



ENVELOPE AND CURING TUBE CARE

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I. INTRODUCTION

This Recommended Practice (RP) discusses the inspection, care, selection, use, problems, and remedies for envelopes and curing tubes used with chamber and modular-type curing systems.

II. ENVELOPES

A. Inspection

1. Inspect the entire envelope for holes, tears, and cracks, especially around the edges. Pinhole leaks can be seen by stretching the envelope over a strong light.
2. Position the valve stem in such a way to ensure a non-binding hookup to the chamber vacuum line. Minimize pulling of the valve stem from its perpendicular position.
3. Check to be sure the exhaust valve hole is not blocked.
4. With those systems where it is possible, pre-inspect the envelope for leaks (after placing it over a tire and installing sealing system, and before putting it into chamber) by connecting the valve to a vacuum system and pulling a vacuum to detect leaks in the envelope or sealing system.

NOTE:

Faulty or damaged envelopes must be discarded or repaired before use.

NOTE:

During the chamber's cure cycle, if the vacuum line on the outside of the chamber is hot, there could be a leaky exhaust valve, or a possible envelope leak. Make note of the location of the tire in the chamber and inspect the envelope, coupler, and hose after the curing cycle. Make sure envelope is repaired before returning to stock. Contact the envelope manufacturer for compatible repair material and instructions.

B. Care

1. Envelopes should be stored off the floor and away from high traffic areas. Store envelopes according to their size in bins or on racks free of burrs or rough edges. Store new or infrequently used envelopes in their cartons, away from direct light exposure, heat sources, and electric motors.
2. Do not roll a tire with an envelope across the floor. Watch for loose objects such as staples and date code tags, which might tear or puncture the envelope.

C. Selection

1. Envelope sizes are based on the outside diameter, inside diameter, and bead-to-bead measurements. Follow manufacturer's recommendations for fitting envelopes on specific tire sizes.
2. Make sure the envelope is centered on the tread and covers at least 1" or more below the flange or sealing point.
3. Once the envelope is permanently stretched, it may be used on a larger tire or discarded. Consult envelope manufacturer for guidelines.

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D. Use

1. It is recommended that an inside envelope lubricant be used when sticking is experienced, or once a day (after the last use), while the envelope is still hot. Coat the area of the envelope that comes into contact with the tread rubber and the uncured shoulder extensions, and allow to dry. Doing so will increase the life of the envelope and keep it from sticking to uncured rubber or the tire. Contact the envelope supplier for an appropriate lubricant.
2. Some systems may require a plastic liner between the tread and envelope during curing. (Note: the envelope must still be lubricated). Contact manufacturer for recommendations.
3. Upon envelope installation, make sure the exhaust valve is centered over the wick and the envelope is straight and centered on the tire.
4. Care should be taken when loading and unloading the chamber to avoid tearing or damaging the envelope.
5. Manufacturers recommend rotating the use of an envelope so that a hot envelope is allowed to cool between curing cycles.

E. Problems and Remedies

1. Check the O-rings of each vacuum line for possible air leaks and replace if necessary. Inspect and lube with high temperature silicone grease weekly.
2. Check exhaust lines for any leaks. Leaks may signal a problem with any of the following:
 - a. Envelope
 - b. Worn exhaust seals
 - c. Damaged exhaust valves
 - d. Damaged exhaust lines
 - e. Damaged threads in connectors
 - f. Blown or leaking curing tube
3. **Very Important!!** Do not use worn or damaged stems on new envelopes.
4. Envelope spreader arms and mono-rail tire carriers should be checked frequently for damaged areas that could tear or cut the envelope.

III. CURING TUBES

A. Inspection

1. Rims should be pre-inspected for burrs and rough edges.
2. The inside of the tire should be inspected for foreign objects and should be clean and dry.
3. Make sure that a valve core has not been installed in the curing tube valve stem. If it does have a valve core, it should be removed.
4. A visual check should be made to ensure there are no thin sections and that the tube is not cracked.
5. For some chamber systems, a quick check of the tube during the curing cycle can be made by feeling the input line. If the line is cold or cool, the tube is good. If the line is hot or warm, the tube is probably leaking. Find any leaks, make note of their locations, and repair or replace as noted.

B. Care and Use

1. Position the valve stem in such a way to ensure a non-binding hookup when connecting to the chamber input lines.
2. Make sure tubes are seated to avoid folds (especially in the valve area) and

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- to see that the valve stem is positioned for the rim.
- 3. Inspect tubes when removing from tires. Do not use valve stems as handles to remove tubes.
- 4. Pre-inspected curing tubes should be stored off the floor and away from high traffic areas. Store curing tubes according to their size in bins or on racks free of burrs or rough edges. Store new or infrequently used curing tubes in their cartons, away from direct light exposure, heat sources and electric motors.
- 2. Use a full circumference high temperature flap around the tube to protect the tube and increase its longevity. Make sure the flap has the correct cross section by matching the flap size with the tire size.
- 3. Make sure the stem hole in the flap is not too large. If the hole is too large, replace the flap or put a rubber boot on the inside of the flap to keep the tube from extruding through when air is applied.

C. Problems and Remedies

- 1. Quick disconnect valves may start to leak; if this happens replace or repair as needed.

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