GEORG FISCHER
PIPING SYSTEMS

FREQUENTLY ASKED QUESTIONS

1) **What is Turbidity?** Turbidity is the cloudy appearance of water caused by the presence of suspended solids and / or un-dissolved matter.

1. **Can Turbidity be measured?**
   Yes. There are a few methods to measure turbidity. The Secchi Disk, a Turbidity Tube or by a Continuous On-line Measurement Instrument.

2. **When is a Secchi disk or Turbidity tube used?**
   This was the original method of measuring turbidity. When knowing precisely the amount of Turbidity in the water is not required, or when infrequent samples of turbidity is permissible or when an inexpensive method of measuring turbidity is required.

3. **When do I use Continuous On-line Measurement method?**
   When knowing or monitoring the amount or level of turbidity in say a drinking water distribution system is required. When it is required to continuously monitor a filter process or distribution system for instantaneous changes in turbidity. The GF Signet 3-4150 Turbidimeter is an instrument used to continuously measure and monitor turbidity on-line
4. **What are the units of measure for Turbidity?**
   NTU, FTU and FNU are some of the more common units of turbidity.

5. **What is an NTU?**
   NTU is an abbreviation for Nephelometric Turbidity Unit. The term *Nephelometric* refers to the method an instrument uses to measure the amount of light scattered by suspended particulate or un-dissolved materials in water. The value of NTU, FNU and FTU are equal to one another.

6. **What causes turbidity?**
   Causes of Turbidity In natural bodies of water may include:
   - Phytoplankton
   - Shoreline particulates
   - Stirred up bottom sediments
   - Clays and silts from river inlets
   - Organic debris from rivers, streams and/or wastewater discharges
   - Dredging operations
   - Floods
   - Abundance of bottom-feeding fish

   Sources of water contamination include:
   - Power Plants: Heated water
   - Feedlots: Organics, solids, nutrients, microorganisms
   - Industries: Organics, chemicals, color, foam, salts, toxins, heated water
   - Municipalities: Domestic and industrial wastes; microorganisms, color and foam, nitrogen, phosphorus
   - Agricultural Land Drainage: Soil from erosion, fertilizers, pesticides, organics, microorganisms
   - Mining: Suspended solids, acid mine drainage
   - Urban Storm Runoff: Industrial dust, dirt, and litter

7. **What damage may be caused by too much turbidity:**
   - Aquatic life and animals can be harmed by increased levels of turbidity
   - Reduce light, reduced food growth
   - Reduced photosynthesis lowers release of oxygen into the water.
   - Suspended particulates provide good harbor for viruses, bacteria, and protozoa and / or attachment sites for heavy metals like cadmium, mercury and lead, as well as many toxic organic contaminants such as PCBs, PAHs and pesticides.

Georg Fischer Signet LLC
3401 Aerojet Avenue, El Monte, CA 91731-2882 U.S.A. • Tel. (626) 571-2770 • Fax (626) 573-2057 • www.gfsignet.com • e-mail: signet.ps@georgfischer.com

8. **Who or what agency creates regulates and / or enforces turbidity rules?**
   In the United States the EPA (Environmental Protection Agency of the US Federal Government) has written a set of regulations in order to control turbidity in drinking and reclaimed water in the United States. Europe, being a region made up of several independent countries has agreed to adopt a uniform set of standards that were developed by the non-governmental standards group ISO. With a few exceptions, countries within Asia, the Americas, Australia-New Zealand South Pacific and Africa have adopted the EPA standard.

10. **What are some of the rules?**
    EPA Regulations and ISO Standards state that conventional surface water treatment plants (for drinking water and some reclaimed water) are required to measure turbidity at the combined effluent or discharge of the plant and at each individual filter outlet.

11. **What is the EPA Turbidity measurements required for a drinking water plants?**
    At least 95% of the readings taken from the combined filter effluent of a multi-filter system must be less than or equal to 0.3 NTU where as an Individual filter within that system may be 0.5 NTU or less.

12. **Do EPA and ISO specify the method or measuring apparatus to be used to measure turbidity?**
    Yes. EPA - Method 180.1 states turbidity must be measured using White Light at 90 Degrees.
    Yes. In Europe ISO 7027 states turbidity must be measured using Infrared Light at 90 Degrees.

13. **Besides the light source, are there any other differences between the two methods for measuring turbidity?** No. Other than the light source, the regulations are very similar

Georg Fischer Signet LLC
3401 Aerojet Avenue, El Monte, CA 91731-2882 U.S.A. • Tel. (626) 571-2770 • Fax (626) 573-2057 • www.gfsignet.com • e-mail: signet.ps@georgfischer.com