



Type – C TWO System

Container – Thermal Waste Oxidation

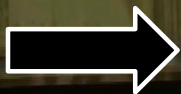
man

man is the only living being that produces waste



waste production

it is a process closely linked to the daily life of man



**DUMPING SITE
WASTE-TO-ENERGY PLANT**

disposal

the principal solutions to waste disposal is storage (dumping site)
or incineration (incinerator plant)

DUMPING SITE



Limited use in time



Malodorous substances
emissions



Fine dusts and gas pollution



Polluted leachate production,
groundwater and farmland
contamination



High preparation and
management costs



NO to the construction
in urban areas

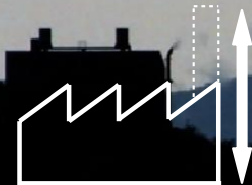
INCINERATOR PLANT



High transport costs



Fine dusts pollution



Landscape impact
(chimney height)



High construction costs



High operating costs



NO small dimension



Construction in urban
areas not recommended



is there a solution?

**are there reliable and already functioning technologies that can be adopted
to prepare a better future for our sons while preserving our planet?**

Environmental
pollution reduction



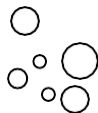
Cost reduction and
economic advantages

Polluted leachate reduction,
groundwater and farmland
contamination reduction



Reusable material
recycling

Dusts emission
reduction



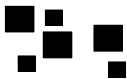
Energy production
and savings

Malodorous
substances
emissions reduction



Low landscape impact and
sustainable architectural
construction even in urban
areas

Processed waste
reduction



Transport
reduction



an efficient system should aim at the
pursue of these objectives

The **eppm ag** thermal oxidation system is capable of offering technical and aesthetical prerogatives that improves the general average quality of the systems operating in the international market. One of them is the capacity to contain the atmospheric emissions bellow what is expected by law in various states.

Our technology is largely referenced, at the moment functioning in plants around the United States of America and in Europe. One of the most appreciated characteristic of our technology is the excellent capacity to treat any type of waste (Biomass, MSW, special, hospital, industrial, etc.)

material typology

Municipal solid waste – Pneumatics – Hospital wastes – Kitchen wastes – Urban green – Contaminated oil, Polypropylene and natural absorbents – Diesel filters from cars, ships, locomotive and other various vehicles – Car oil filters – Plastics – Manufactured paper pulp/mix with other wastes – Some inflammable gases – Inflammable liquids – Oxidizers/organic Peroxides – Sawdust, mud and ashes – Furniture's – Paint waste – Railways sleepers – Rubber polymers – Biomass – PVC tubes – Wood waste – Animal wastes – Skin waste – Oils – Car fluff – Construction waste (wood, plastics, paint, packaging) – Excluded Radioactive and explosives waste.

eppm ag is able to respond to diverse customer or client need, supplying medium large dimensions system (from 50 ton/day – to 1.000 ton/day) for big industries operating in the management/waste treatment market, industrial clusters, city or important urban complex – and small dimension systems (from 5 ton/day to 50 ton/day) for niche materials (special waste, car fluff and hospital), medium size companies, small and medium size housing areas (cities with medium density between 2.000 and 20.000 inhabitants).

This latest technology plant, identified as **Type “C-TWO System”** where C-TWO stands for Container Thermal Oxidation System, has been launched on the market in 2012 and as immediately engendered interest thanks to the extreme flexibility, high efficiency and very low landscape impact.

Primary cell

From a purely technical point of view, the **Type C-TWO** system, is the same as an **eppm ag TWO** standard plants, it has a primary system (primary cell) for the introduced material transformation into syngas. What differs from a standard system is that every primary cell is put into a 20 feet container with a 7 ton/day operative capacity.

The parameters are the same as the major dimension systems:

Internal pressure: - 0,5 bar;
Temperature range: 350°C – 480°C – depending on the material treated;
Ashes: 3% - 5% - depending on the material treated;
Oxidation time: 8h – 12h;

Everything is put inside the container. Furthermore, every primary cell has a lateral hatch for inspection and also to remove the bulky inorganic residues of the TWO primary processes.

The charge is made through a hatch on the primary top side, while the ash extraction is made through a “sucker” system that will suck the waste and transfer it to the external zone of the primary.

