

Mikhail Krasnyansky,
Independent Scientist, PhD (USA)

Recycling of the Municipal Waste, Tires and Ocean Garbage with help of the Floating Factory

Abstract

It is suggested to convert the marine ships (tanker, large dry-cargo ship, suitable military vessel) into floating factory for thermal recycling of the municipal waste, worn-out automobile tires, and ocean's garbage. A few such marine-ships will be able to make "a small revolution" in a global waste-management and waste-recycling-market.

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It is a well-known fact that problems of the of the municipal solid waste (MSW) including worn-out automobile tires has not yet been solved in any country of the world. Hundreds of billions cubic meters of MSW have been accumulated there. Only about 15-25% from all it is being subjected to processing.

In order to recycle the MSW and worn-out tires I suggest to convert the marine ships (tanker, large dry-cargo ship, suitable military vessel) into floating factory for thermal recycling of the municipal waste and of worn-out automobile tires. On the ship the following equipments and facilities will be established:

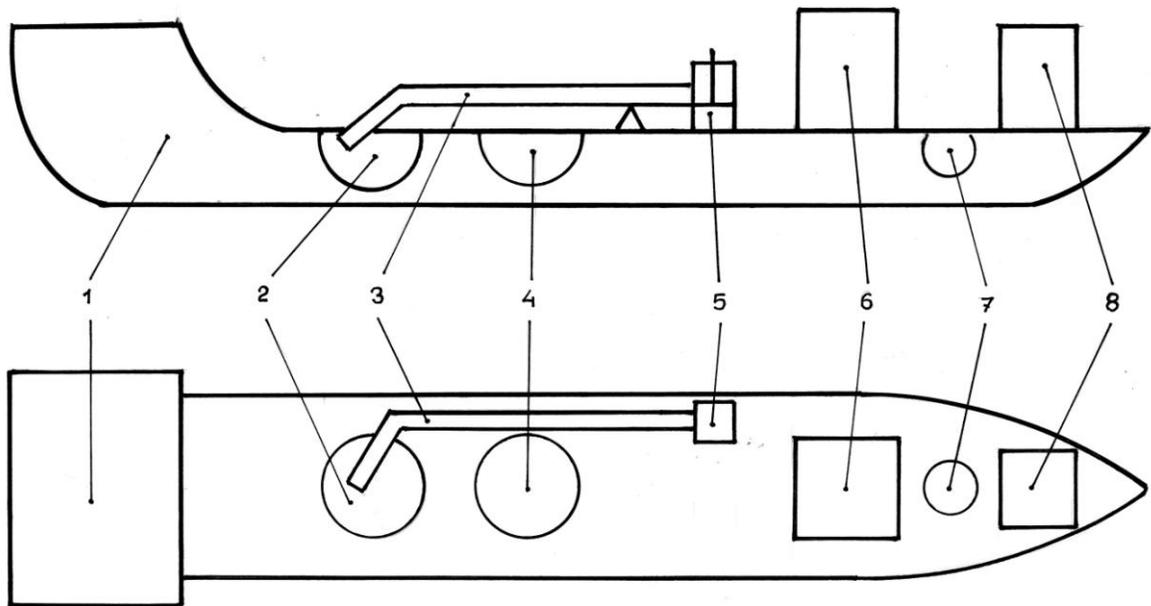


Fig. 1. The floating factory for thermal recycling of the municipal waste and worn-out automobile tires:

1 - body of the ship; 2 - holds for warehousing MSW and of worn-out tires; 3 - conveyor-line for sorting MSW and selecting the secondary raw material; 4 - holds for warehousing of slag and secondary raw material; 5 - machine for pressing and briquetting of the sorted secondary raw material; 6 - furnace for high-temperature-incineration of MSW; 7 - hold for produced compost from nutrition-waste; 8 - furnace for low-temperature-pyrolysis of worn-out automobile tires.

- a) the MSW sorting line;
- b) the special furnace for high-temperature-incineration of MSW;
- c) the equipment for low-temperature pyrolysis of worn-out automobile tires;
- d) the equipment for painstaking purification of ejected smokes and sewage;
- e) the equipment for manufacture of a compost from nutrition-waste.

Such recycling floating factory can come into the seaport of any country, and will be able to accept aboard thousands of tons of MSW as well as the worn out automobile tires. Further the ship can sail to the open waters to carry out the recycling. The energy produced will be used for own necessities of the ship.

Annually each such ship will be able to process about 150-200 thousands tons MSW and 500 thousand pieces of tires. It is enough for service of city with the population of 200-300 thousands. Cities-waste and old-tires will be collected in any nearest marine-port in special terminals. (Besides, any large port is itself a source of a huge quantity of waste).

Realization of the project "Floating factory for the thermal recycling of the municipal waste and worn-out tires" gives the following advantages:

- 1) It will not demand new land-allotment to build MSW-factory;
- 2) Floating factories in during of MSW-processing will be located afar from the cities with the high density of population;
- 3) Many large military-ships and cargo-ships will find "the second life".
- 4) Each floating factory can solve the MSW-problems of the several cities which have location far apart.
- 5) It should be profitable business, because:
 - each evacuated ton of MSW or tires will bring \$150 (it is an average payment);
 - each utilized ton of MSW or tires will give 20-30% of secondary raw material and it will be sold;
 - each utilized ton of MSW or tires will give energy (1500-2000 Kcal/kg) and it will reduce energy needs for work of the ship.

Besides, the huge accumulations of garbage take place on the surface of oceans which nobody can clean. For example, the huge deposit of garbage (about 3.5 million tons, 80 % of plastic) is on surface of the Pacific Ocean between California and the Hawaiian Islands. "Special" ships can it. To elevate the plastic garbage on the ship from an ocean surface is possible to create the simple device similar a huge trawl (but then the second tow-ship is necessary to pull other end of a trawl).

A few such ships will be able to make "a small revolution" in a global waste-management and waste-recycling market.