



# Thermox

## Wet Air Oxidation



Engineering Today: **Greener Tomorrow**

# THERMOX

## Wet Air Oxidation

**T**HERMOX operates on the Wet Air Oxidation (WAO) principle, a technology with a long-standing history of success. It effectively overcomes the limitations associated with CHD-OX (Catalytic Hydro-Oxidation) technology by providing enhanced treatment capabilities for wastewater with extremely high Chemical Oxygen Demand (COD) levels, particularly those exceeding 60,000 ppm. This makes THERMOX especially suitable for managing difficult wastewater conditions. It efficiently addresses the toxic components found in Effluents from API, pesticide manufacturing effluents, as well as sulfides and mercaptans prevalent in refinery wastewater.



# THERMOX:

## Innovating wastewater treatment and championing resource conservation.

**D**iscover advanced wastewater treatment with our cutting-edge THERMOX reactor, designed for high COD challenges. The system features proprietary catalysts, oxygen, nanobubbles, Rusonic cavitation in a Plug Flow Reactor on a pre-assembled skid, optimised for tough wastewater from Spent Caustic in Ethylene Crackers, refinery waste streams, and API facilities.

Harnessing hydrolysis-oxidation, THERMOX boosts hydroxyl generation to break down toxic long-chain molecules, effectively managing high COD content common in industries like refineries, steel, and ethylene production. It also enhances the biodegradability of wastewater before entering MBBR systems, addressing pollutants such as antibiotics, pesticides, and micro-pollutants.

Super-critical THERMOX is being developed for bio-solids and municipal sludge, not only eliminating organics and PFAS, but also recovering water and valuable minerals like Phosphorus and Potassium, marking a significant leap in resource recovery and sustainability.



Different pressure options are available depending on water quality.



Low chemical cost of operation as compared to conventional processes



Low residence time required



Low CAPEX and reduced OPEX.



Potentials for Salt recovery.



Zero chemical sludge generated during the Oxidation process.

