

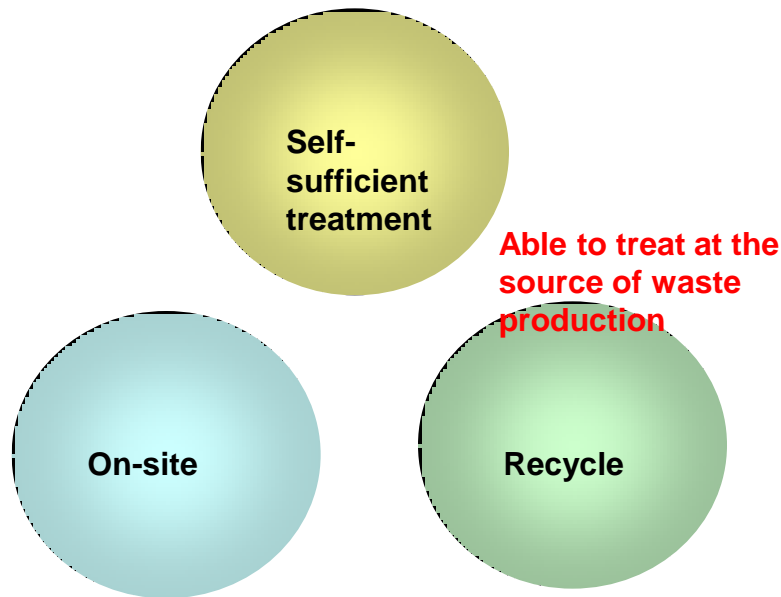
CarboX – II (KAT–8000W)



SUMIDA

Carbo X-II is a mobile/onsite thermal decomposition waste treatment technology

Features of Carbo X-II



Able to reduce cost of transportation

Reduction of Cost

- Onsite waste treatment enables reduction of transportation cost,

Diverse opportunities

- Environment business opportunities
- Sales and production of carbonized recycled products

Environmentally friendly

- Contribution to a cyclic society by use of carbonized recycled products
- Contribution to avoiding global warming by low carbon operations

Social contribution

- Co-benefit operations

Corporate Profiles

Name **SUMIDA**

Location **Eco Town Zone, Kitakyushu City**

President **Takeshi Fukumura**

Established **October 28 1997**

Capital **JPY 81 mil.**

Type of business

Development, design, manufacturing, and sales of carbonization products. Consulting related to environment businesses.

