.

The committee is comprised of contractors, material suppliers, aggregate producers and agency personnel. Special thanks to our partners in the Arizona Department of Transportation: Bill Hurguy, State Materials Engineer, and Janet Doerstling Pavement Materials Testing Manager for their contributions to this revision.

Crack Sealing and Crack Filling Guide - Application and Construction

■ Overview

- Introduction
- Surface Preparation
- Materials
- Lab Evaluation
- Equipment
- Application
- Construction Procedures
- Quality Control
- Checklist

Introduction

The intent of these guidelines is to aid in the design, testing, quality control, measurement and payment procedures for the application of Crack Sealing and Crack Filling.

Surface Preparation

- Cleaning
- Routing

Surface Preparation - Cleaning

- Blow out or Vacuum Out The Cracks



Surface Preparation - Routing

- Best to Route the Cracks



Surface Preparation - Routing



Correctly Applying Crack Sealant

Routed Cracks



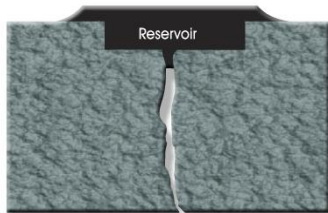
Configuration A

Standard Reservoir-and-Flush



Configuration B

Standard Resessed Band-Aid



Configuration C

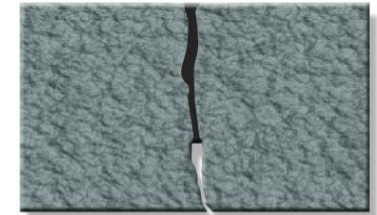
Shallow Resessed Band-Aid

Non-Routed Cracks



Configuration D

Overband



Configuration E

Flush Fill

Surface Preparation - Routing



Materials

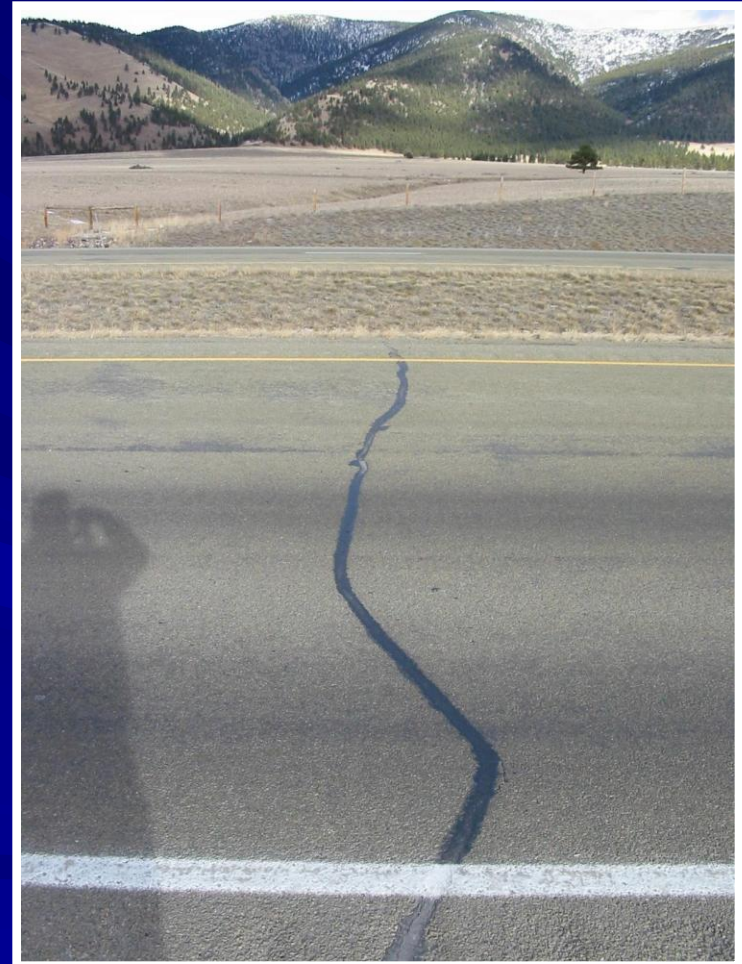
- Specifications
- Crack Sealants and Crack Fillers

Materials - Specifications

- Sealants are manufactured to meet many different federal, state, local, ASTM or AASHTO specifications. If specifications are not supplied, it is best to contact a local supplier to find out what is being used in your area.

