

3.

>>>

3-1.

가

UV
UV
UV
UV
UV

DNA UV

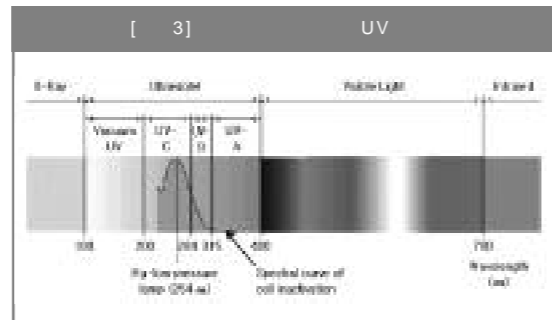
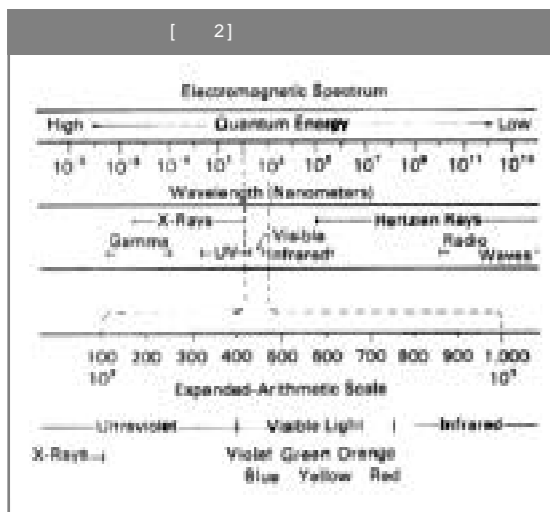
UV [2] 100 ~ 400

[3]

3가 (UV-A, UV-B UV-C)

, UV-B UV-C 가

, UV-C



UV 300 ~ 320

가

D

D3 Pro-vitamin D3

, Pro-vitamin D3

3-2.

DNA (Deoxyribo

Nucleic Acid) RNA (Ribo Nucleic Acid)

가 가

DNA 2

(Adenine), (Guanine), (Cytosine),

(Thymine) 4 가

. RNA

(Uracin)

DNA , (TT, CC 가

, UV

가 T = T

(Dimer)

A

([4] [5]). DNA Stride

가 DNA

DNA

DNA

(Inactivation). UV

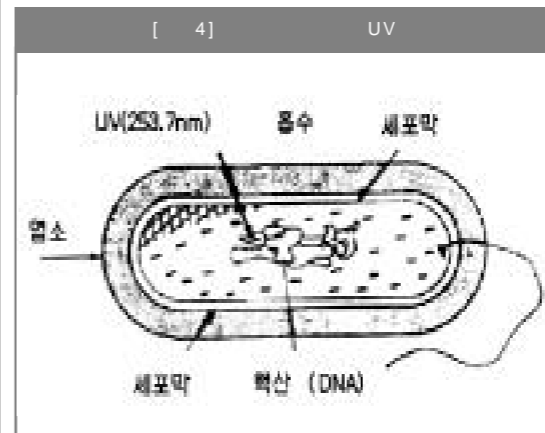
253.7nm

UV가 가

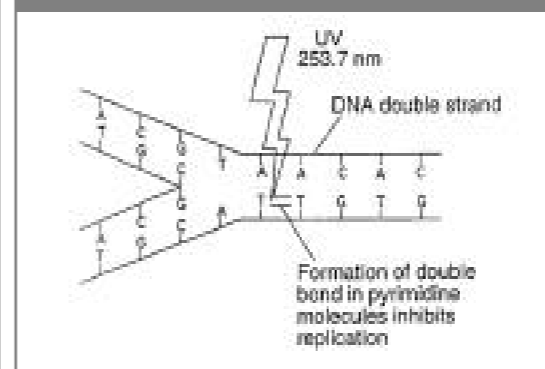
UV

253.7nm

DNA



[5] Germicidal inactivation of UV radiation¹⁾



3-3.