Naturally, the number of primary cells will be defined according to the requested dimensions of the plant, as an example, a system producing 300 kW with MSW having a 10900 kJ/kg calorific power will need **2 primary cells of 7 ton each one, 1 secondary, 1 control room, 1 boiler, 1 turbine ORC, in total six 20”container.**

Secondary cell

Once the input is treated in the primary and transformed in syngas, it is sent to the secondary cell (also installed in a 20 " container) facilitating in that way the transport but also for an eventual repositioning. The data in the secondary cell are the following:

***Internal pressure: positive;
Temperature range: 800°C – 1300°C – depending on the material treated;
Permanence time: 2,5" – 3,5";***

The syngas from the secondary cell is sent to a heat exchanger/boiler for the production of vapor that will feed the turbine.

The **eppm ag** gasification technology has been undergoing over 200 complete monitoring from EPA, UE and six independent laboratories;

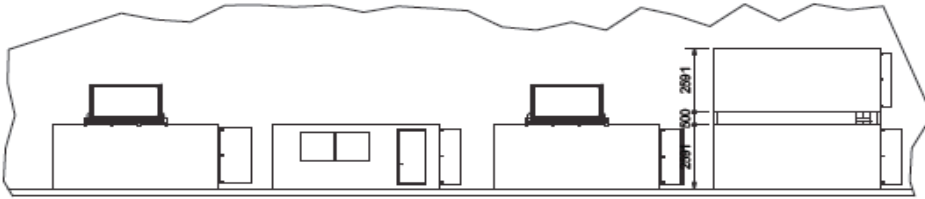
The waste process respects constantly the TCPL Toxicity Characteristic Leaching Procedure test.

The advantage of the **C-TWO (Container Thermal Waste Oxidation)** system, is its energy efficiency and the capacity to treat a large variety of waste and also its reduced dimension.

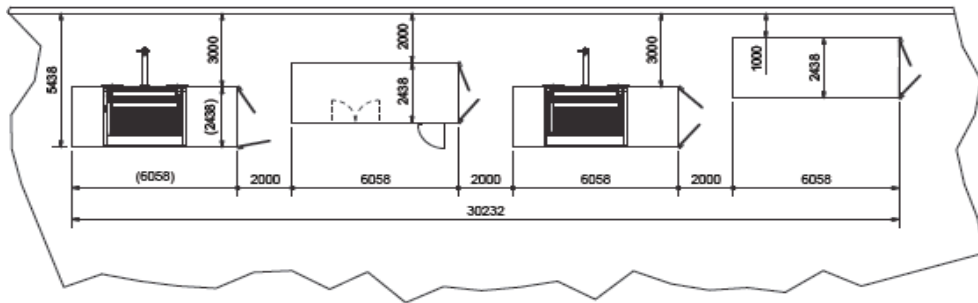
A plant like in the previous example needs 170 m² for the **Type C-TWO system** and more or less 36 m² for the turbine room (storage area and external maneuvering area excluded).

dimension

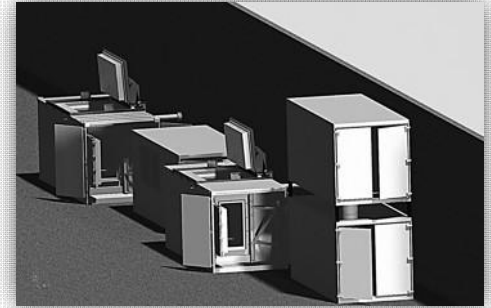
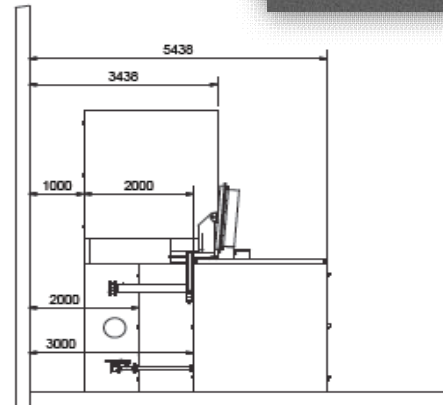
Ansicht (1 : 100)



