

BELL SYSTEM PRACTICES
Outside Plant Construction
and Maintenance

SECTION G55.150.9
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AT&T Co Standard

SEALING DUCTS
CALKING MATERIALS

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1. GENERAL

1.01 The materials described in this section are applied to the duct by calking and are intended for use under the conditions described in G55.150.1.

1.02 The information in this section is a revision of a portion of G55.150.

2. WATERPLUG

Description

2.01 Waterplug is a dry, powdered material which when mixed with water sets within a few minutes and becomes hard and inelastic. It is supplied in 3, 12 and 60 pound friction top cans. Depending on the duct area to be sealed, from 1/4 pound to 1 pound of dry material is required per seal.

Caution: When not in use, keep the container tightly covered to prevent deterioration of the Waterplug through absorption of moisture from the atmosphere.

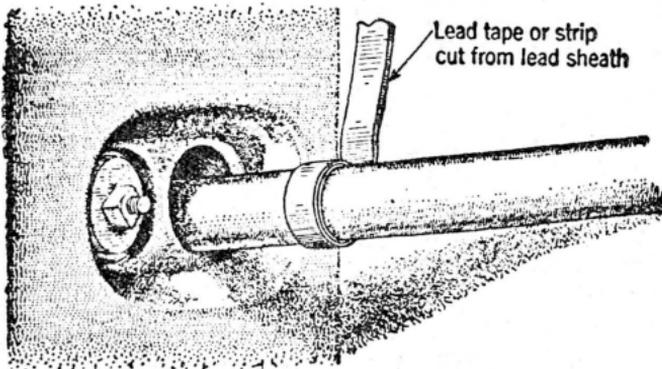
Preparing Duct for Sealing

2.02 In preparation for sealing ducts with Waterplug have on hand, in addition to the powder and a container of water, a small receptacle such as an enamelware saucepan in which to mix the material and a small trowel or putty knife with which to apply it to the duct.

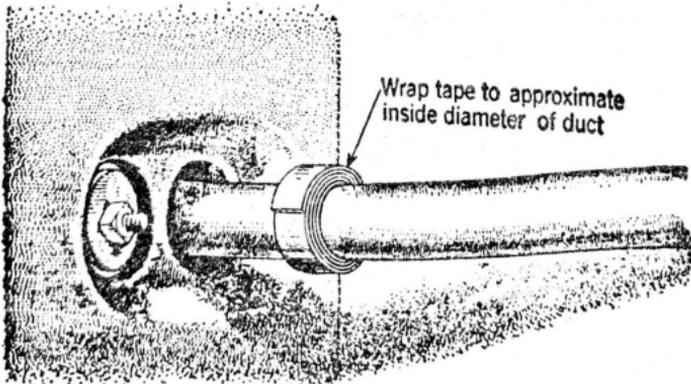
2.03 Clean thoroughly all surfaces to which Waterplug is to be applied, removing silt, grease, paraffin or other foreign material from both duct and cable. Moisten all surfaces with water to ensure a good bond with the Waterplug.

2.04 Prepare **occupied ducts** for sealing with Waterplug as follows:

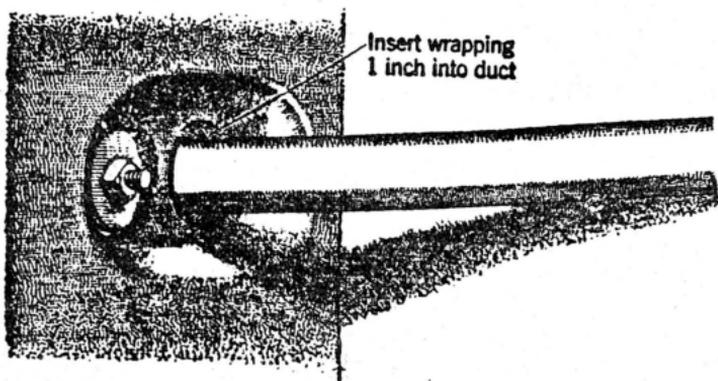
- (1) Wrap around the cable a spiral of lead serving tape or 1 inch strips cut from lead sheath to center the cable in the duct and act as a backing for the Waterplug.



- (2) Wrap the tape to a diameter such that it will just enter the duct.



