

LandGEM

/

(NMVOC)

NH4

LandGEM

(McGuinn, 1988)

(ANZECC, 1994)

United Kingdom)

(Department of the Environment , 1991

(VOC)

COD BOD

COD BOD

(ANZECC , 1994)

(Paxe'us, 2000)

)

%

(

:

Paxe'us,)

: (2000

//

:

VOC

:

COD BOD

BOD

COD

United Kingdom)

:(Department of the Environment.1991

()

•

()

•

) ()

(

•

LandGEM

/ mm

%

LandGEM

(Alexander, et al. 2005)

(۱)

$$Q_{CH4} = \sum_{i=1}^n KL_0 \left(\frac{M_i}{10} \right) e^{-Kt_{ij}}$$

: Q_{CH4}

() : i

: n

: j

$\left(\frac{1}{yr} \right)$: k

$\left(\frac{m^3}{Mg} \right)$: L_0

i : M_i

j : t_{ij}

L_0 k

= / ×()+

(Alexander, et al. 2005)

LandGEM

(K)

pH

K

(ANZECC, 1994)

K

LandGEM

LandGEM

(Alexander, et al. 2005)

:

CAA

DOC ()
 () DOC
 / (m³/Mg) (L₀)
 LandGEM

inventory
 EPA

LandGEM
 ()

inventory K
 () K
 / (/yr) / (/yr) ()
 (L₀)

L₀

L₀

(ANZECC, 1994)

(۲)

$$L_0 \left(\frac{m^3}{Mg} \right) = MCF \times DOC \times DOCF \times F \times 1482.8$$

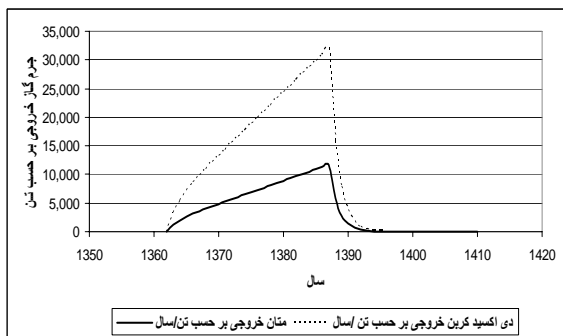
$$= MCF$$

$$\left(\frac{m^3}{Mg} \right) = DOC$$

$$\left(\frac{m^3}{Mg} \right) \times \left(\frac{\%}{\%} \right) = DOCF$$

$$= F$$

DOC



() :

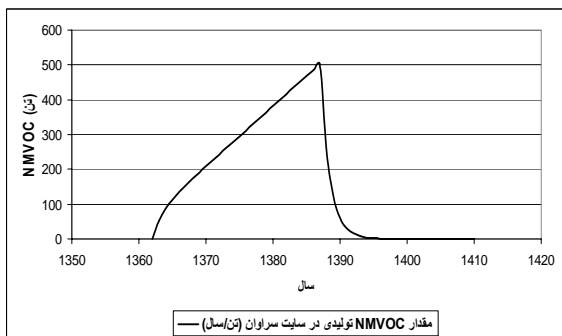
() (NMVOC)

NMVOC

DOC د. (DOC)
 ()

(ANZECC, 1994)

(DOC) : ()



NMVOC : ()

DOC	(%)	(%)	
/		/	
/		/	
/		/	
/		/	
/		/	

/

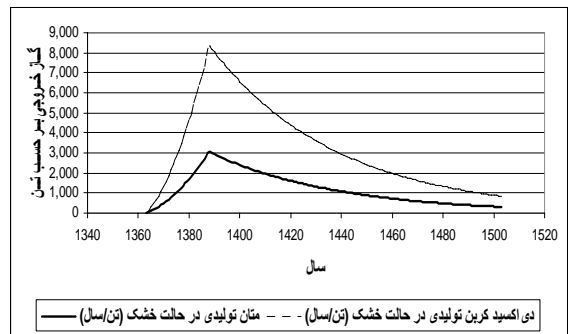
()

NMVOC

(Environmental Protection Agency- Queensland, 2004)

()

NMVOC

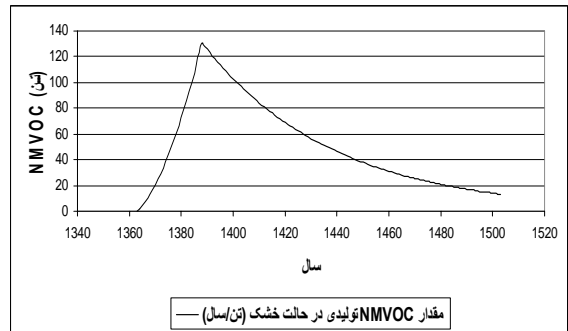


%

: ()

×

()



NMVOC : ()

()

()

()

()

()

Environmental Protection)

(Agency- Queensland. 2004

)

)

(Kjeldsen, Christensen,)

(

(2001

CO₂

(

)

()

-

)

%

%

(

%

(Dorota Kulikowska, 2008)

%

(McGuinn, 1988)

(

)

(% LEL) LEL %

:

x

-

()

) ، % -
 NH4 COD () ، % ()
 .
 -
 -
 .
 -
 (XU, et al .,2006)
 ()
 .
 :
 mm -
 -
 -
 -
 ()
 .
 NH4
 ()
 (Huo Shou-liang ,2007)
 .
 :
 .
) (Pax'us, 2000)
 ،
 BOD COD
 .(=

NMVOC

1-Landfill

2-Non-methane Organic Compound (NMOC)

3-Hazardous air Pollutant (HAP)

4-Volatile Organic Compounds (VOC)

5-Cap

6-Non-methane Volatile Organic Compounds
(NMVOC)

7-Lower Explosive Limit

8-Hydraulic Conductivity

NMVOC

Alexander,A., C.,Burklin and A.,Singleton. 2005. Landfill Gas Emissions Model (LandGEM). Version 3.02 User's Guide, U.S. EPA-600/R-05/047.

ANZECC .1994. National Hazardous Waste Classification System, Australian and New Zealand Environment and Conservation Council, Canberra.

Environmental Protection Agency- Queensland (EPA-qld). 2004 . Guideline Environmental Operations , Landfill siting, design, operation and rehabilitation. ERA 75 – Waste disposal .

Kjeldsen,P., T.H.,Christensen. 2001. A simple model for the distribution and fate of organic chemicals in a landfill: MOCLA. Waste Manage. Res. 19, 201–216.

Kulikowska,D., E.,Klimiuk. 2008. The effect of landfill age on municipal leachate composition. Bioresource Technology. 99, 5981–5985

McGuinn,Y.C. 1988. Memorandum. Radian Corporation, to Susan Thorneloe, EPA. Sensitivity Analysis of Landfill Gas Generation Model, Public Docket No. A-88-09.

Paxe'us,N. 2000. Organic compounds in municipal landfill leachates. Water Sci. Technol. 42, 323–333.

Shou-liang ,H., et al. 2007 . In situ simultaneous organics and nitrogen removal from recycled landfill leachate using an anaerobic–aerobic process. Bioresource Technology 99 , 6456–6463

United Kingdom Department of the Environment. 1991. Landfill gas—waste management paper No. 27. London: Crown.

Xu,Y.D., et al .2006. Fractionation of dissolved organic matter in mature landfill leachate and its recycling by ultra filtration and evaporation combined processes. Chemosphere 64, 903–911.