

Marine Engineering English



Lesson 21 Sewage Treatment



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Learning Objectives:

1. Grasp some useful words and expressions in the whole text.
2. After studying the lesson, he or she will have a better understanding of the Sewage Treatment.

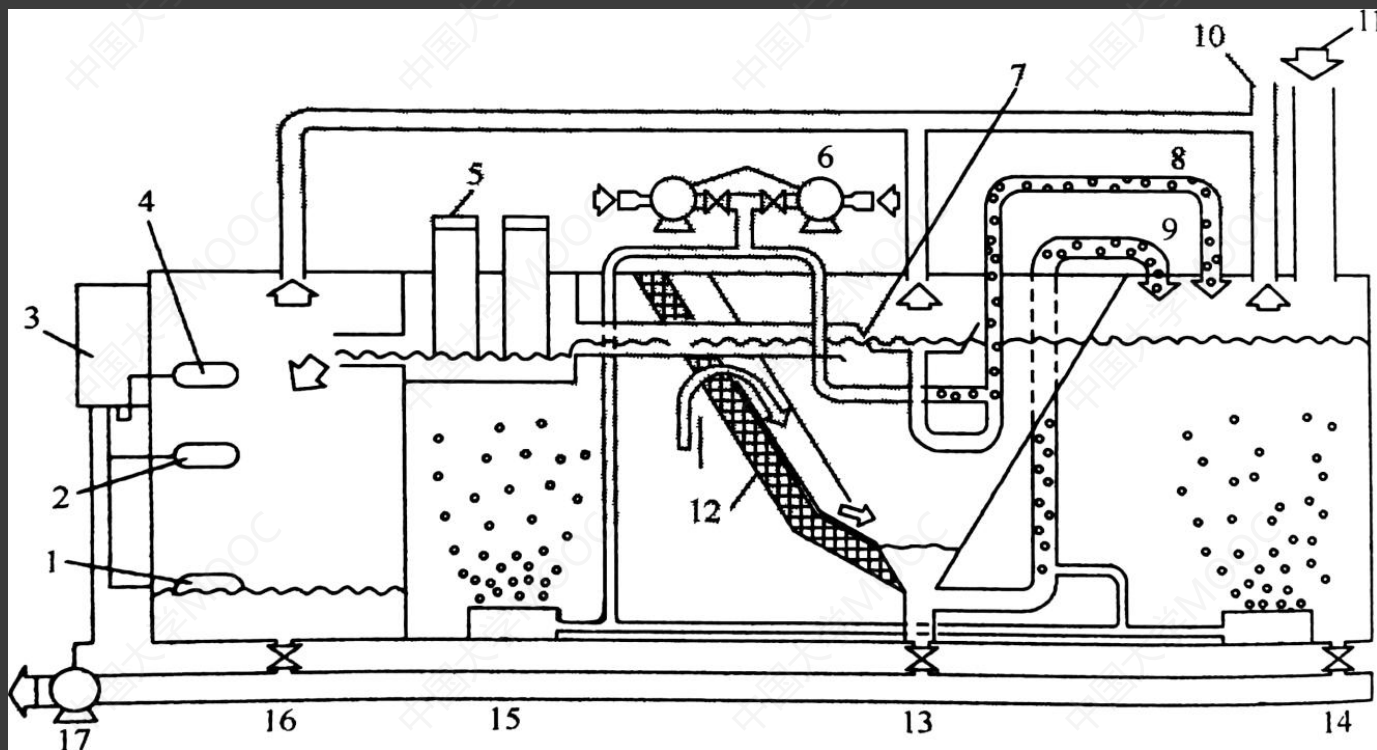


Learning procedures:

1. Introduction (Background knowledge)
2. New words and expressions
3. Text analysis
4. Questions



Introduction (Background knowledge)



1. 低水位浮子开关 2. 高水位浮子开关 3. control box 4. 异常高水位浮子开关
5. chlorinator 6. air compressor 7. scum plate 8. 浮渣回送管 9. 污泥回送管 10. air vent pipe 11. sewage water inlet 12. filter 13. settling tanks 14/15. aeration tanks 16. disinfection tank 17. Water discharge pump

