



UN-HABITAT presentation

Maintenance of Septic Tanks

Yukihiro Maeda, President
Maeda Kougyou Inc.
Kitakyushu City

発表者: 北九州市八幡西区
前田興業株式会社
代表取締役 前田行廣



Treatment by use of Septic Tanks

I Combined Septic Tanks

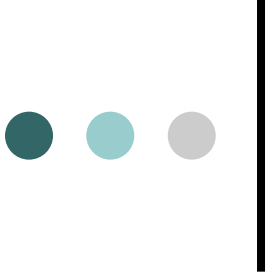
Septic tanks which treats human waste and other waste water together

(effluent water quality below BOD20mg/l)

II Single Septic Tanks (No longer allowed to build new tanks)

Septic tanks which treats only human waste

(effluent water quality below BOD90mg/l)



Required water quality for use of combined septic tanks in Japan

- BOD40g/l per person/day
- Influent water volume 200l/per person/day

As lifestyles and cultures vary by country as well as required influent water quality, the septic tanks used in Japan may not best apply in other countries.

浄化槽法

- 第1章 総則
- 第2章 浄化槽の設置
- 第3章 浄化槽の保守点検及び浄化槽の清掃等
- 第4章 浄化槽の型式の認定
- 第5章 浄化槽工事等に係る登録
- 第6章 浄化槽清掃業の許可
- 第7章 浄化槽設備士
- 第8章 浄化槽管理士
- 第9章 条例による浄化槽の保守点検を業とする者の登録制度
- 第10章 雑則
- 第11章 罰則



Joukasou law

Table 3.1 Contents of Joukasou Law

| | |
|------------|--|
| Chapter 1 | General Rules (Article 1-4) |
| Chapter 2 | Installation of Joukasou (Article 5-7) |
| Chapter 3 | Maintenance and Desludging of Joukasou (Article 8-12) |
| Chapter 4 | Approval of Joukasou Type (Article 13-20) |
| Chapter 5 | Registration for Joukasou Installation Business (Article 21-34) |
| Chapter 6 | Approval for Joukasou Desludging Business (Article 35-41) |
| Chapter 7 | Joukasou Installation Worker (Article 42-44) |
| Chapter 8 | Joukasou Operator (Article 45-47) |
| Chapter 9 | Registration of Joukasou Operation and Maintenance Vendors by Regulations (Article 48) |
| Chapter 10 | Others (Article 49-58) |
| Chapter 11 | Penalties (Article 59-67) |