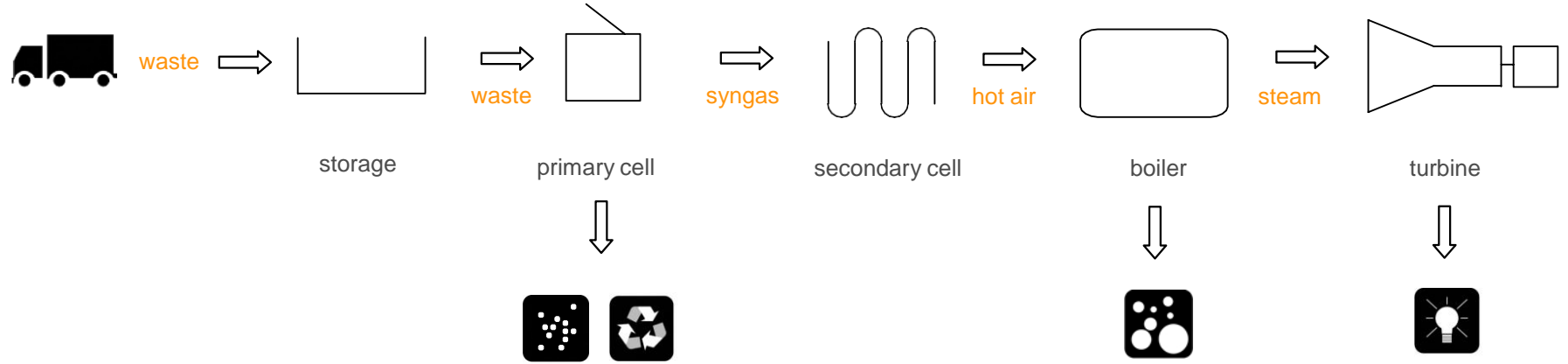
Grundriss (1 : 100)



Seitenansicht (1 : 50)