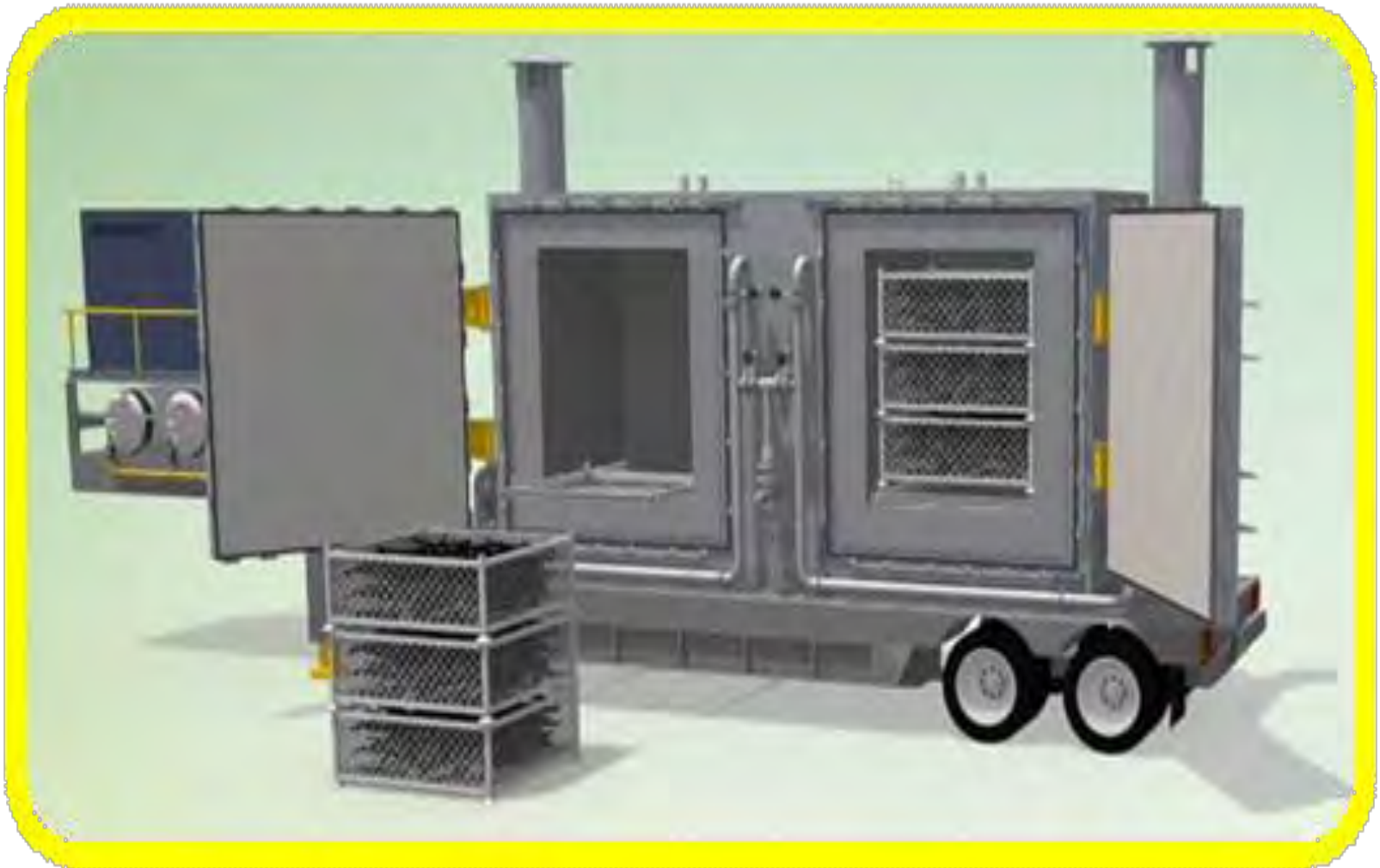
Carbo X-II (Actual facility)

