Technical Disclosure Commons

Defensive Publications Series

April 27, 2018

Biodegradable filler rod

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ABSTRACT

This disclosure describes a biodegradable filler rod for use in trenches that house cables. The filler rod can be made from materials such as cornstarch and placed above flat fiber laid on the floor of the trench. Access to the filler rod is obtained through entry points provided in the trench. When additional fiber is to be laid in the trench, water is added to the trench which causes the biodegradable filler rod to dissolve, and a new void is created in its place. The additional fiber optic cable is rodded and placed in the void. The biodegradable filler rod provides cost savings for network capacity expansion projects without additional surface area requirements.

KEYWORDS

- Fiber optic cable
- Trench
- Filler rod
- Sealant
- Network capacity
- Green construction
- Narrow-trenching
- Micro-trenching

BACKGROUND

Trenches are commonly utilized for laying cables and optical fibers that carry data. A trench is created by manual or mechanized excavation, and the fiber or cable is laid inside the trench. In many urban areas, narrow-trenching or micro-trenching techniques are utilized wherein a trench measuring about ½ inch to 2 inches wide and a total depth of 6-8 inches is cut

into the asphalt or concrete to enable laying of the cable. A polystyrene filler rod is placed above the cable in the trench to enable future capacity expansion.

Currently, the process to increase conduit path and capacity in an existing trench requires removal of all sealant in the trench, removing the polystyrene filler rod, and replacing the filler rod with additional cable. Subsequently, new sealant is applied over the newly laid additional cable and surface restoration is performed. Cost-reductions in trench capacity expansion projects can help meet additional fiber needs in a cost-effective manner.

DESCRIPTION

This disclosure describes a cost-effective and environmentally friendly filler rod for use in trenches for laying fiber optic and copper cables. Biodegradable (for example, cornstarch-based) foam filler rods are utilized when placing cable (copper / fiber optic) in a trench.

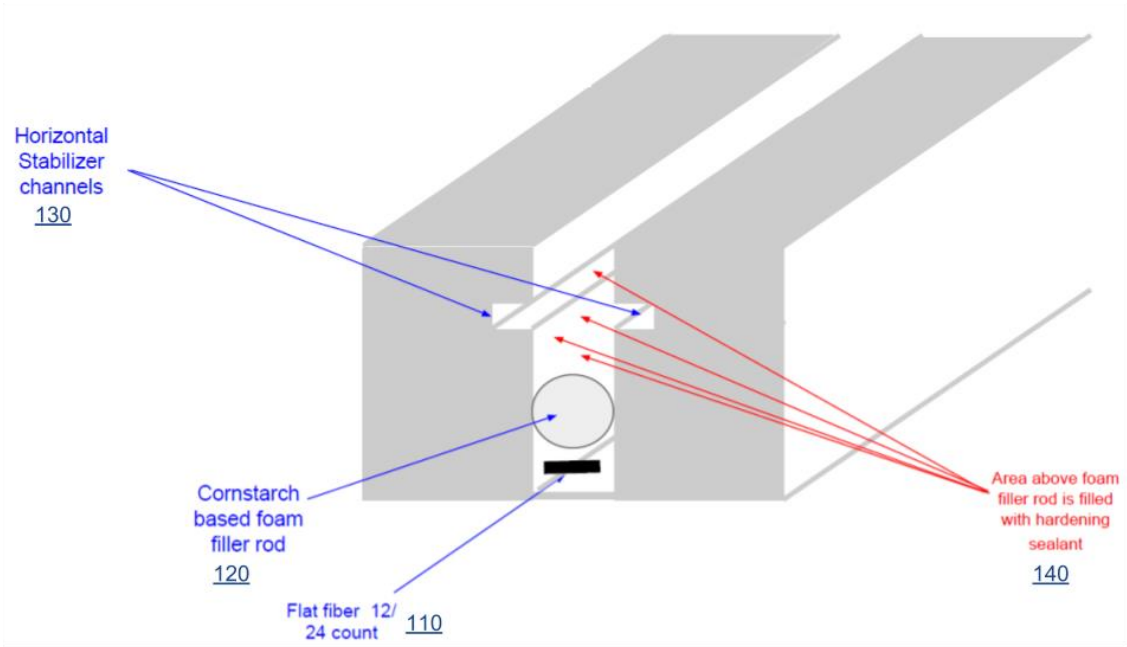

Fig. 1: Cornstarch-based foam filler rod used in a cable carrying trench

Fig. 1 illustrates the use of the biodegradable filler rod in a trench. Flat fiber (110) is placed on the floor of the trench. A cornstarch-based foam filler rod (120) is placed above the flat fiber. The area above the filler rod includes stabilizer channels (130) and is filled with a hardening sealant (140). The filler rod provides a path for additional fiber optic / copper cable that can be placed in the existing trench to increase capacity.

When additional fiber is to be laid in the trench, access to the filler rod is obtained through entry points that are provided in the trench. The addition of water to the trench causes the biodegradable filler rod to dissolve, and a new void is created in its place. The additional fiber optic cable is rodded and placed in the void thus created. The flat fiber cable combined with the rigidity of the fiberglass or copper members provide strength to the vertically stacked trench.

Utilization of the biodegradable filler rod provides cost savings for network capacity expansion projects without an additional road surface footprint. The biodegradable filler rod provides an environmentally friendly solution to include additional capacity. Alternate biodegradable materials could be substituted for the cornstarch-based material with similar effect.

The biodegradable filler rod and the techniques described in this disclosure can be utilized in trench architecture for traffic signal controls, low voltage lighting applications, telecommunications applications, cable applications, etc.

CONCLUSION

This disclosure describes a biodegradable filler rod for use in trenches that are utilized for laying data carrying cables. The filler rod can be made from materials such as cornstarch and placed above flat fiber laid on the floor of the trench. Access to the filler rod is obtained through entry points provided in the trench. When additional fiber is to be laid in the trench, water is

added to the trench which causes the biodegradable filler rod to dissolve, and a new void is created in its place. The additional fiber optic cable is rodded and placed in the void thus created. The biodegradable filler rod provides cost savings for network capacity expansion projects without additional road surface area requirements.