***Chlorine compounds***

Chlorine compounds function through their electronegative nature to denature proteinsand are considered broad spectrum, being effective against bacteria, enveloped and non-enveloped viruses, mycobateria and fungi. At elevated concentrations, chlorine compounds can be sporicidal. Sodium hypochlorite (NaOCl) is one of the most widely used chlorine containing disinfectants. [Commercial chlorine bleach contains 5.25% sodium hypochlorite in aqueous solution and 50,000 ppm available chlorine]. Biocidal activity is determined by the amount of the available chlorine of the solution. Low concentrations (2 to 500 ppm) are active against vegetative bacteria, fungi and most viruses. Rapid sporicidal action can be obtained around 2500 ppm, however this concentration is very corrosive so should be limited in its use. High concentrations are also irritating to the mucous membranes, eyes and skin. Chlorine compounds are rapidly inactivated by light and some metals so fresh solutions should always be used. Hypochlorites should never be mixed with acids or ammonia as this will result in the release of toxic chlorine gas.

 See Table 1 below for details regarding different bleach dilutions.

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| Sodium hypochlorite % | Bleach Solution Ratio  | Bleach Dilution  | ppm (available chlorine) | Comments \*\*Always use on cleaned surfaces.  |
| 0.025% | 1:200 | 1.5 Tbsp (0.6 oz) bleach to 1 gallon water  | 250 ppm  | Common household use |
| 0.1% | 1:50 | 1/8 C (1 oz.) bleach to 1 gallon water  | 1000 ppm | Commonly used  |
| 0.16% | 1:32 | 1/2 cup (4 oz.) bleach to 1 gallon water  | 1562.5 ppm | Commonly used  |
| 0.5%  | 1:10 | 1.5 cups (12 oz.) bleach to 1 gallon water | 5000 ppm | This is a very strong solution and should be used on a limited basis |
| 3.33% | 2:3 | 2 parts bleach to 3 parts water  | 33,333 ppm | Effective for FMD virus – but use with caution |