

Ķekava,
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Process description

Process Cycle Rotoclave®

Company „LAUTUS” presents the normal operating cycle of a typical **Rotoclave®** system being used in our Recycling centre (Ulbrokas street 42 A. Riga, Latvia). This is the largest healthcare waste recycling center in the Baltics from 2007 year till the present day, where circa 120 tons are recycled each month. Company „LAUTUS” have obtained certificates according to **ISO 14001:2015 EN** and **ISO 9001:2015 standards** in Hazardous waste management.

Medical waste generators are various health care institutions, mostly - the hospitals. The waste (180103 code) consists of the following health care waste components: infectious or potentially infectious needles and other sharp objects that used for medical manipulations, cotton, wool, bandages, gloves, blood products and components, packaging tubes, laboratory tubes, disposable clothing, nappies, etc.

The pictures reflect the ease of operation, safety of the operator, hands free operation and the successful resulting sterilization and destruction of the waste.



Rotoclave® Ready to Begin Cycle



Operator rolls cart to Autoloader



Loading medical waste into the *Rotoclave*[®]



Partially loaded *Rotoclave*[®]



Rotoclave[®] cycle time is 45 minutes. All the waste is in direct contact with steam at or above 45 psi and 135°C. Maximum weight of waste that can be recovered in one cycle in **Rotoclave** is 340kg. That is the time needed to recycle 1 cargo. The cycle time does not depend on the weight of the batch, but on the batch volume to be loaded into the **Rotoclave**. For example, a ton of medical waste can be processed into 4 cycles, if in that mass consists of only heavy substances and it has a small volume (scalpels, blood, etc.), or in 10 cycles, if the mass has been a lightweight material and its volume is large (cotton wool, dressings, etc.).



Ready for automatic discharge (Note Significant Volume Reduction)



Waste automatically discharging to conveyor



Sterile waste moving to grinder via conveyor



Reloading vessel while sterile waste continues to grinder



Operator continues to reload the *Rotoclave*[®] while prior load completes the grinding cycle



Vecoplan Heavy-Duty Grinder



Ground waste discharging from grinder



Sterile-Harmless end product discharging into compactor

Summary

Tempico's **Rotoclave**[®] is a pre-vacuum-type autoclave with a patented internal rotating drum and the additional feature that the sterilizing steam is condensed and eliminated before the door can be opened. The **Rotoclave**[®] is a totally closed system with safety interlocks that ensures that the vessel's integrity cannot be breached until the conditions of time, temperature and pressure have been met, guaranteeing complete sterilization of the contents. Since the sterilizing steam must be evacuated and condensed before the door can be opened, the **Rotoclave**[®] emits no fumes or emissions of any kind which would endanger the health and safety of the operator. The outflows from the **Rotoclave**[®], therefore, are as follows: solid waste discharged from the drum, water resulting from condensation of the sterilizing steam, which is routed to the sanitary sewer; and the air exhaust used to break the vacuum post-sterilization, which is vented outside of the building. The results of stringent tests of these outflows have shown them to be sterile, non-toxic and non-carcinogenic. Further tests have demonstrated the **Rotoclave**[®] to have a sterilization capacity that exceeds worldwide standards by several orders of magnitude. The following is a brief summary of the data we have provided in the accompanying document, "**Treatment of Regulated Medical Waste in Tempico's Rotoclave[®] produces an output that is sterile and non-carcinogenic**", which serves to demonstrate the environmental safety of the **Rotoclave**[®].

According our received B category polluting activities Nr. RI12IB0064 authorization B title description of activities, all collect medical waste go to sterilization process and after then if technically possible are separated manually to second use materials –plastic, metal and other wastes (including mixtures of materials) from mechanical treatment of wastes.

We cooperate with other companies that received B category polluting operating licenses. All waste what came from recycling process is possible to separate manually recyclable materials (plastic, glass, metal). If financially reasonable and technically possible the separated mass may be shipped to these destinations:

- ✓ Plastics (code 191204) are sent to Eco Baltia vide,
- ✓ Metal (code 191203) are sent Tolmets SIA,
- ✓ Glass (code 191205) are sent to Eco Baltia vide,
- ✓ Other wastes (including mixtures of materials) from mechanical treatment of wastes (code 191212) are sent to Ragn-Sells AS.

In unforeseen cases if in the waste was found human body parts or organs (180102), these parts will be sent to Rigas krematorijas centrs – crematorium.

SIA „LAUTUS”
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