

Yamato Sanko MFG.Co.Ltd.

～ Biomass Solution with Drying Technology ～

Present by Isamu Yamato

1. Company Profile

Established : **Oct. 1915**

Head Office: **Shinjuku, Tokyo**

Factory : **Yabuki, Fukushima
& Wuxi, China**

Representative : **Teruaki Yamato**

Employees : **Approx. 100**

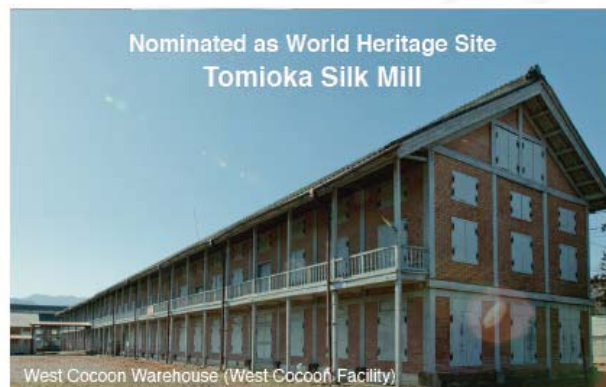


2. History

As a specialized Dryer maker since 1915, Yamato Sanko has provided the product with newest technology including industrial drying equipment, heat treatment equipment, incineration equipment and related plants.

Based on our technology and reliabilities, we are manufacturing various types of industrial dryers.

Currently, we provide sludge drying incinerators and carbonizers to be used for a part of waste treatment.



Tomioka Silk Mill (World Heritage Site)
Yamato Sanko made cocoon dryers for the Tomioka Silk Mill

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3. History of Drying Objects

Drying Objects				
1930~	1940~	1950~	1960~	1970~
 Cocoon (⇒ Silk)	 Staple Fiber	 Resin / Pigment / Chemical Fiber	 Metal Printing / Food	 Synthetic Fertilizer
1980~	1990~	2000~	2010~	
 Various sludge	 Synthetic Resin	 Catalyst / Glass Fiber	 Paper Sludge	 Wood Chips For Biomass & Renewable energy

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4. Dryer Types



Band Dryer



Fluidized Bed Band Dryer



Tray Dryer (Box Dryer)



Through Air
Combination Dryer



Rotary Dryer with
Agitator



Wedge Style Dryer

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5. Biomass Solutions with Drying Treatment

- **Sludge**
(Sewage/Human Waste etc.)
- **Paper Sludge**
- **Food Residue**
- **Livestock Waste**
- **RDF (Refuse Derived Fuel)**
- **Wood Chips**
- **Others**



Sludge (Sewage/
Human Waste etc.)



Paper Sludge



Food residue



Livestock Waste



RDF



Wood Chips

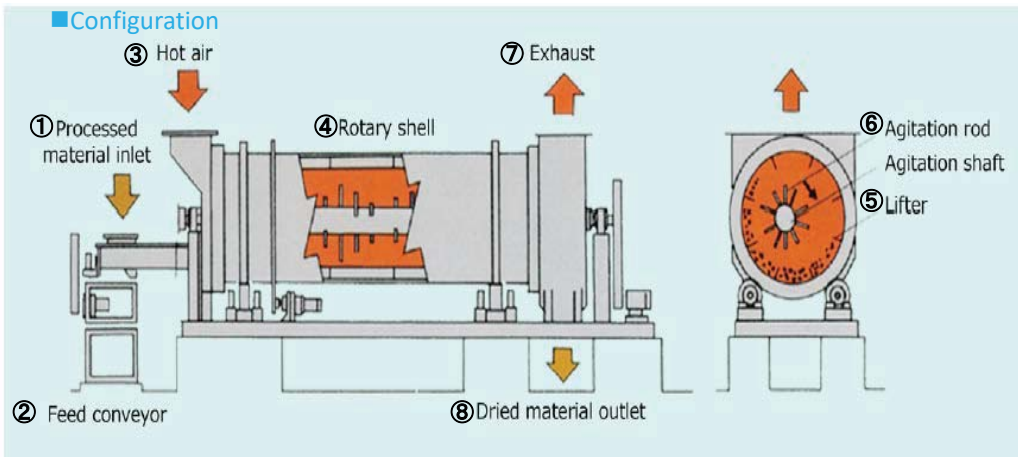
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6. Rotary Dryer with Agitator (KRD)

■ Features

1. Quick drying speed.
2. Use high temperature gas for excellent thermal efficiency.
3. A low volume of gas is used which makes small exhaust gas processors (dust collector, deodorize).
4. Suitable for the viscous, adhesive, or contain large amounts of moisture materials.
5. Highly adaptive to changes the sludge.
6. Produces dried materials, 1 to 5 mm diameter .

■ Configuration



【Drying Process Flow】

- ① Processed material inlet
- ② Feed conveyor
- ③ Hot air
- ④ Rotary shell
- ⑤ Lifter
- ⑥ Agitator rod & shaft
- ⑦ Exhaust
- ⑧ Dried material outlet

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7. Rotary Dryer with Agitator



High drying efficiency for viscous materials,

- Sew sludges
- Human waste
- Active sludge

This dryer specializes in the drying of sticky substances and has a high structural drying capacity.

The rotary dryer with agitator is equipped with an agitation mechanism comprised of an addition shaft and agitation rod inside the rotary cylinder.

The scooped up materials are repeatedly crushed and dispersed by the agitation mechanism to improve the contact with the hot air and make dryer more efficient.

Patented in U.S.A, EU, and 5 other countries.

Reference: KRD 450

Drying Material : *Sewage Sludge*

Processing Capacity : *120 t/day*

Length x Height : *10m x 5m*

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8. Vortex Dryer and Incinerator



Plant in Singapore
Largest Sludge Processing Plant Equipment
in Southeast Asia

Fuel costs can be highly reduced by using biofuels such as dry sludge, screen residues, wood chips and coal!

Previously, most incinerator systems integrated the dryer and incinerator, but as a result of research at Yamato Sanko, we launched more efficient energy saving system which separates vortex dryer and incinerator furnace.

Now the system widely used the drying solution for sewage sludge.

The system was introduced several hundred units, which has contributed to preventing pollution and saving fuel in a wide variety of situation.

A particular success was in the field of human waste sludge, where we delivered large-scale equipment in 1977 that even now continues to operate well.

In 1974, we received a patent in the USA.

Approved by the CDM^(*) Project in 2009!

Reduces CO2 emissions by about 100,000 tons every year

The purpose of the CDM project is to reduce (or absorb) greenhouse gases, while promoting the transfer of advanced environmental technologies and Energy saving technologies from developed countries to developing Countries.

*1CDM(Clean Development Mechanism) is a mechanism that creates emission credits based on projects in countries not subject to numerical restriction targets under the Kyoto Protocol. This is a type of market mechanism that was introduced to make it easier for developed countries to achieve their numerical targets. It established a system that also enables developing countries to profit from reducing their greenhouse gas emissions (by selling a corresponding amount as emission credits to developed countries).

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9. Vortex Dryer and Incinerator

Reference

Location :

Changzhou, China
(常州、中国)

Drying Material :

Sewage Sludge
(下水污泥)

Processing Capacity :

450 t/day
(150 t/day x 3 Lines)



China in 2019

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To our German friends!

**Do you have any difficulty for Drying/ Carbonizing your waste
(Sludge/Residue)?**

**Yamato Sanko is a Japan's leading company for
Drying/ Carbonizing.**

Please feel free to ask us anything!



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