

Subcritical Water Processing Technology

Features

- Material recycling of waste with high chlorine content that is currently incinerated for disposal.
- Utilizing the strong degradation capability of subcritical water to convert organic waste into valuable materials for recycling.
- Environment-friendly processing system using water.

Overview

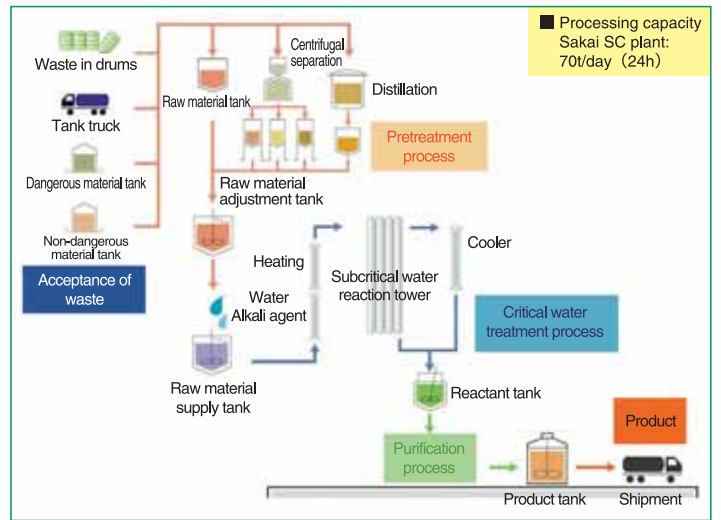
(Technical principles, actions, etc.)

Subcritical water, the temperature and pressure ranges of which are a little lower than the critical points of water (i.e., 374°C and 22 MPa), can appropriately dissolve and hydrolyze organic matter. By processing organic matter in subcritical water, the organic matter will be broken down to valuable materials, such as alcohol, organic acids, and amino acids.

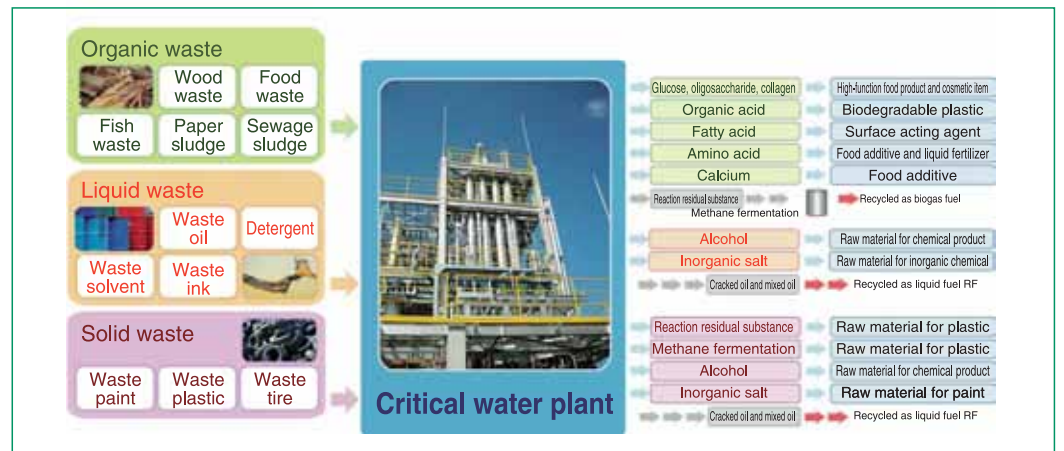
Furthermore, subcritical water processing makes it possible to convert waste with high chlorine content into valuable materials, such as organic acids. Such waste is considered a difficult item to dispose of properly because the waste burned for disposal may damage incinerators.

This technology utilizes the characteristics of subcritical water for the material recycling of waste materials, such as waste oil and biomass, discharged from a variety of industries to convert the waste materials into valuable materials.

Kinki Environmental Industry operates its Sakai SC plant including facilities that use subcritical water and process industrial waste at the rate of 70 tons a day and has an accumulation of know-how to process a variety of organic waste materials.



SC plant flow



Material recycling example using subcritical water

Effects

Subcritical water processing technology provides the following effects.

◎ Recycles waste with high chlorine content that is considered a difficult item to dispose of properly.

By processing 521 tons of waste oil containing high chlorine, the waste oil was all recycled as valuable materials, such as auxiliary fuel for cement baking, in fiscal 2008.

◎ Breaks down and recycles organic matter by utilizing the hydrolytic action of subcritical water.

Subcritical water is not only used for the disposal of waste oil but also used for biomass waste that contains a large quantity of water, in particular. The water content can be used as a reaction solvent, which makes it possible to break down and convert the waste efficiently into valuable materials.

◎ Environment-friendly processing system using water.

An acid or alkali catalyst is required by conventional hydrolysis, which produces waste again. Subcritical water processing utilizes the state change of water, thus realizing recycling with a low environmental load imposed without waste newly generated.

file 036
 Facilities for dechlorination processing of waste oil and hydrolysis processing of organic waste
 Water Pollution
 Energy Saving
 New Energy
 Measures against Global Warming
 Natural Energy
 Energy Recovery
 Others
 Air Pollution
 Soil Pollution