A Beautiful Earth for Our Children.

We at ALIN International consider ways to solve our planet's waste crisis
by bringing together the latest technologies enabling advanced reuse of organic matter.
Solving the issue of waste disposal, such as plastics, is critical for the human race.
While population explosion and human behavior are prime causes,
the process by which we dispose of waste is also to blame.
We believe the collection of waste over large areas makes disposal more difficult.
Our "ALIN" system envisions waste disposal happening at the building level,
and eventually at each single home.
By recycling organic waste into energy and fertilizer,"ALIN" not only optimizes the waste disposal process,
but also helps regenerate degraded soil to build more resilient crops,
which then become feed for healthier livestock, creating an effective nutrient cycle.
The world's population is expected to reach 10 billion by 2050.
Should we not do everything to leave behind a cleaner, beautiful world for our children?

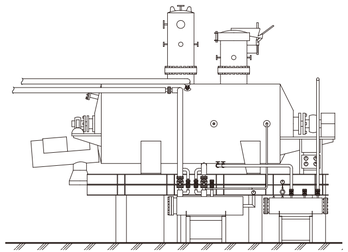
Sub-Critical Water Processor Units

Model	Waste Capacity per Cycle	Specifications	
ALIN 5	3.5 ㎥	• Tank Capacity	5 ㎥
		• Dimensions (Diameter×Length×Height)	1800φ×5596×5274mm
		• Inlet Height	1364mm
		• Exhaust Height	2524mm
		• Trestle Height	250mm x 2 layers
		• Weight	13.5t
ALIN10	7 ㎥	• Tank Capacity	10㎥
		• Dimensions (Diameter×Length×Height)	1900φ×7253×6180mm
		• Inlet Height	952.5mm
		• Exhaust Height	3030mm
		• Trestle Height	300mm x 2 layers
		• Weight	29.5t

What is Sub-Critical Water Hydrolysis?

Changes in temperature and pressure cause changes in the kinetic energy of molecules, causing water to transform from solid to liquid, and to gas. Liquid and gas phases can coexist at what is known as a "critical point" where the temperature is 375 degrees Celsius at a pressure 22.1 MPa. Beyond this, water achieves a super-critical state. Conversely, water below this threshold, typically 150 degrees Celsius at 0.5 MPa, is called sub-critical. At these sub-critical and super-critical states, water is known possess characteristics, such as the ability to dissolve and hydrolyze non-polar organic compounds, not found in its normal state.

Sub-critical water's main characteristic is its high ion product ($Kw=[H^+][OH^-]$). This measures the product of the concentration of hydrogen ions H^+ to hydroxide OH^- in pure water. At room temperature, the ion product is $10^{-14}(mol/kg)^2$, but as temperature and pressure rise so too does the ion product. And, at a temperature between 200 – 300 degrees Celsius at high pressures, it increases by a factor of 1000 to $10^{-11}(mol/kg)^2$. At this point, the concentration of H^+ and OH^- ions reaches approximately 30 times that of room temperature, which make it act like acids and alkaline catalysts to promote hydrolysis. Hydrolysis then breaks down complex organic compounds to smaller molecules, for example, proteins to amino acids, fats to acetic acids, and carbohydrates to sugars. Because common waste is generally comprised of organic compounds, we see that sub-critical water processing can be effective in its treatment.



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ALIN

Organic Waste Processing System

Sub-Critical Water Processor

No More Burning
No More Dumping

[Aiming for Carbon Neutrality]
Starting October 11, 2023, the Carbon Credit Market is open for trading on the Tokyo Stock Exchange.

ALIN International

ALIN

Organic Waste Processing System

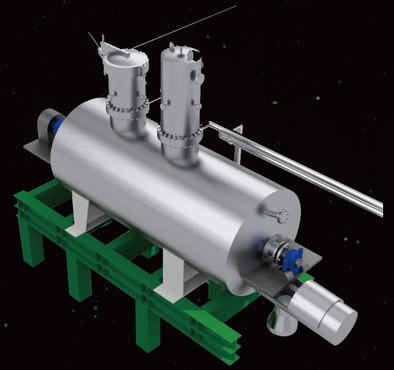
Sub-Critical Water Processor

ALIN: Applications for energy, fertilizer, new raw materials, and soil regeneration.

Japan produces 45 million tons of municipal solid waste and 380 million tons of industrial waste yearly, most of which is incinerated.
ALIN's groundbreaking technology can extract reusable materials from this waste using steam under high pressure.
In nature, microorganisms slowly decompose organic matter into smaller molecules that become nutrients for other life.
ALIN takes a cue from this natural process and breaks down organic waste into simpler forms without the use of incineration.
Furthermore, the output can be reused as fertilizer and fuel.
ALIN's ability to recycle waste will help the fight against global warming.

The ALIN 10 model can process 7m' of waste per cycle.

The Output from Sub-Critical Water Processing



ALIN is a groundbreaking platform that can process a wide variety of organic waste without requiring separation.
ALIN's hydrolysis can handle waste mixed with soil and inorganic matter, even metals, producing an inert residue without the side effects of toxic emissions, such as dioxins.
Plus, its high operating temperatures and pressures render infectious waste sterile, and its output can be recycled for use as liquid fertilizer, compost, coal substitute, even antifreeze.
With a wealth of applications, this advanced recycling platform will revolutionize how we think about urban waste management.
And, with its low operating cost, ALIN becomes an effective tool in adopting the recommendations of the TNFD (Taskforce on Nature-related Financial Disclosure) for a carbon neutral future.

Waste is a Resource.

Process all kinds of organic waste without separation

Agriculture Waste:
- Greenhouse plastic
- Processing waste
- Dried leaves and branches
- Chaff and paddy straw

Fisheries Waste:
- Fishing nets
- Squid entrails
- Shellfish entrails
- Fish offal
- Processing waste and effluents
- Aquaculture sludge

Livestock Waste:
- Straw bedding
- Manure
- Slaughterhouse blood
- Feathers
- Carcasses

Petroleum Refinery Waste:
- Petroleum sludge
- Handling and processing waste

Medical Waste:
- Plastic film
- Medical records
- Diapers
- Infectious waste

Containers:
- Wrapping
- Plastic bags
- Plastic containers
- Cardboard
- Wooden crates

Paper and Textiles:
- Documents
- Flyers and advertisements
- Packaging
- Clothing
- Non-woven fabrics

Household Trash:
- Cooking scraps
- Leftover food
- Pruned branches, fallen leaves
- Plastic wrap
- PET bottles
- Old newspapers and clothing, paper cartons
- Used cooking oil

Other:
- Food waste
- Plastic waste
- Styrofoam waste

Revolutionizing waste management with ALIN

Innovation world

- Alternative to garbage incinerators (1,100 in Japan handling 45M tons yearly)
- Sewer sludge treatment
- Cement production fuel
- Resort development
- Dairy farm manure treatment
- Industrial waste reduction (380M tons yearly)
- Urban planning proposals
- Manufacturing sludge treatment
- Seafood production waste treatment