

transformation of the components into products of China. Therefore, the country of origin of the ST MM epoxy connectors is Japan.

Section 177.29, Customs Regulations (19 CFR 177.29), provides that notice of final determinations shall be published in the **Federal Register** within 60 days of the date the final determination is issued. Section 177.30, Customs Regulations (19 CFR 177.30), states that any party-at-interest, as defined in 19 CFR 177.22(d), may seek judicial review of a final determination within 30 days of publication of such determination in the **Federal Register**.

Any party-at-interest, as defined in 19 CFR 177.22(d), may seek judicial review of this final determination within 30 days of August 19, 2003.

Dated: August 13, 2003.

Myles B. Harmon for Michael T. Schmitz,
Assistant Commissioner, Office of Regulations and Rulings.

MAR-2 RR:CR:SM 562754 CW
CATEGORY: Marking

Mr. Robert E. Burke

Counsel, Barnes, Richardson & Colburn, 303
East Wacker Drive, Suite 1100, Chicago,
Illinois 60601

Re: Country of Origin of fiber optic cable
products; government procurement; final
determination

Dear Mr. Burke: This is in response to your letter dated May 9, 2003, on behalf of your client 3M Company ("3M") requesting a ruling on fiber optic cable products. 3M requests a country of origin determination for the fiber optic cable products in order to comply with the Federal Acquisition Regulations, 48 CFR 25.000 *et seq.*, and the "Trade Agreements Act," 19 U.S.C. 2501 *et seq.* Specifically, this ruling concerns the following three products: Glass, Glass Polymer ("GGP") patch cords; Fiber Interconnect Product ("FIP") cable assemblies (also referred to as "FIP patch cords"); and Multimode (ST MM) epoxy connectors. In accordance with your request, this response constitutes a final determination issued in accordance with 19 CFR 177.22(c).

FACTS

GGP Patch Cord

3M manufactures optical fiber, and further manufactures the fiber into optical fiber cable. These processes, all of which take place in the United States, begin with an imported fiber optic "seed," which 3M uses as raw material in manufacturing the optical fiber. The optical fibers, in turn, are made into optical fiber cable in the United States. Once the optical fiber cable is completed, 3M expects to send the cable to China, where it is to be cut and fitted with connectors. A description of the steps in the production process, beginning with the imported "seed," is as follows:

1. 3M produces optical fiber in the United States from an optic core, called a "seed," which is imported into the U.S. from the

Netherlands. The seed is a multi-layered glass rod. The rings, or layers, or glass that comprise the seed are melded together and light travels through the layers of glass, all of which have different refractive indexes.

2. After importation, 3M adds a glass "sleeve" to the core. This process is known as "cladding." The seed and the sleeve comprise an optical fiber "preform," measuring approximately 2½ inches in diameter by one meter.

3. 3M then draws the preform, via a drawing tower, into an extremely thin optical glass fiber. The resulting diameter of the optical fiber is 0.004 inches. The drawing also melds the core and glass sleeve into one integrated product, giving the optical fibers required optical properties. 3M refers to this optical fiber as "glass, glass, polymer," or "GGP". 3M owns a patent, in the U.S. and in several other countries, on the GGP process.

4. 3M then sends the optical fiber to another U.S. company, which adds a thermoplastic jacket and aramid fibers to the final optical fiber. The jacket and the fibers are added solely for the protection of the delicate optical fiber. After jacketing, this company winds the finished optical fiber cable onto spools and sends it to China.

5. In China, the U.S. optical fiber cable in spools is cut to length and molded plastic connectors made in China are applied to the optical fiber cable using the following steps:

- The spooled cable is cut to length;
- Each end of the cut cable is threaded through a plastic holder where about two inches of sheathing are removed from each end of the cable and any exposed Kevlar fiber is cut away and the plastic jacketing of the optical fiber is removed;
- The exposed fiber is cleaned with alcohol and measured;
- The fiber is threaded through a connector, glued to the connector and excess fiber is trimmed;
- The connectors are placed into a finishing machine, where the fiber ends are automatically beveled and polished;
- The metal springs, sourced from the United States, are inserted into a connector and ultrasonically welded into place;
- The connectors are ultrasonically cleaned and tested and a protective plastic shroud is snapped onto the connector.

FIP Cable Assembly

1. 3M purchases optical fiber cable from an unrelated company in the U.S. This cable is a standard fiber optic cable, and consists of one or more fiber optic fibers, aramid (Kevlar™) for strength, and a thermoplastic coating that provides protection for the very thin fiber(s).

2. 3M purchases a ceramic ferrule in Japan. This ferrule, a hollow cylinder, is used to align the ends of the optical fibers as the fibers are inserted into the connectors. The hollow center of the ferrule contains one channel that is designed to fit the optical fiber and to align the fiber ends, enabling light to pass through the connection.

3. 3M purchases or self-produces plastic parts to be used in the cable connectors. All self-produced parts are molded in the United States.

4. 3M sends the spooled fiber optic cable and plastic parts, along with a small metal ring from the U.S., and the ferrule from Japan, to China.

5. In China, the ceramic ferrule, the metal ring, and the plastic parts are assembled into a connector for the ends of the cable assemblies. The fiber optic cable is also cut-to-length and assembled with the connectors. Specifically, the steps involved in the assembly process are as follows:

- The spooled cable is cut to length;
- Each end of the cut cable is threaded through a respective plastic boot and the metal ring;
- After removing about two inches of sheathing, Kevlar™ fiber, and plastic jacketing of the cable, the exposed fiber is cleaned with alcohol and measured;
- The fiber is threaded through the ferrule and fastened by adhesive;
- The metal ring is attached, by crimping, and the fiber is trimmed;
- The exposed ends of the fiber are scored, machine-polished, and cleaned;
- The unit is inspected and tested, and a plastic protective dust cap is placed on it.

ST MM Epoxy Connector

3M also separately imports a connector, called an "ST MM Epoxy Connector" from China. This connector is similar to the connector used on the FIP Cable Assemblies described above, and the component source and assembly process is also substantially similar. In this case, the assembly consists of the following components:

1. 3M purchases a Japanese made ceramic ferrule which it provides to the assembler. This ferrule is a hollow cylinder, used to align the ends of the optical fibers as the fibers are inserted into the connectors. The hollow center of the ferrule contains one channel that is highly engineered to fit the optical fibers exactly and to provide a precise alignment of the optical fiber ends to minimize the loss of light in the connection.

2. 3M supplies the assembler with an epoxy ring, a spring, a c-clip and tygon tubes from the United States. 3M also supplies the assembler with a small, metal "backbone" and a metal "bayonet" from Canada. Packing materials and labels are from China.

3. 3M supplies the assembler with a plastic dust cap and a boot, made in China.

The assembly process is as follows:

1. The backbone and epoxy ring are assembled and glued with the ceramic ferrule, bayonet, spring and c-clip to form the ST MM Epoxy Connector.

2. The dust cap is then put over the assembly. This cap is only used for protection of the connector during transit; it is removed before final use.

3. The capped connector is put into the plastic bag, along with the tygon tube and the boot. The boot and tygon tubing is added to the connector by the final user to provide strain relief. (The Tygon tubing is used to protect the fiber when the connector is terminated onto 900um fiber. It is not used 100% of the time). The end user determines if the assembly needs the tygon tubing.

ISSUES

For purposes of government procurement, what is the country of origin of the patch