* The tractor not included as part of the facility



Technology
Features

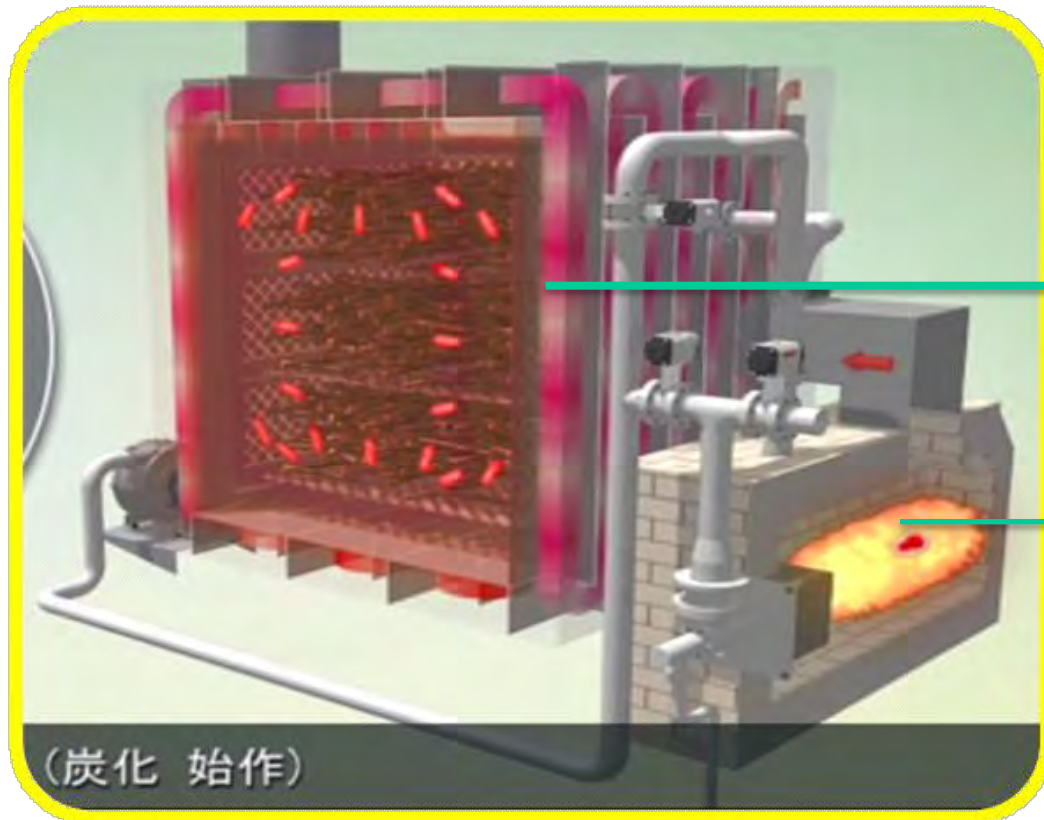
Insertion of waste by container boxes



Technology Features

Use of Carbonizing Gas as Fuel

- An energy efficient design using carbonized gas developed from waste
- Reduced time for carbonization due to newly developed heat duct structures



Heat duct systems

Use of both carbonized gas and kerosene

Technology Features

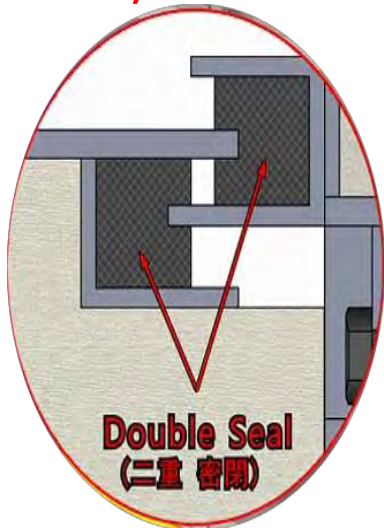
Air tight carbonization chambers

■ Technology of Carbonization

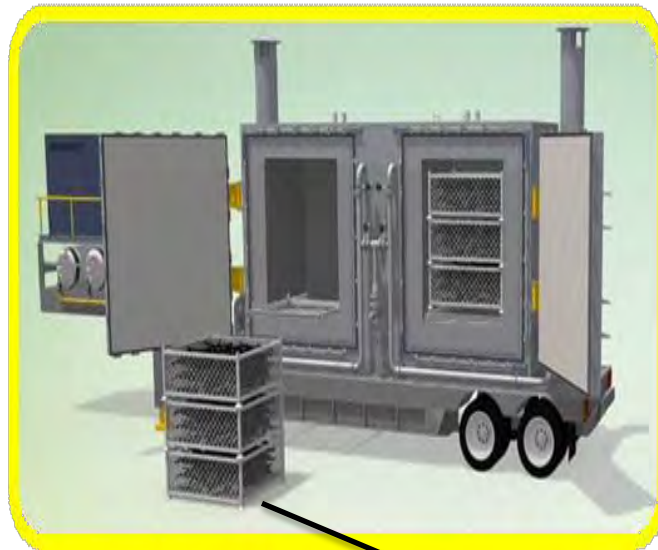
- Air tight carbonization chambers and container boxes

