



Check Before you Disinfect

Tips for Effective Chlorine Disinfection in Humanitarian Settings

Turbidity, pH, and temperature can all impact how fast and how well chlorine products can disinfect drinking water. Turbidity makes it harder for the chlorine to access and neutralize pathogens while pH and temperature influence the efficiency of the chlorine reactions.

In ideal conditions, chlorine dose is calculated to have 0.5 mg/L free residual chlorine (FRC) after 30 minutes contact time.

Adjust your chlorine dose, target levels of FRC and/or the length of contact time when the source water parameters are outside ideal conditions.

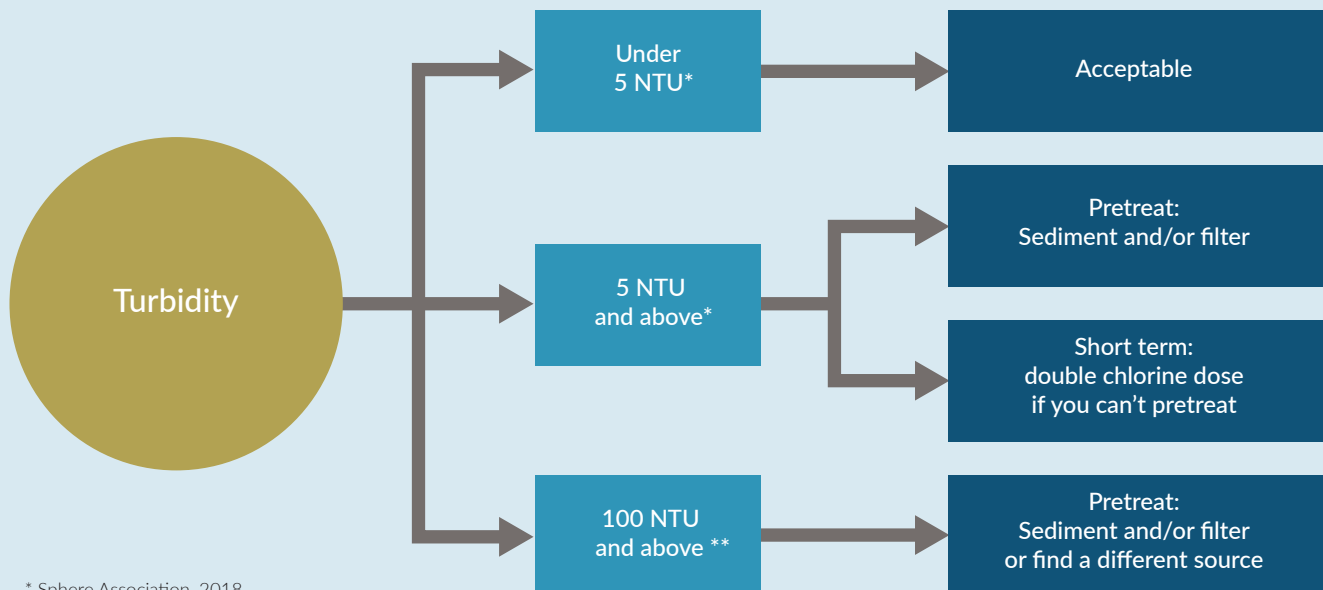
Check before you chlorinate

- | | | | |
|--------------------------|--------------------|-----------------|--|
| <input type="checkbox"/> | TURBIDITY | below 5 NTU | > No: see Diagram 1 for recommendations
> Yes: check pH |
| <input type="checkbox"/> | pH | below 8 | > No: see Diagram 2 for recommendations
> Yes: check temperature |
| <input type="checkbox"/> | TEMPERATURE | 25 °C or higher | > No: see Diagram 3 for recommendations
> Yes: Ready to chlorinate! |

1

TURBIDITY

Water with turbidity levels above 5 NTU should be pretreated to increase the effectiveness of chlorination. When pre-treatment is not possible higher chlorine doses and/or contact times are required.