Materials – Crack Sealants and Crack Fillers

- Crack sealants are used more commonly in areas with more freeze thaw cycles. This material is a softer more flexible sealant to withstand the colder temperatures and greater pavement movements.



Materials – Crack Sealants and Crack Fillers

- Crack Fillers are used in areas that have warmer conditions and may have minimal if any movement. These are generally longitudinal crack and cold joints in the pavement. This material is a harder material designed to handle hotter temperatures and heavier traffic loading.



Laboratory Evaluation

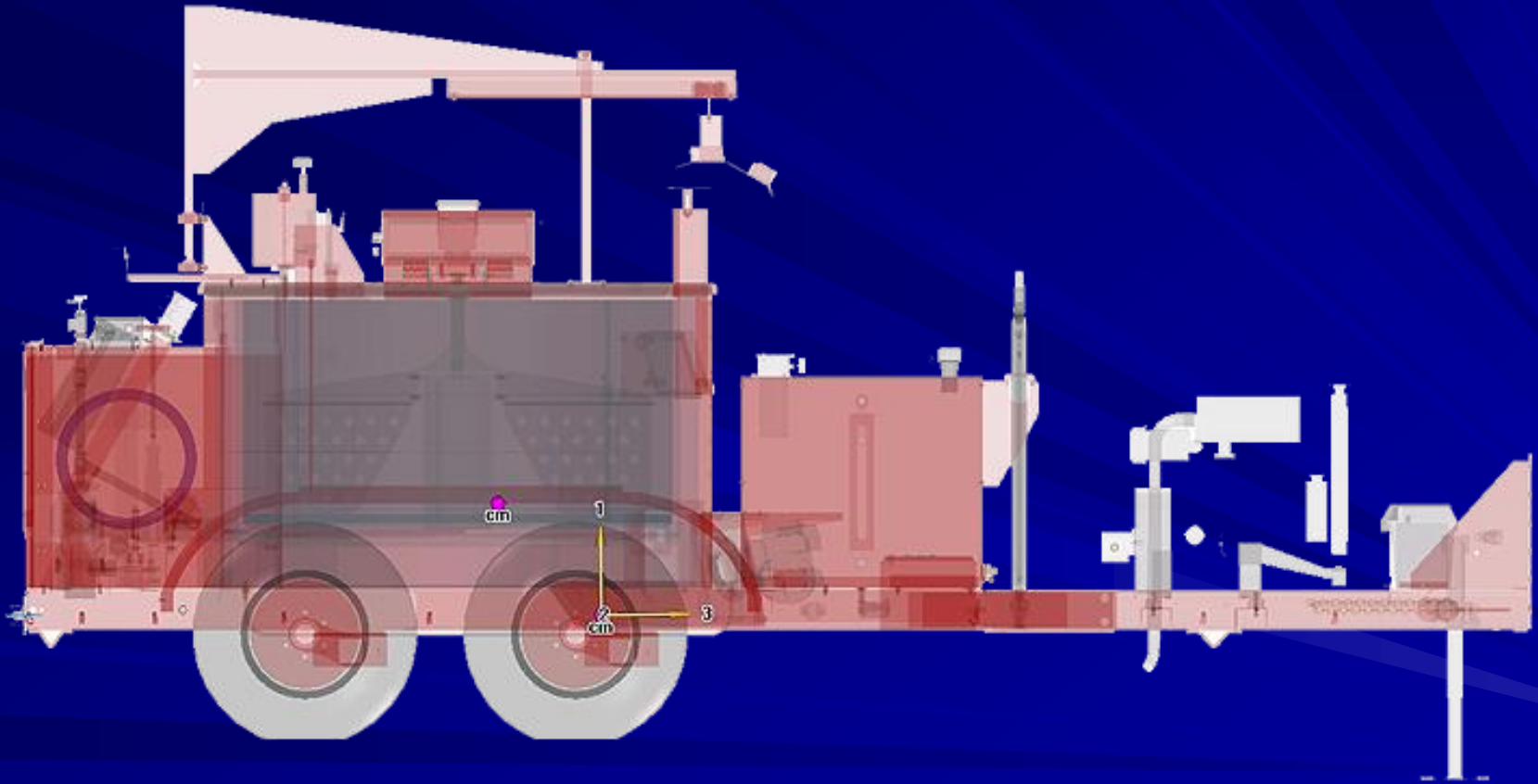
- Several State and local agencies have sealant design specifications and require manufacturer certification or 3rd party testing. Agencies may require pre-approved sealant, verification to specifications and batch or lot numbers before any project can be started.