New words and expressions

New words and expressions

territorial

[ˌterə'tɔ:riəl]

a. 领域的, 领土的

ban

[bæn]

v. 禁止, 取缔; n. 禁令

tablet

['tæblət]

n. 小[扁, 药]片, 片剂

employ

[im'plɔɪ]

v. 使用; n. 雇用

disposal

[di'spəʊzl]

n. 处理, 处置

inshore

['ɪnʃɔ:(r)]

a. 近海岸的, 沿海岸的

retain

[ri'tein]

v. 保留, 保持

odour

['əʊdə(r)]

n. 气味, 臭味

sterilization

[ˌsterəlaɪ'zeɪʃn]

n. 杀菌, 消毒

New words and expressions

| | | |
|------------|----------------|----------------|
| comminutor | [kəmi'nʌtə] | n. 粉碎机, 粉碎器 |
| sullage | ['sʌlɪdʒ] | n. 残渣, 污水, 淤泥 |
| dosage | ['dəʊsɪdʒ] | n. 剂量, 配药, 用量 |
| corrosion | [kə'rəʊzn] | n. 侵蚀, 腐蚀(状态) |
| alkalinity | [,ælkə'lɪnɪti] | n. 碱度, 碱性, 含碱量 |
| bacteria | [bæk'tɪəriə] | n. 细菌 |
| aeration | [eə'reɪʃn] | n. 充气, 曝气, 通风 |
| aerobic | [eə'rəʊbɪk] | a. 好氧的, 需氧的 |

New words and expressions

chlorine

['klɔ:ri:n]

n. [化]氯

micro-organism

[,maɪkrəu'ɔ:gənɪzəm]

n. 微生物

chlorinator

['klɔ:rɪneɪtə]

n. 氯化装置, 加氯器

be in force

生效

build up

增多, 增大, 增殖

in terms of

在.....方面, 依据, 按照

settle out

沉淀出来, 沉淀下来

oxygen-loving bacteria

需氧菌, 好氧菌



Lesson 21 Sewage Treatment

Text analysis



Text analysis

- ◎ The discharge of untreated sewage in controlled or territorial waters is usually banned by legislation.

全句译为：未经处理的生活污水排放到控制水域或领海通常被立法禁止。



Text analysis

- International legislation is **in force to** cover any sewage discharges within specified distances from land.

全句译为：国际立法已**生效**，以涵盖从陆地到指定距离内的任何生活污水排放。



Text analysis

- As a result, and in order to meet certain **standards** all new ships have sewage treatment plants installed.

全句译为：因此，为了达到某些**标准**，所有新船都安装了生活污水处理装置。



Text analysis

Two particular types of sewage treatment plant are in use, employing either chemical or biological methods.

全句译为：目前正在使用两种特殊类型的生活污水处理装置，
化学方法或生物方法。



Text analysis

The chemical method is basically a storage tank, which collects solid material for disposal in permitted areas or to a shore collection facility.

which collects solid material for disposal in permitted areas or to a shore collection facility
为定语从句修饰storage tank。

全句译为：化学处理设备主要是一个贮存柜，它用来收集固体物质，以便在允许的区域或岸上的回收装置中进行处置。



Text analysis

The biological method treats the sewage so that it is acceptable for discharge inshore.

全句译为：生物方法处理生活污水，使其可以排放到近海。



Text analysis

- ◎ This system **minimizes** the collected sewage, treats it and retains it until it can be discharged in a decontrolled area, usually well out to sea.

Minimizes: 使动动词，意思是使最小化。

全句译为：这个系统将收集到的污水**最小化**，并对其进行处理和保留，直到它可以排放到一个不受控制的区域，通常是远离陆地排到大海。



Text analysis

Shore receiving facilities may be available in some ports to take this retained sewage.

全句译为：在一些港口可能有岸上接收设施来接收这些保留的生活污水。



Text analysis

This system must therefore collect and store sewage produced while the ship is in a controlled area.

本句中produced为定语，修饰sewage；
while the ship is in a controlled area为时间状语。

全句译为：因此船舶处于控制区域时，该系统必须能够收集并贮存产生的生活污水。



Text analysis

- ◎ The **biological system** utilizes bacteria to completely **break down** the sewage into an acceptable substance for discharge into any waters.

全句译为：生物处理系统利用细菌将污水完全分解成可接受的物质排放到任何水域。



Text analysis

The **extended aeration process** provides a climate in which oxygen-loving bacteria multiply and digest the sewage, converting it into sludge. These oxygen-loving bacteria are known as aerobic.

全句译为：充分曝气过程提供了一种气候，在这种气候中，好氧菌繁殖并消化分解生活污水，将其转化为污泥。这些好氧菌被称为喜氧的。



Text analysis

The treatment plant uses a tank which is divided into three watertight compartments: an **aeration compartment**, **settling compartment** and a **chlorine contact compartment**.