UV

(Equation (1))³⁾

UV

1

[6] ,

2가 가

(1) MTF (Multiple Tube Fermentation)

가

(2)

가

$$N(t) = (N_D(0) \cdot e^{-k_D t}) + \frac{N_P(0)}{K_D} (1 - e^{-k_D t}) \text{----- Equation (1)}$$

N(t) : t ----- coliform bacteria

[7]

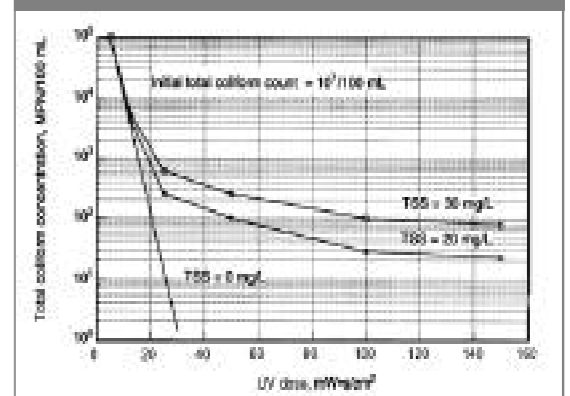
N_D(0) : UV (t = 0) coliform bacteria

N_P(0) : t = 0 coliform bacteria

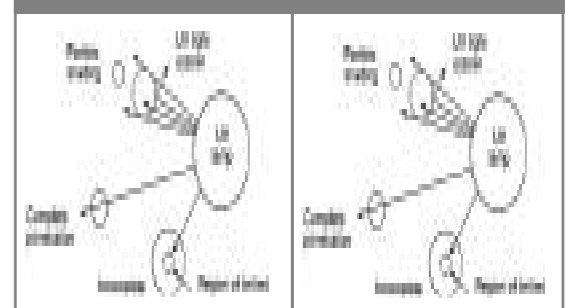
K :

D :

[6] Typical dose response curve for UV disinfection³⁾



[7] Particle interactions that impact UV effectiveness⁴⁾



Technical Report

3-4.

[4]

(1)

THM 가

(2)

가

(3)

가

가

[4]

	(%)	(# M2)
K	99.6	0.04
C	99.0	1.03
O	99.9	0.16
C	99.9	0.03
Y	99.6	0.06

bacteria virus

가 21

30MW · s/cm² 2-log

3-log 가 (AWWA, 1991),

Sincer hepatitis A virus

6 ~ 10MW · s/cm² 4-log, bacteriophage MS-2

93MW · s/cm² 4-log

⁵⁾

4.

>>>>

4-1.

UV

[5]

[5]		5)
UV	()	가
		1 가
		가
		가 가
		UV 가
		가
		가
		가
		4 가 가

(1) UV :

(2) : UV 가

(3) : UV

(4) : UV , UV

(5) UV : UV UV

(6) :

1

5,000m³/day

가

(1)

UV

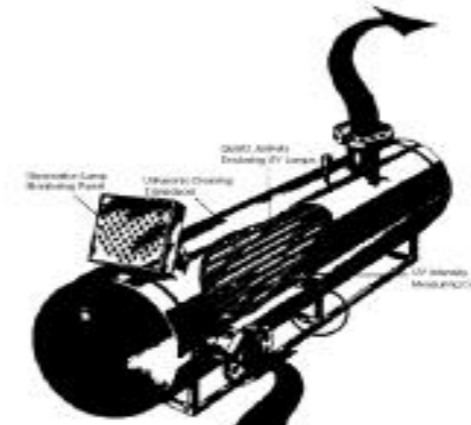
(2)

(3)

(散水栓)

(4)

[8] Closed vessel UV reactor



4-2.

가

UV

UV

1 ~ 1.5

(8,760 ~ 13,000)

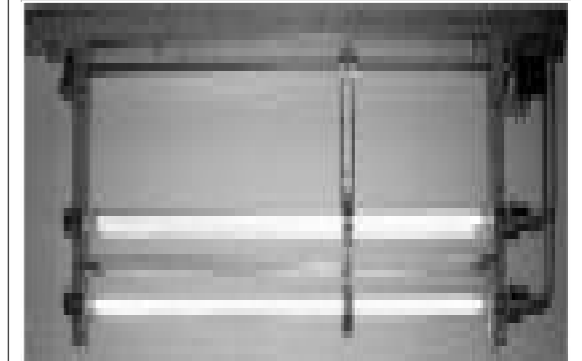
12,000

25 ~ 30MW · s/cm²,

5,000

45MW · s/cm²

[9] UV



(a) UV



(b) UV

가

가

가