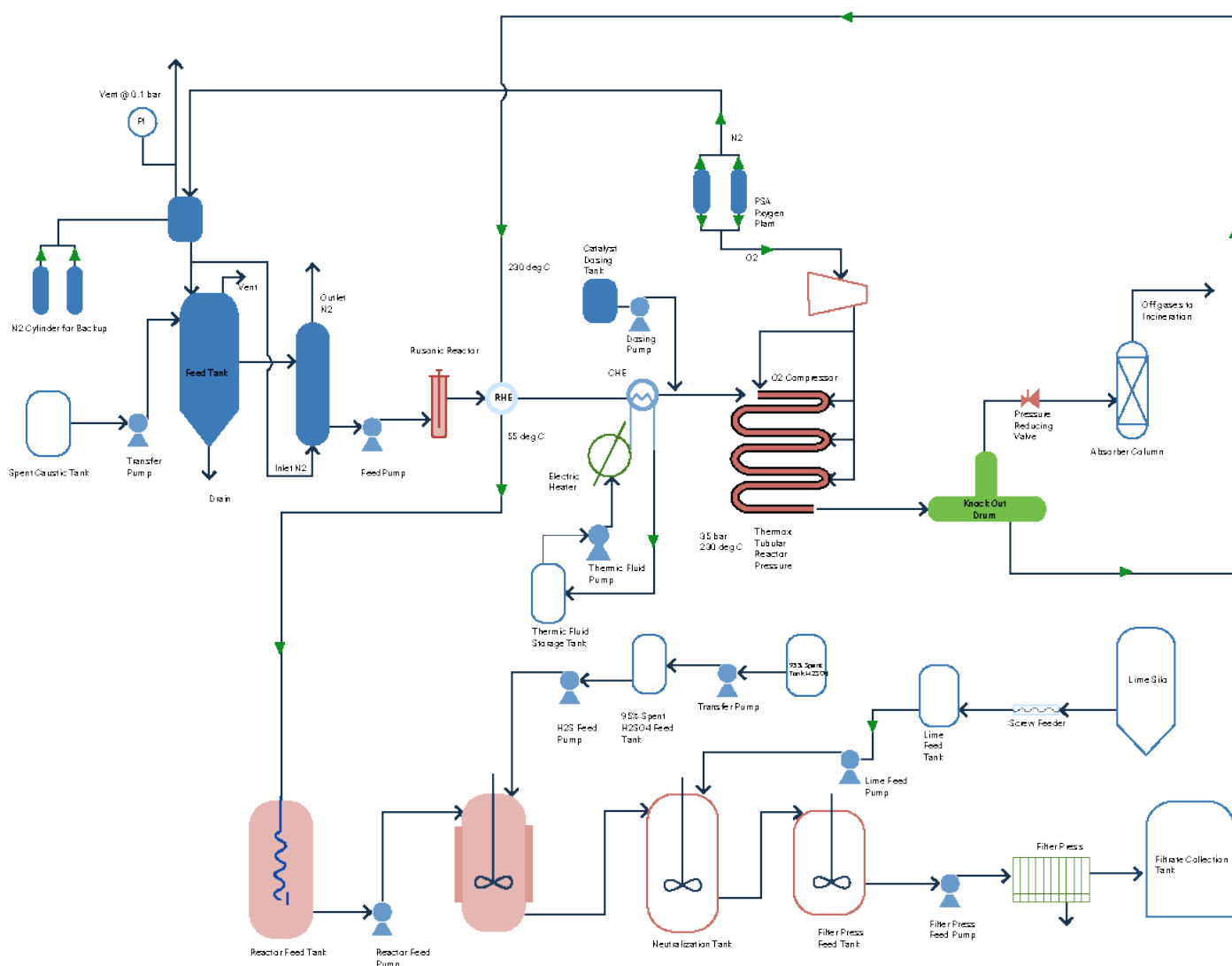


## Thermox Variants

|               |                        |
|---------------|------------------------|
| Low Pressure  | Low Pressure           |
| CS/ SS316L    | SS316L material        |
| High Pressure | Super Critical Thermox |
| Alloy Steels  | Inconel Alloy 625      |

## Technical Specifications

|                          |                             |
|--------------------------|-----------------------------|
| 1. Flow Rate             | 0.1 m3/Hour to 20 m3/Hour   |
| 2. Temperature           | Refer Variant details above |
| 3. Pressure              | Refer Variant details above |
| 4. MOC                   | Alloy Reactors or SS        |
| 5. NANOPOREX             | Nanobubble generator        |
| 6. RUSONIC               | Cavitation system           |
| 7. Oxygen generator      |                             |
| 8. Catalyst Dosing Pumps |                             |
| 9. Oxidant Dosing Pump   |                             |





## APPLICATIONS

### 1. Ethlene Crackers

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### 2. Petroleum Refinery

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### 3. Pesticides

Ficienia videndelibus aperit pos essit estiunde ex et laborio nsequia prati ipsam rersper entinitia volorum imus anihill orescie ndiorat evellendae pore, que essimporecat quodici duciaeraeped magnate perem illabor aut mos quam.

### 4. Agro-Chemicals

Ficienia videndelibus aperit pos essit estiunde ex et laborio nsequia prati ipsam rersper entinitia volorum imus anihill orescie ndiorat evellendae pore, que essimporecat quodici duciaeraeped magnate perem illabor aut mos quam.

### 5. Antibiotics

Ficienia videndelibus aperit pos essit estiunde ex et laborio nsequia prati ipsam rersper entinitia volorum imus anihill orescie ndiorat evellendae pore, que essimporecat quodici duciaeraeped magnate perem illabor aut mos quam.

### 6. API and Pharmaceutical

Ficienia videndelibus aperit pos essit estiunde ex et laborio nsequia prati ipsam rersper entinitia volorum imus anihill orescie ndiorat evellendae pore, que essimporecat quodici duciaeraeped magnate perem illabor aut mos quam.