

novus environmental

guide to rotoclave technology



What is a Rotoclave?

The Rotoclave system is a rotating autoclave that utilises a pressure vessel where a form of steam treatment heats wastes until sterile. Where Rotoclaves differs from a standard industrial autoclave is the fitting of a unique rotating internal drum, the benefits of which are described in more detail below.

How does a Rotoclave work?

The Rotoclave accepts waste materials in unopened containers and subjects them to agitation. The waste is automatically loaded into the internal drum, which has angular surfaces and helixes designed to thoroughly agitate its contents throughout the processing cycle.

Once the vessel has been fully loaded and the door closed, the automated processing cycle is started.

After the air is extracted by vacuum, steam is introduced to provide the necessary heat and moisture. The heat initially causes the contents to soften and then, during agitation, to rupture. The moisture absorbable materials become saturated and transfer heat.

The combination of high temperature, pressure, moisture and agitation means that all materials will contact the necessary sterilising steam to achieve Log 10^6 (99.9999%) sterilisation.

This is further governed by a Process Logic Controller, ensuring that the parameters of time, temperature and pressure required to sterilise the waste are met and continually maintained.

What happens next?

After processing is complete, the fully sterilised materials are automatically discharged. The results of each processing cycle are automatically recorded.

Waste is shredded and compacted before finally being emptied into a skip to be taken away.

What are the benefits?

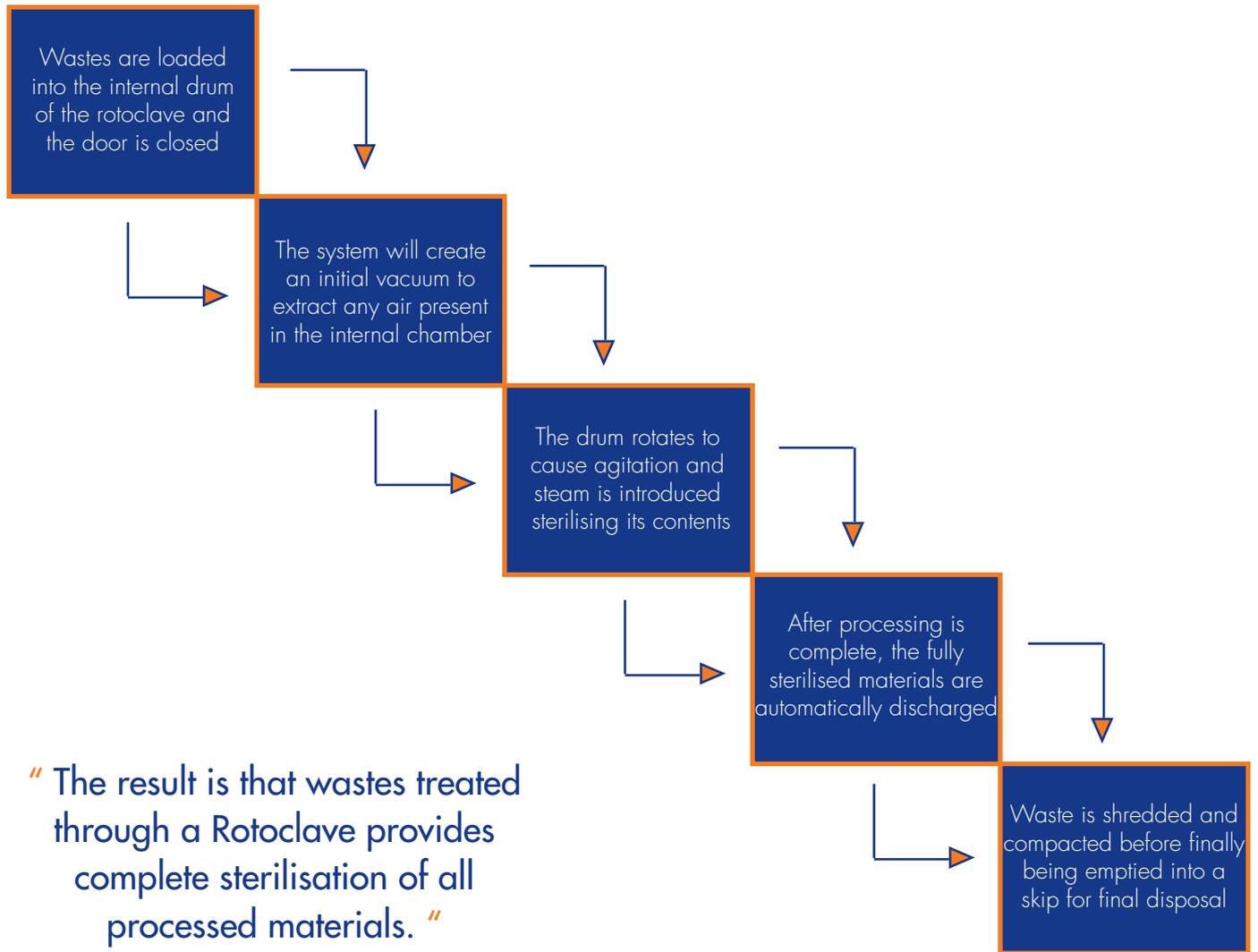
novus environmental's Rotoclaves achieve Log 10^6 (99.9999%) sterilisation, where most industrial autoclaves only attain Log⁴ (99.99%).

Having twin systems onsite means that we have the capacity and efficiency for most requirements.

Operating independently, Rotoclaves can be switched off. The carbon footprint is less than our incinerators, which have to be run constantly to achieve efficiency.



A step-by-step guide to the rotoclave processing plant



For more information about how **novus environmental** can help you with your specialist waste management requirements please contact us by telephone **0844 770 0012**, email **info@novus-environmental.co.uk** or visit our website **www.novus-environmental.co.uk**



Comparison Criteria	Rotoclave	Autoclave	Microwave disinfection	Chemical disinfection
1. Microbial inactivation	Sterilisation	Disinfection	Disinfection	Disinfection
2. Unrecognisable end-product	Yes	Available	Yes	Yes
3. Treatment (before or after shredding/grinding)	Before	Before	After	After
4. Turbulence during treatment	Yes	No	Yes	Yes
5. Ability to observe waste before shredding (i.e., remove objects that negatively impact shredding/grinding equipment)	Yes	No	No	No
6. Approved to co-mingle treated waste with other waste in most states	Yes	Yes	Yes	No
7. Pressure vessel	Yes	Yes	No	No
8. Pre vacuum	Yes	Available	No	No
9. Post vacuum	Yes	Available	No	No
10. Includes closed circuit cooling equipment components to condense water vapours in the air vacuumed from the system	Yes	No	No	No
11. Control of potential pathogens in systems air discharge	Steam ejector	Steam ejector available	HEPA	HEPA
12. Carbon Filter (for odour reduction)	Yes	Available	Yes	Available
13. Incorporate combustion in process	No	No	No	No
14. Chemicals added to waste	No	No	No	Yes
15. Requires use of autoclave bags	No	Yes	No	No
16. Utilises onsite physical plant steam	Yes	Yes	No	No
TOTAL OF POSITIVE FEATURES	16	11	8	6
OVERALL RANKING	1	2	3	4

Source: www.tempico.com



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