Example of household level septic tanks

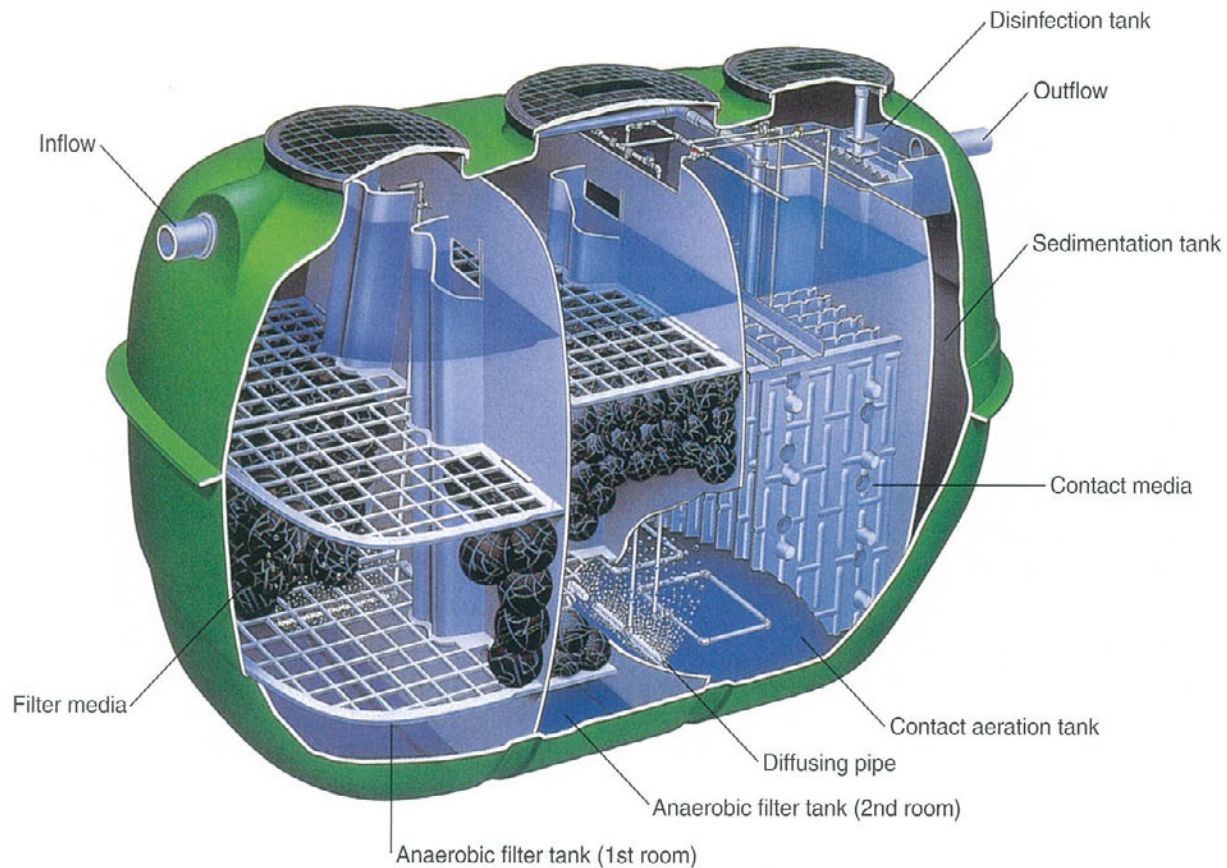


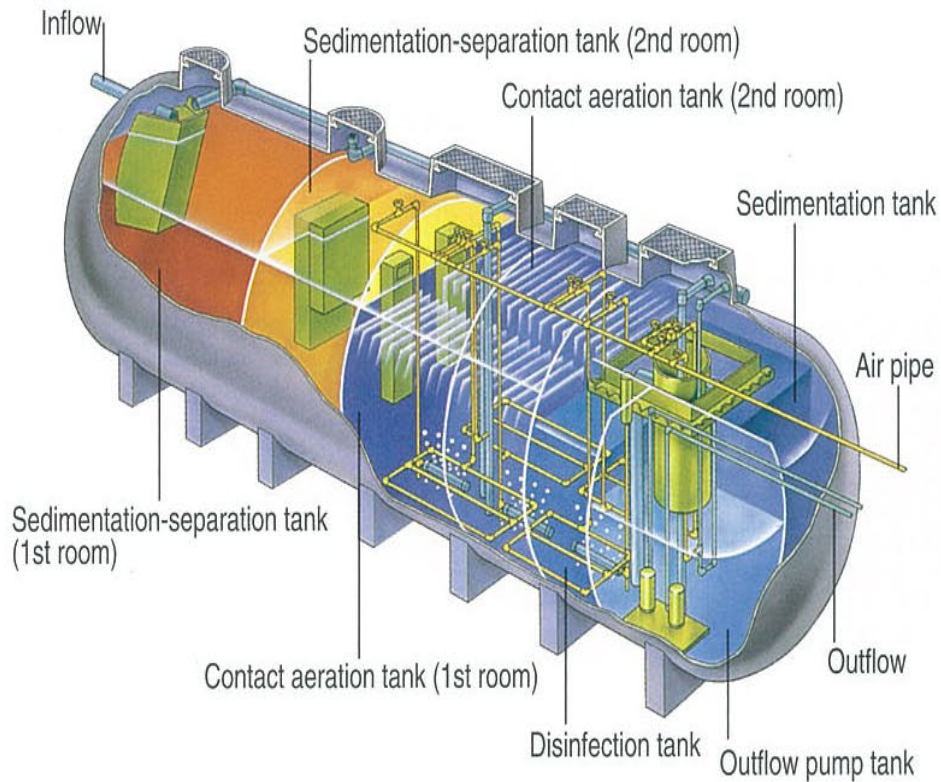
Figure 4.3 Schematics of structure of a small-scale johkasou (anaerobic filter - contact aeration process)

Example of septic tanks built in households

写真6-1 浄化槽の設置現場



Combined Treatment : Large size Septic Tanks



An FRP-made johkasou for 200-500 NUD
(FRP- fiberglass reinforced plastic)



An RC-made johkasou for 740 NUD (JARUS type)
(RC - reinforced concrete)

Figure 4.8 Examples of medium/large-scale johkasou

Other septic tanks

- Combined septic tank for 50 persons (factory)



Tank Cleaning (Cleaning and Vacuum)



Cleaning of Septic Tanks (High pressure cleaning trucks - 10 ton vacuum cars)



Main equipments (DO, pH)