Equipement

- Melter Applicator
- Auxiliary Equipment
- Calibration

Equipment – Melter Applicator



Equipment – Auxiliary



Equipment - Calibration

- Calibration of thermostats and gauges should be performed routinely to assure correct temperature of heat transfer oil and sealant.



Application

- Clean and Dry
- Weather – Heat Lance
- Flush Fill
- Overband
- Recessed
- Blotter or Detackifyer

Application - Clean and Dry

- Clean and Dry are most important
- Good Intact Pavement
- Proper Temperature
 - Pavement 40° and rising



Application – Heat Lance



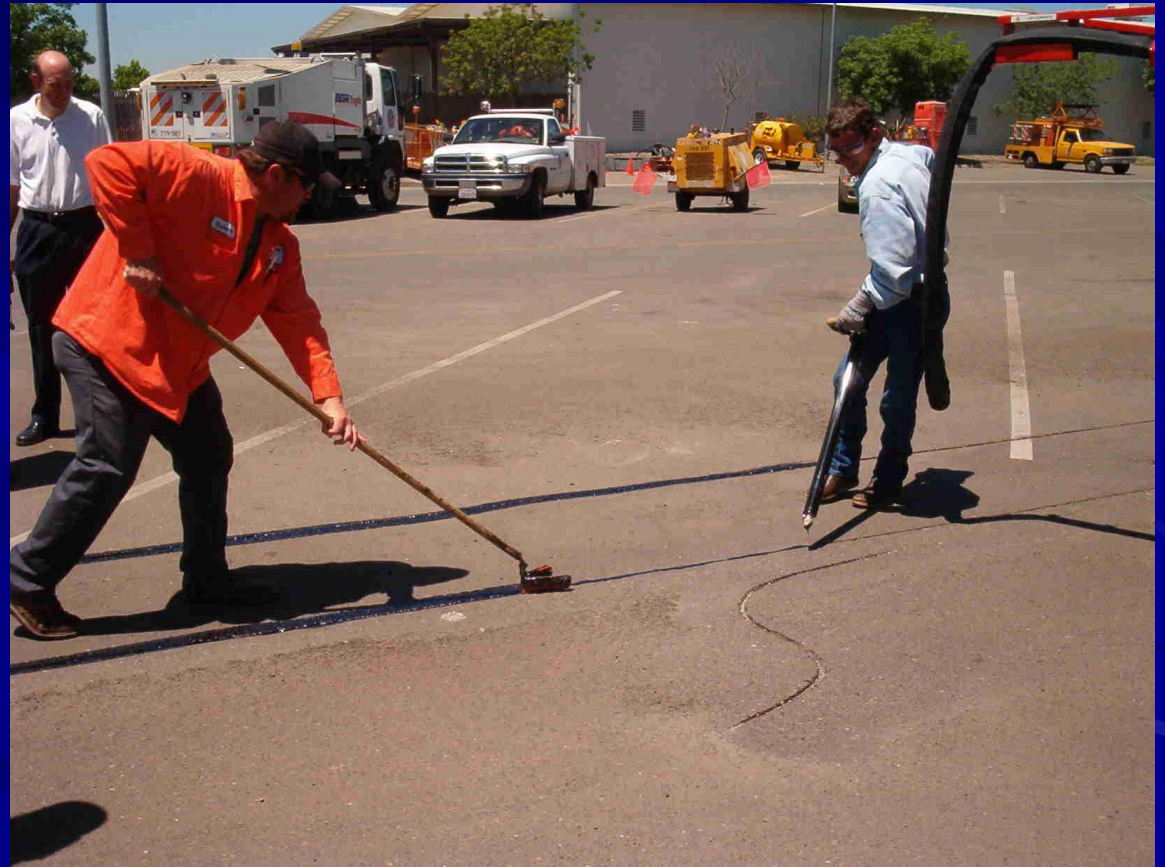
Application – Flush Fill

- The sealant shall be applied in the crack or joint reservoir uniformly solid from bottom to top and shall be filled without formation of entrapped air or voids.



Application – Overband

- Some Joints or Cracks have weakened or spalled surfaces on the sides.



Application

- It is recommended that the crack or joint be slightly overfilled then leveled with a 3" sealing disk or v-shaped squeegee to create a neat band aid extending \pm 1" on each side of the crack or joint for surface strength and waterproofing.



