# Extract from the Drinking water instruction No. 5 of 25.03.2003 / Chemical Disinfection

**Of the Arbeitskreis der Küstenländer für Schiffshygiene (Working Group of Coastal States for Ship Hygiene in Germany)**

**Preparing chemical solutions for use and safety instructions**:

- Chlorine substances are corrosive oxydizing substances that **attack eyes, skin and respiratory organs.** The safety instructions attached to the products must definitely be adhered to (this is also valid for cleansing substances).
- **Gloves should be worn and eyes protected** when preparing the chemical solutions! When disinfectants are in powder form, **a breathing apparatus** must additionally be carried ! **Chlorine bleaching alkaline solution** must be poured into the bucket first and then water added, **calcium hypochlorite** (powder, granulate or tablets) should be put into a bucket already filled with water.
- **Calcium hypochlorite**, when mixed with tap water (especially with hard water) forms insoluble deposits, even after stirring repeatedly. Only the clear solution on top should be used! **Chlorine bleaching alkaline solution** leaves no residues when mixed with water.

## III. Implimentation of the disinfection measures

### A. Disinfection of drinking water

*2 ml chlorine bleaching alkaline solution or 0.5 g calcium hypochlorite/m3 tank content.*
*Induction period until use of the drinking water: a minimum of 30 minutes.*

- The solution is poured into the water tank(s) and, by letting it flow from every water tap, it is also distributed in the piping system.
- After at least 30 minutes the concentration of freely active chlorine must be monitored at the outlets using a commercially available calorimetric measuring device. (Measuring range of the meter/device: 0.1 – 2.0 mg/l, confidence range at 1.0 mg/l 10%).
- The chlorine concentration must be monitored daily. If the measured levels are below 0.1 mg/l a further dosage is necessary and should be monitored at the outlets as de-scribed above. The chlorine concentration should not increase to more than 0.6 mg/l.

### B. Disinfection of the drinking water system

#### 1. Cleansing the tank walls and/or the system parts

*mechanical cleaning; when using commercially available cleansers:*
*concentration in accordance with producers´ specifications and/or the supplier.*

- Empty the tank(s) and clean tank(s) and/or the repaired object thoroughly by mechanical means.
- Scrub and rinse the tank walls and – if present – frames and floor plates etc. with cleansing solution and pump it out.
- After completion, rinse the total tank volume with pure water at least twice and pump it empty.

#### 2. Disinfection of the tank contents and the piping system

*200 ml of chlorine bleaching alkaline solution or 50 g calcium hypochlorite/$m^3$ tank content. Induction time 10 hours.*

- Pour the solution into the tank(s) and fill them totally with water (if the tanks are combined all tanks must be disinfected). Furthermore there should be no air buffer in the tanks, but they, however, should at least be filled up to the overflow.
- Open all outlets/water taps and let the water flow out long enough so that the disinfectant reaches every part of the drinking water system (special attention is thereby to be given to the contents of the pressure tanks).
- The tank(s) together with all the outlets/water taps should be emptied after 10 hours induration time.
- Then refill the tanks with perfect drinking water, let it flow briefly from the taps and take water samples.