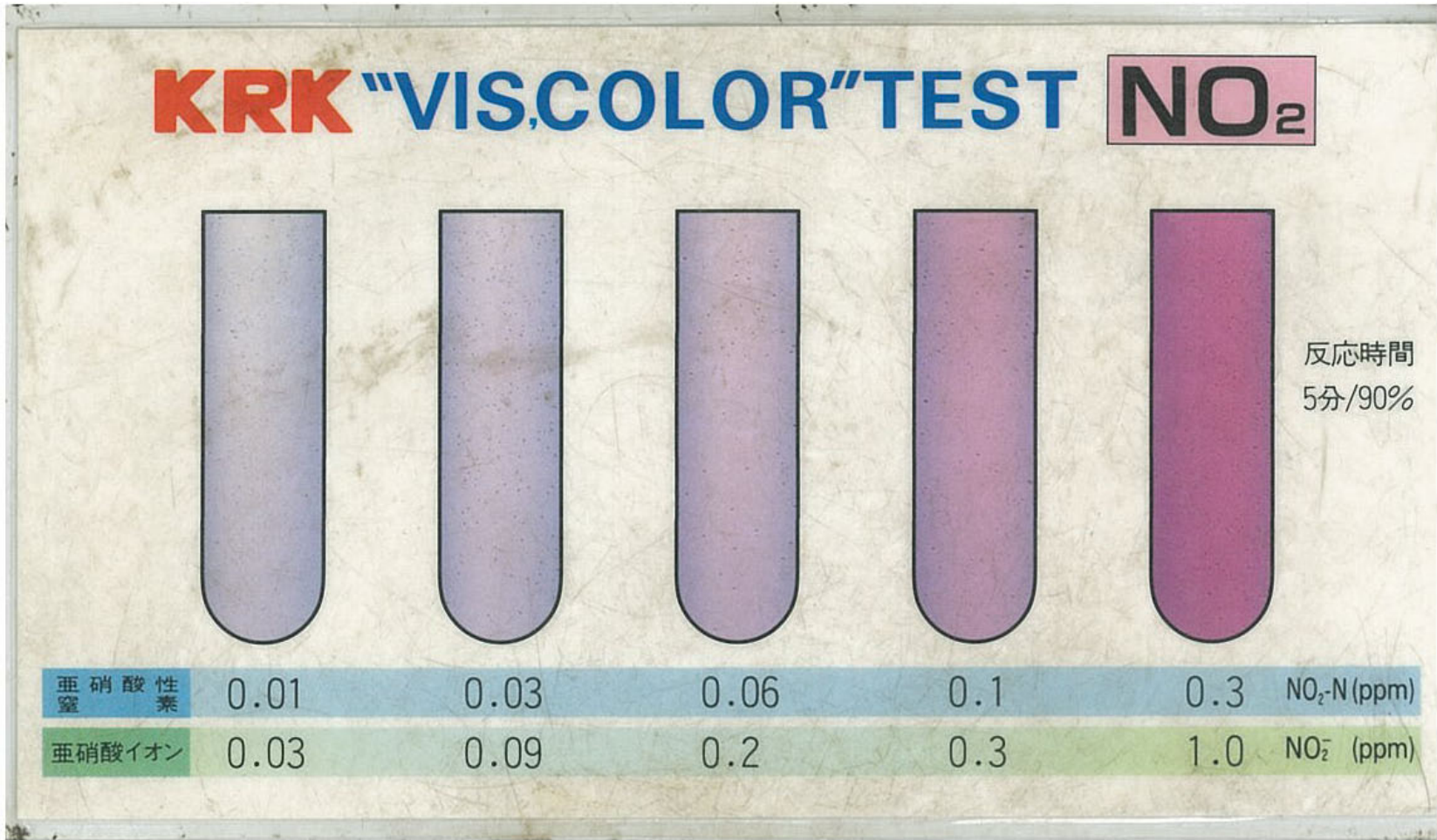
電極法



比色法



Nitrate-nitrogen testing





Conditions for Improvement of Maintenance technology of Septic tanks (Efforts to be made by Local Governments)

- Establishment of state run research institutes specialized in septic tanks; conduct R&D on treatment methods and structures
- R&D on general household waste water treatment
- Regulations by the central government
- Assistance programs for implementation of septic tanks
- Awareness and capacity building by local authorities for tank management and maintenance companies



Conditions for Improvement of
Maintenance technology of Septic tanks
(Efforts to be made by Maintenance Companies)

- 1) The right person for maintenance
 - good observation skills
 - good learner
 - likes the waste water treatment work
- 2) Treat personnel as 'engineers'
- 3) Requires good communication between the field and the local authorities