- (3) Raise the cable and push the tape wrapping along it to a point about 1 inch inside the face of the duct.



2.05 Prepare **vacant ducts** for sealing with Waterplug by inserting in the duct a backing of paper or waste, leaving a space about 1 inch to 1-1/2 inches deep to be filled with Waterplug.

Applying Waterplug

2.06 Place a small quantity of Waterplug in the mixing pan and add to it sufficient water to form a cake or pat about the consistency of putty. If the cake is too wet to handle, add dry Waterplug to bring it to the desired consistency. Stir just enough to have the cake mildly saturated throughout. Depending on the temperature of the mixing water, the material will begin to set in 2 or 3 minutes; consequently, do not mix more than can be applied to the duct within that time. Do not use warm water as this will hasten the set, and do not attempt to soften Waterplug by adding water to material which has become too stiff to use.

2.07 With the trowel or, if more convenient, with the fingers, apply the mixture to the duct, working it firmly against the walls (and cable) to avoid leaving air pockets. Finish off seals in vacant ducts even with the face of the duct, and, in occupied ducts, bevel off the seal between the duct face and the cable.

2.08 If water is running from the duct, apply Waterplug first to the upper portion of the space to be filled, leaving a small opening at the bottom through which water can flow to avoid building up pressure until the Waterplug first applied has set. After a few minutes, mix a small quantity of Waterplug and shape it in the hand in the form of a conical

plug. When a sudden warm feeling and dry appearance comes over the plug, apply it to the opening from below. Force the material well into the opening and exert pressure against the plug for a full minute or longer until the flow of water has stopped. After a few minutes the surface can be smoothed off with a sharp trowel or chisel to conform with the remainder of the seal.

2.09 If the water pressure is heavy, as in the case of a duct running full with water, it can usually be relieved by removing a rubber plug from a vacant duct at a lower level in the duct bank. If this is not possible, it is better in sealing a vacant duct to obtain a solid rubber plug rather than to attempt to seal with Waterplug. With the same situation in an occupied duct, the flow of water can be stemmed sufficiently to permit a Waterplug seal to be made by using part of the rubber portion of a split plug as a dam. Cut the rubber in half across the length of the plug and place a half section around the cable. Lift the cable and push the rubber into the duct to the depth required for the Waterplug seal.

Removal

2.10 Waterplug can be removed from ducts by rapping the seal sharply with a hammer or by using a hammer and cold chisel or other cutting tool to crack the seal. After the seal is fractured in this manner the pieces can readily be removed from the duct.

3. PLASTIC DUCT SEAL

Description

3.01 Plastic Duct Seal is a putty-like compound which retains a degree of plasticity in service with only a slight tendency toward stiffening of the surfaces exposed to the air. It is suitable for sealing ducts which are dry at the time of application and which will not be subject to appreciable pressures of long duration. It should not be used to seal around **alpath** or any other polyethylene sheath cable. It is supplied in 1 pound and 5 pound packages and is ready for use as received.

Preparing Duct for Sealing

3.02 Before applying duct seal, make certain that the duct opening is dry and that all loosely adhering material, grease or paraffin has been removed.

Applying Plastic Duct Seal

3.03 In sealing cable in a vertical position as in bends at poles or at the top of riser pipes, roll a quantity of the material between the hands to form a rope slightly larger in diameter than the space to be filled between cable and duct. Wrap the material around the cable and, while holding the cable centered in the duct, force the duct seal into the duct to a depth of about 2 inches. Apply successive lengths of the material, forcing them firmly into position until the space is sealed to the top of the duct. Bevel the top of the seal, sloping slightly upward from the edge of the duct to the cable.

3.04 In sealing cable in a horizontal position as in building entrances from poles, apply a wrapping of lead tape as described in Paragraph 2.04 to center the cable in the duct. Place the tape 2 inches in from the face of the duct and apply duct seal as described in Paragraph 3.03.

3.05 Vacant ducts should be sealed by first forming a backing of paper or waste set about 3 inches back from the face of the duct. The remaining space should be filled with duct seal, working the material firmly against the walls of the duct. Later when cable is installed in the duct the backing material should be cleaned out and discarded. The plastic duct seal removed from the duct can be reused to seal around the cable.