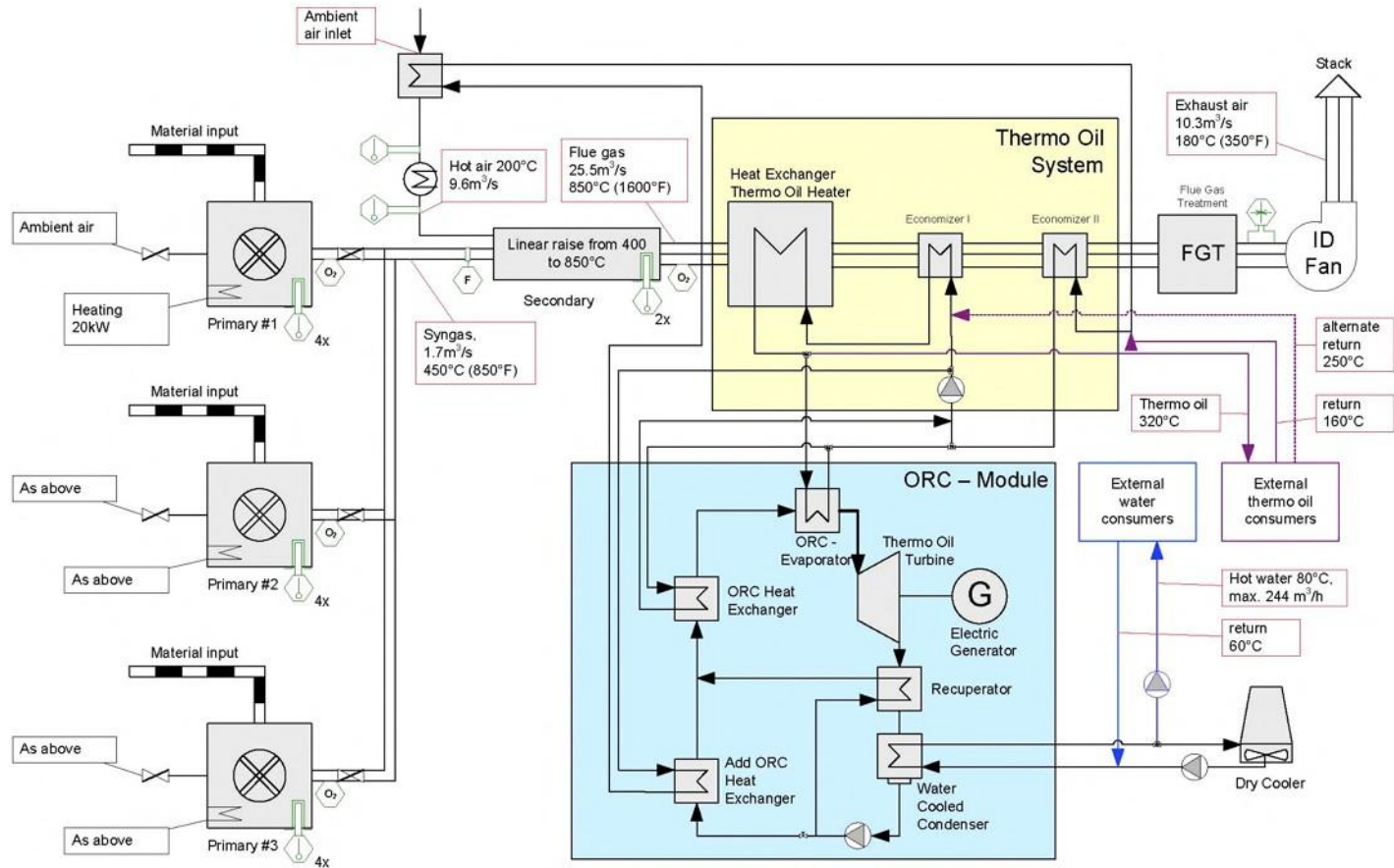


C – TWO System



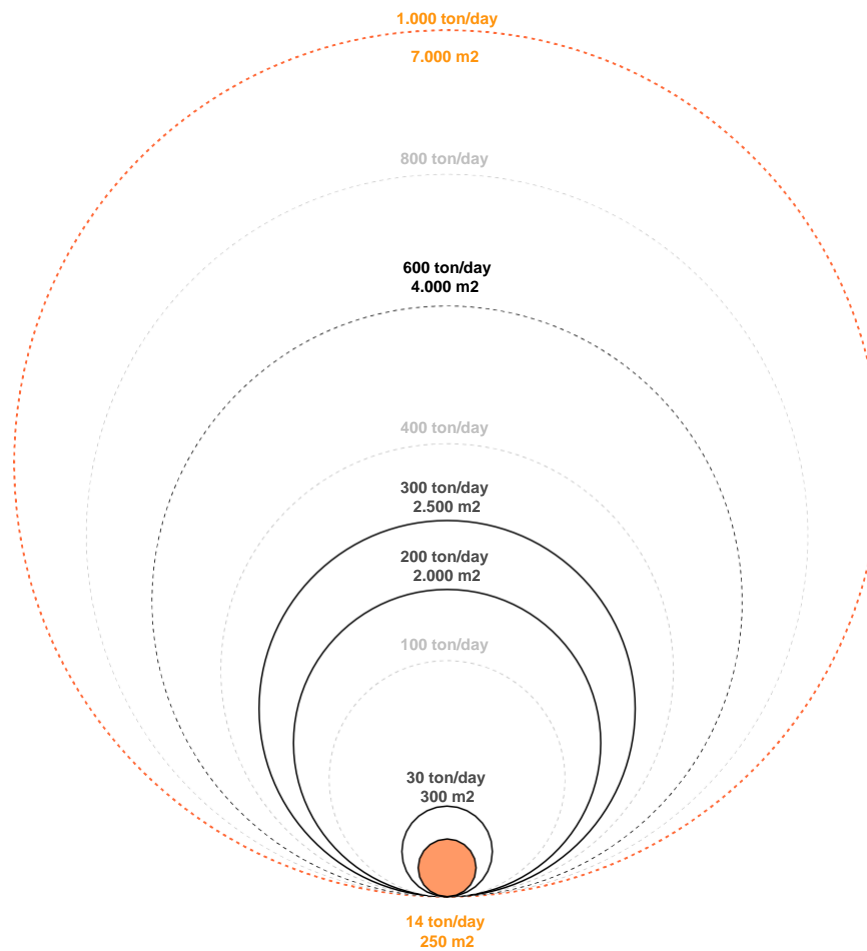
gasification process

synthetic process scheme



flow chart

14 ton /day > 30 ton/day
demountable (transportable) gasificator



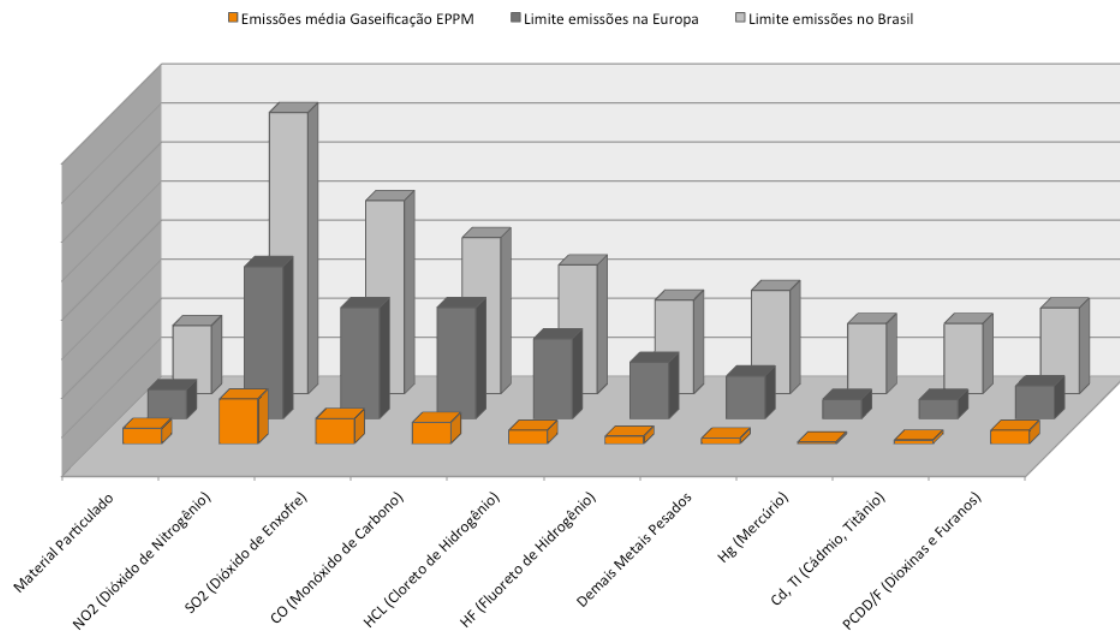
30 ton /day > 1.000 ton/day
fixed gasificator

the dimension

the system can have various dimensions

in order to adapt to the most diverse requirements

the maximum dimension with a capacity of 365.000 ton/year is determined exclusively by logistical/managerial criteria and not by any other kind of limitation



emission limits

synthetic emissions comparison **eppm ag** - **Europa** - **Brasile**



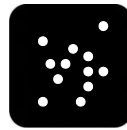
asphalts



self - blockings



CLS road



ashes use

eppm ag system produces between 3% to 5% of inert ashes
these wastes can be reused in various compounds as inert/binding



metals



cans



glass



use of non-gasified materials

the metals and glass are deposited at the bottom of the cell's and can be recuperated

eppm ag system



Diseases problems reduced



Temporal use extended



Leachate contaminating
the aquifer and agricultural
land eliminated



Small dust and gas
contaminants eliminated



Child labor
exploitation reduced



Processed waste
reduced



Landscape impact
reduced



Energy production
and savings



Lower
transport cost



Reusable materials
recycled



Continuous
process cycle



Possible construction
in urban zone



the system is already operative in various countries in the world
we list only a few of the major ones