Application



Application - Recessed

- If the pavement being sealed will be overlaid within six months of sealant application, it is recommended that the cracks be routed with a pavement cutter and sealant placement shall be recessed $\frac{1}{4}$ " (6 mm) in the crack or joint reservoir with no over band. If routing is not used, the sealant over band thickness and width should be kept as narrow and thin as possible.



Application – Blotter or Detackifier



Construction Procedures

- Weather Limitations
- Notification
- Traffic Control
- Cleanup
- Precautions

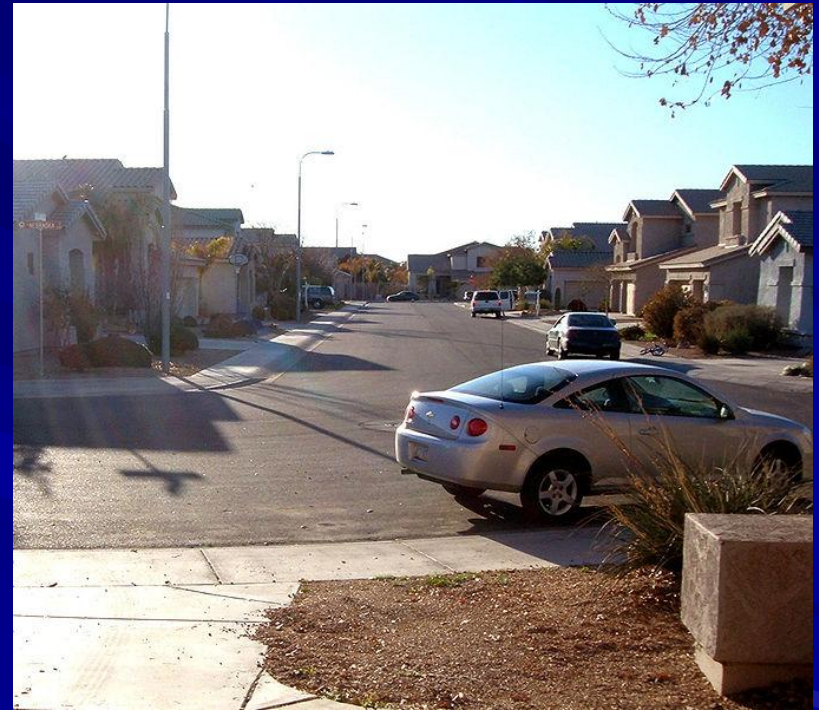
Construction Procedures - Weather

- Lower temperatures may result in reduced adhesion due to the presence of moisture or ice.



Construction Procedures - Notification

- Minimum 24 hour notice to Businesses and Homeowners.
- The notification shall be posted in written form, stating the time and date that the crack sealing will take place.



Construction Procedures – Traffic Control

- Traffic control devices shall be carried out in accordance with agency requirements and, if necessary, conform to the requirements of the Manual on Uniform Traffic Control Devices.



Construction Procedures – Clean Up



- All material and debris from the work
- Melter and other tools too

Construction Procedures - Precautions

- Parking lot, slow moving traffic and pedestrians

Products used in these areas must be stiff enough at summer temperatures to resist pick up.



Construction Procedures - Precautions

- Overlay, Surface Treatment or Seal coat over sealant

If product is applied on top of the pavements, and an overlay is then placed, bumps may occur during compaction.



Construction Procedures - Precautions

- High Severity
Cracked Areas

Highly cracked areas (Fatigue cracks in wheel paths) should not be treated by covering cracks because pavement friction may be affected.



Construction Procedures - Precautions

■ Fuel or Oil Spill Area

Crack sealants should not be used in a fuel or oil spill areas due to softening of the sealant that may occur.



Quality Control

- Inspection
- Method of Measurement
- Payment



Checklist Materials & Construction Techniques/Application

	Yes	No
■ 1. Is the area clean and dry?	_____	_____
■ 2. Is the ambient asphalt temperature 40 degrees and rising?	_____	_____
■ 3. Should cracks be routed?	_____	_____
■ 4. Is area free of debris, cars, people, or equipment?	_____	_____
■ 5. Is proper traffic control in place prior to starting application?	_____	_____
■ 6. Is the sealant heated to proper application temperature?	_____	_____
■ 7. Do you have the appropriate application tip for the job?	_____	_____
■ 8. Do you have blotter or detackifyer if you need to open to traffic?	_____	_____

Questions?