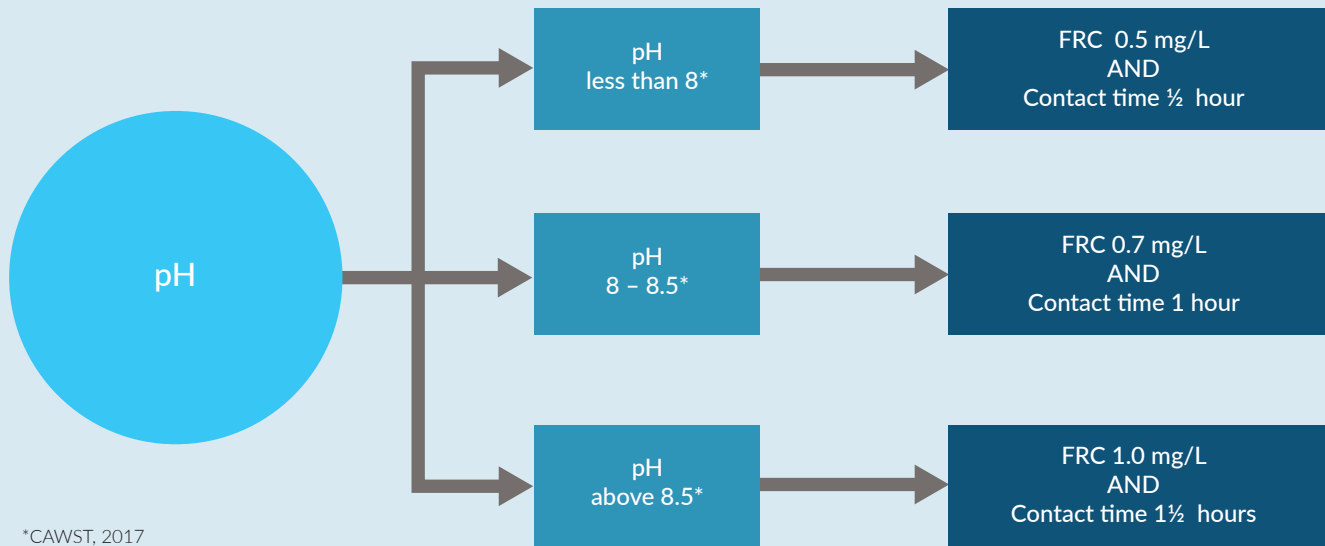
* Sphere Association, 2018

**Branz et al., 2017

2

pH

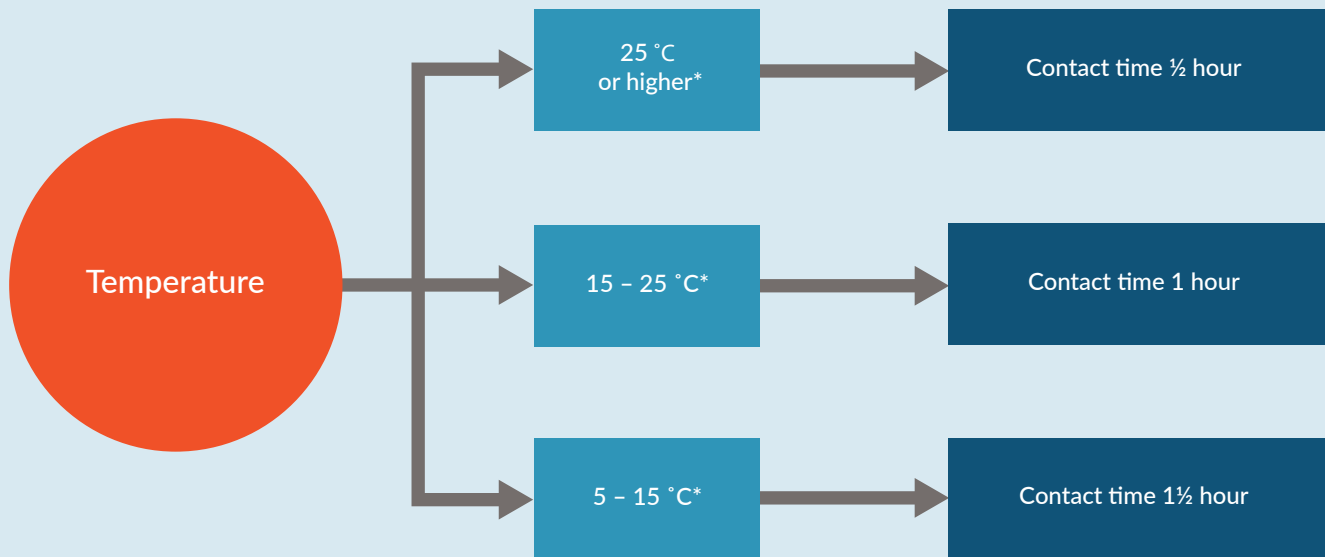
The effectiveness of chlorine is reduced in water with pH above 8. To ensure adequate disinfection increase the contact time and calculate dose using higher FRC concentration.



3

TEMPERATURE

Chlorine reacts more slowly with pathogens when water is cold, and disinfection takes longer. When the water temperature is below 25 °C contact time should be increased.



Additional Resources:

For recommended chlorine concentrations and doses see the CAWST Technical Brief: [Chlorine Disinfection for Household Water Treatment](#)

To practice using this tool see the elearning module: [Check Before you Disinfect](#)