全句译为：生活污水处理装置利用一个水柜，水柜分为三个水密隔室：**曝气室**、**沉淀室**和**消毒室**。



Text analysis

The sewage enters the aeration compartment where it is digested by aerobic bacteria and micro-organisms, whose existence is aided by atmospheric oxygen which is pumped in.

本句中where it is digested by aerobic bacteria and micro-organisms 作定语从句，修饰前面的aeration compartment；whose existence is aided by atmospheric oxygen which is pumped in 作补语，补充说明aerobic bacteria and micro-organisms，其中的which is pumped in 定语从句修饰oxygen。

全句译为：生活污水进入曝气室，在这里被好氧菌和微生物消化分解，好氧菌和微生物是依靠泵入空气中的氧气而生存。



Lesson 21 Sewage Treatment

Questions



Exercises 生活处理装置题目

- ① 1. The biological sewage treatment plant utilizes _____ to completely break down the sewage into an acceptable substance for discharge into any waters.
- ② A. agitation function
- ③ B. bacteria
- ④ C. chemical
- ⑤ D. oxidizing function

生活污水处理装置是利用细菌来彻底把生活污水分解成排放到任何水域可接受的物质。



Exercises 生活处理装置题目

- ◎ 2. Most marine biological sewage treatment plants consist of all the following statements except_____.
- ◎ A. aeration tanks
- ◎ B. settling tanks
- ◎ C. disinfection agent
- ◎ D. anaerobic bacteria

大多数船舶生活污水处理装置包括曝气室、沉淀室、消毒杀菌室和好氧菌等,不使用厌氧菌。



Exercises 生活处理装置题目

- ◎ 3. A number of biological sewage treatment plants are in use at sea but nearly all work on the principle called_____.
- ◎ A. deoxygenating
- ◎ B. extended aeration
- ◎ C. oxygenation
- ◎ D. bubbling air

船上的几种污水处理系统几乎都是采用充分曝气的原理来工作的。



Exercises 生活处理装置题目

- ④ 4. The extended aeration process consists of _____ the liquor either by bubbling it or by agitating the surface.
- ④ A. deoxygenating
- ④ B. oxygenating
- ④ C. chemicals
- ④ D. disinfecting

充分曝气的过程包括了通入空气起泡或搅动液面的方式来促进液体的增氧。



Exercises 生活处理装置题目

- ◎ 5. Before marine sewage treatment plant works, _____ should be filled with fresh water.
- ◎ A. deposition chamber
- ◎ B. oxidation pool
- ◎ C. disinfection chamber
- ◎ D. all chambers

在船用生活污水处理装置运行之前, 氧化池 (曝气池) 需先充满淡水。



Exercises 生活处理装置题目

- ⑥ 6. Bacteria which live_____ are said to be aerobic.
 - ⑦ A. in the presence of oxygen
 - ⑧ B. without oxygen
 - ⑨ C. in the presence of nutrition
 - ⑩ D. without nutrition
-

需要有氧气才能存活的细菌被称为好氧菌。



Exercises 生活处理装置题目

- ⑦ 7. When anaerobic bacteria convert the sewage to an inert sludge, _____.
 - ⑦ A. no oxygen is needed
 - ⑦ B. oxygen is necessary
 - ⑦ C. oxygen is given off
 - ⑦ D. no gas is produced
-

当厌氧菌将生活污水转换为惰性污泥时, 不需氧气。



Exercises 生活处理装置题目

- ④ 8. Disinfectant used in the sewage biological treatment plant usually is_____.
- ④ A. chlorine water
- ④ B. ozone
- ④ C. hypo-chlorite
- ④ D. calcium oxide

生活污水生化处理装置的消毒剂通常是次氯酸钠。



Exercises 生活处理装置题目

- ④ 9. Concerning the management of sewage treatment plant using activated sludge. Which of the following is correct?
- ④ A. the plant should be prohibited to supplying air
- ④ B. the plant should work at intervals
- ④ C. the plant should be added disinfectant in time
- ④ D. we should check strength of activated sludge, ivory-white color is best

对于采用活性污泥的生活污水处理装置的管理, 应对装置及时添加消毒剂。(D项应为巧克力色。)



Exercises 生活处理装置题目

- ④ 10. In chemical sewage treatment system, tests must be performed _____ to check the chemical dosage rates.
- ④ A. monthly
- ④ B. weekly
- ④ C. daily
- ④ D. annually

化学生活污水处理系统中, 应每日进行测试以检查化学投药量。

Thank You!

