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Total Organic Carbons

The quality of a community's water supply is the most vital piece of infrastructure, which explains why monitoring and keeping it clean is one of the most important jobs an individual could possess. Without clean water, the community's health is compromised, so it is key to understand what Total Organic Carbons (TOCs) are, how they get into the water, and the importance of their removal.

Betsey Seibel, author and researcher for Teledyne Technologies Incorporated, writes that TOC is the measurement of organic carbon molecules found in all types of water. TOC is very useful in determining the existence of carbon based contaminants like petroleum products, acids, pesticides, and pathogens. These contaminants are dangerous to be present in any drinking water that is supplied to the public, making the process of determining TOC extremely important.

Determining TOC seems to be the superior method in finding the quality of purified drinking water. Researchers from Analytical Instruments, Céline Assmann and Amanda Scott, state that the TOC method is compared to the much older methods such as biological oxygen demand (BOC) and chemical oxygen demand (COD). These methods measure a narrower result of important, organic, carbon information needed to determine if water is safe for consumption or not. BOC and COD are extremely hindered by the amount of time each method takes in coming up with a result. BOC and COD can take anywhere from hours to days while

determining TOC only takes a few minutes (Assmann 2). Determining TOC proves to be the best method by delivering quick results for a quick response for water treatment.

How do TOCs get into a water supply? The Kentucky Water Watch states that TOCs in water are usually organic contaminants such as herbicides, pesticides, acids, chemicals, etc. These are able to get into the water supply very easily, mainly because of human actions such as accidental spills or leaks or industrial waste entering streams. More specifically, when chemicals and/or other waste are dumped into a water supply that is used for drinking, it contaminates that water supply with total organic carbons; when land is sprayed with herbicide or pesticides, the runoff from that could travel to a nearby river, which could potentially harm and disrupt the ecosystem of the river by exposing the organisms living in it to foreign organic molecules. Water supplies that are contaminated by TOCs pose a threat to the communities around them if they are not properly measured and decontaminated.

Essentially total organic carbons are organic threats to water supplies that people and animals use every day. It should continue to be a goal for the water treatment workforce to make sure the water everyone uses is safe and clean. The overall health of the environment should continue to be a factor when it comes to what is done about waste. Everyone in America today is truly blessed to have access to clean drinking water at the turn of a tap all thanks to the infrastructure in place.