👉 Carbon thermal decomposition temperatures $50^{\circ}\text{C} \sim$

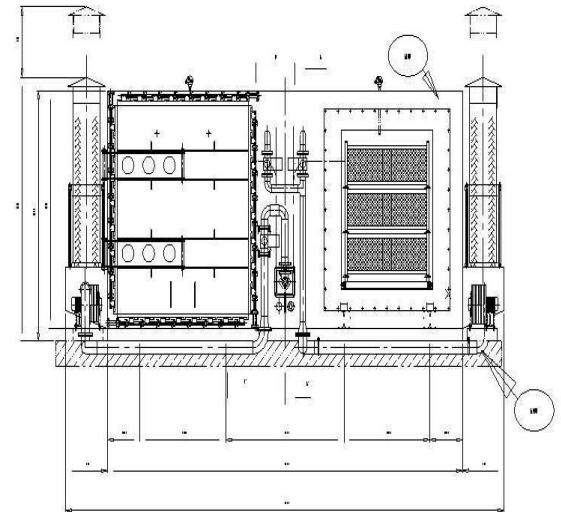
$1,000^{\circ}\text{C}$



Air tightness of carbonization chamber



Container Box



Various Patents

① 生ゴミの炭化処理車及び生ゴミの炭化処理方法

特許第3693624号(日本)

2005年7月1日取得

② 医療廃棄物の炭化処理システム及び炭化処理車

特許第10-0685278号(韓国)

2007年2月14日取得

③ 医療系廃棄物の炭化処理設備及び医療系廃棄物の炭化処理方法

特許第5004523号(日本)

2012年6月1日取得

④ 廃棄物の間接加熱方式炭化処理システム及びこれを利用した炭化車両

特許第10-1129826号(韓国)

20012年3月16日取得

⑤ 廃棄物の間接加熱方式炭化処理システム及びこれを利用した炭化車両

特許第

号(中国)

2014年9月21日取得

国際特許出願 PCT/KR2010/003274号 2010年5月25日

Malaysia/Vietnam



Effective use of carbonized recycled resources

Fuel

Odorless household use fuel at 6,500kcal/kg

Industrial

Alternate and auxiliary fuel for coal

Agricultural

Prevention of sequential cropping disorders, PH adjustments

Soil improvement

Improvement of soil by use of carbon porous

Compost

Mixed use with organic fertilizers for acceleration of bacterial activities

Water improvement

Adsorption of pollutant materials, de-composting of organic materials by activation of bacteria

Dehydration

Moisture retention, deodorization, antifungal, adsorption of formaldehyde

Activated carbons

Potable water purification, industrial waste water purification, collection of gas, removal of dioxin

Onsite, carbonization thermal treatment to prevent livestock diseases



Cow



chicken

Livestock diseases

Cow dungs, chicken droppings

Treatment of un-movable epidemic livestock, culled animals, animal dungs

Carbonization
thermal treatment

500°C ~ 800°C

Dry thermal
sterilization

2hours

***Epidemic prevention**
***Sterilization**

For Treatment of Medical Waste



Treatment of infectious medical waste

Carbon heat treatment

Sterilization, Prevention of infection

Environment and Fuel

General waste

Improvement of living environment



CarboX-II
carbonization
Production of fuel from kitchen waste

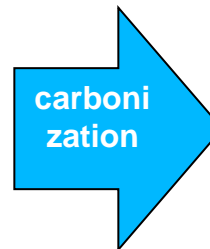
Alternate fuel from kitchen waste and improvement of living environment



Made into Solid fuel



Improvement of waste environment in places without public waste management services



Improvement of hygienic conditions

Carbonization and recycle of Oil Palm waste

Oil palm waste is left untreated in palm forest and farms



CarboX-II
(carbonization)

Production of fuel and active carbon



Materials for Active Carbon

Palm oil residue

carbonization

Re-cycle

Bio carbonization of Palm oil waste

Palm Oil waste



Recycled products
(biomass cokes)



Bio carbon from palm oil waste

CarboX- II (KAT-8000W)

Thank you for your attention

SUMIDA