Alaska - USA, MSW & special waste, 2010, 100 ton/day	Tockwith – England, paint special/dangerous waste 2009 160 ton/day	
Illinois II – USA, MSW & special waste, 2007, 100 ton/day	Hankorage – Alaska, USA, MSW & special waste, 2006, 150 ton/day	
Texas – USA, MSW & special waste, 2006, 200 ton/day	Illinois – USA, Blackbox Speriment, 2005, 50 ton/day	Kansas – USA, Biomass & MSW, 2005, 300 ton/day
Malaysia, MSW & special waste, 2004, 120 ton/day	Breegenz – Austria, Biomass & MSW, 2004, 80 ton/day	
Barrow – Alaska - USA, MSW & special waste, 2001, 70 ton/day		

eppm ag is committed in years to the environmental sector. His primary objective is the research, planning and realization of advanced technological systems to resolve the problematic linked to the treatment and disposal of any kind and type of waste, with the consequent production of energy (thermic and electric).

To date, the verifiable results achieved with the described technology makes the more complete, sustainable and resolute instrument in the world, for the definitive elimination of this planetary waste disposal problem.

eppm ag system
for a clean environment & future





Calea Calarasilor, 110; RO- Sector 3 Bucuresti

P: +40 (0)314369116; F: +40 (0)314369120;

www.salvuminvestments.com info@salvuminvestments.com

Type – C TWO System

Container – Thermal Waste Oxidation

Partner

00186 Roma – Vicolo Savelli, 30

Tel./Fax (+39) 06 32651255 - www.jasonconsulting.com

Santino Iafrate - Mobile (+39) 347 6634850 - santinoiafrate@jasonconsulting.com

Loris Radoani – Mobile (+39) 328 8467038 - lorisradoani@jasonconsulting.com

