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## **GENERAL CIRCULAR**

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To: Fleet

### **Subject: How to Treat Drinking Water for Bacteria**

Problems with coliform bacteria can often be fixed by taking following measures.

- 1. Shock chlorination can also be used as a one-time approach to getting rid of bacteria in the water supply once the source has been controlled.**
- 2. Boiling water for one minute will safely kill all bacteria, but this is not a good long-term solution because it is energy and labor intensive and only produces a small amount of water.**
- 3. If the source of bacteria to the water supply cannot be controlled, drinking water contaminated with bacteria can be treated continuously by ultraviolet (UV) light, ozonation, or chlorination.**

Ultraviolet disinfection works by killing bacteria by exposing them to ultraviolet light. The light source is contained in a glass sleeve, and water is exposed to the UV light as it flows over the sleeve. This method of disinfection consumes a small but significant amount of electricity. It is important that the water be very clear so that the UV light can reach the bacteria. Anything that would make the water less than perfectly clear, such as sediment or organic matter, must be filtered out before the water enters the light chamber. The glass sleeve must also be kept clear of scale or other deposits that would block the light.

Chlorination continuously introduces chlorine to the water through a feed system. The chlorine can take the form of a liquid or a solid. A filter should be placed before the chlorine injector to remove sediment from the water. The chlorine kills bacteria in the water, but it is consumed in the process. Chlorine is also consumed by interaction with other impurities in the water, such as iron or organic matter. Enough chlorine should be added so that there is a small amount left over after being consumed by interactions with bacteria and other impurities. Because the residual chlorine affects the taste and color of the water, it may be desirable to remove the chlorine before drinking.

Chlorination also requires a certain amount of contact time (usually 30 minutes) for it to kill the bacteria. Because of this, water is often stored in a large holding tank or run through a series of coiled pipes after being chlorinated. Chlorine systems must be

maintained to ensure proper functioning, and the chlorine supply must be periodically replenished.

Ozonation is similar to chlorination in that ozone is injected into the water and kills bacteria. Ozone is a gas that is produced using electricity and then injected into the water. Ozonation systems are more costly than UV light or chlorination systems, but they can treat water for multiple contaminants, such as bacteria, iron and manganese.

**QHSE Department**

**For Maritec Tanker Management Pvt Ltd.**