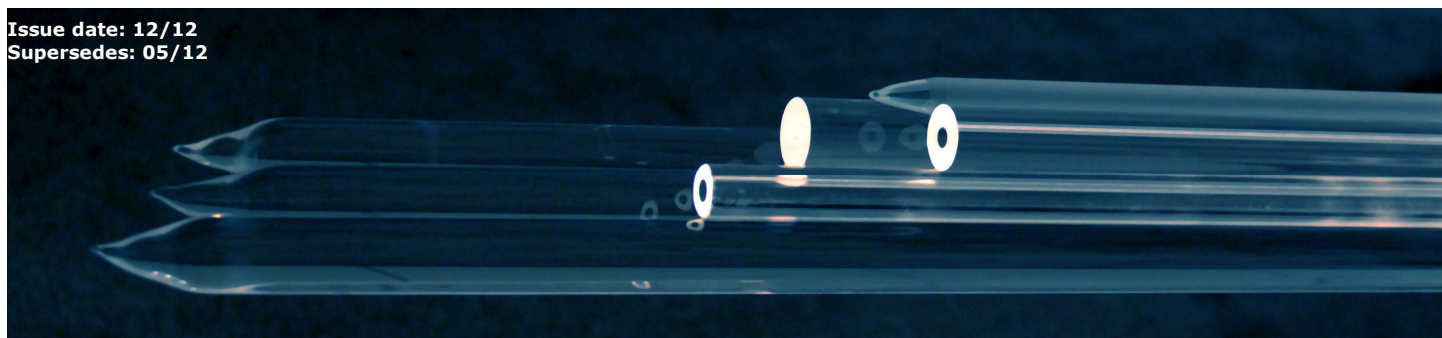


Fluorine doped tubes

Issue date: 12/12
Supersedes: 05/12



This product is usually applied as starting component in manufacturing specialty optical fibers. The tube material consists of the substrate tube material and the inner layer is made with the Plasma-activated Chemical Vapor Deposition (PCVD) process. The use of this process allows for very precise index profiles and pure material compositions. The applied machinery and processes are used also for manufacturing the core rods for the various large volume fiber products supplied to the market. Because of this, material purity in the doped quartz layers inside of the tube is "telecom grade".

Fluorine doped tubes are made in a large variety of compositions. For some applications the synthetic quartz substrate tube, required for making the inside deposition, can be maintained and for other applications it can be removed by etching or grinding after the deposition phase. The inside deposition layer usually consists of one single homogeneous fluorine doped layer but on request, multiple layers with different dopant concentrations can be supplied also. As required for some applications, co-dopant of one or more layers with germanium is also possible. The required tube diameters are achieved by partly collapsing the deposited substrate tube.

Tube specifications usually are listed in a more detailed quote as part of the ordering process. For each supplied tube the refractive index profile as measured in the mid-section of the tube will be supplied as customer information. Tube data is stored in the factory data base allowing full traceability of all raw materials for later use.

Characteristics	Specified Values ²⁾	Remarks
Outer diameter ¹⁾	10 – 30 mm	
Inner diameter ¹⁾	3 – 25 mm	
Tube wall thickness ¹⁾	2 – 10 mm	
Refractive index difference (δn)	$0 \geq \delta n \geq -0.02$	<i>referred to substrate tube material</i>
Length	up to 800 mm	

1) Note that the choice of these diameter values is interrelated. Maximum tube CSA is about 600 mm².

2) Other values on request