

Efficacy of chlorine, chlorine dioxide as disinfectants against plant pathogens in irrigation water

Calculated minimum application rate and exposure time required to kill 99 % of propagules tested following exposure to chlorine and chlorine dioxide. A '-' indicates that propagules were not killed at the rates tested

Pathogen	Propagule	Chlorine (NaClO)				Chlorine dioxide			
		Deionised water		Dam water		Deionised water		Dam water	
		Rate (ppm)	Time (min)	Rate (ppm)	Time (min)	Rate (ppm)	Time (min)	Rate (ppm)	Time (min)
<i>Clavibacter michiganensis</i>	Bacterial cells	1	10	1	10	1	4	1	4
<i>Alternaria alternata</i>	Conidia	5	20	-	-	5	4	5	4
	Mycelium	5	20	5	30	3	4	5	4
<i>Chalara elegans</i>	Chlamydospores	2	20	5	20	3	4	5	4
	Endoconidia	5	30	-	-	5	4	1	10
	Mycelium	5	30	-	-	5	4	3	8
<i>Colletotrichum gloeosporioides</i>	Conidia	1	10	5	10	1	4	1	4
	Mycelium	5	10	-	-	1	4	3	4
<i>Calnectria pauciramosa</i>	Conidia	2	20	5	30	1	4	3	10
	Chlamydospores	2	20	5	30	3	4	5	10
	Mycelium	1	30	5	30	3	4	3	10
<i>Fusarium oxysporum</i>	Conidia	1	10	5	10	1	4	1	4
	Chlamydospores	5	20	-	-	1	4	5	4
	Mycelium	5	10	-	-	1	4	3	4
<i>Phytophthora cinnamomi</i>	Zoospores	1	10	1	10	1	4	1	4
	Cysts	1	10	1	10	1	4	1	4
	Oospores	2	10	1	30	3	4	3	4
	Sporangia	2	10	1	20	3	4	3	4
	Mycelium	5	10	2	30	3	4	3	4
<i>Pythium aphanidermatum</i>	Zoospores	1	10	5	10	1	4	3	4
	Chlamydospores	5	20	-	-	1	4	3	4
	Mycelium	5	20	-	-	1	4	3	4