

***NOXYCLEAN*TM: A Compact Clean Unit for the Disinfection and Destruction of Health-care Wastes**

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Health-care (or medical) waste refers to all waste generated by hospitals, clinics, laboratories, blood banks and mortuaries. Over 20 % of medical waste generated from patients' treatment, is infectious, creating a variety of health risks if not managed and disposed of in an appropriate manner.

According to a new market research report¹ published by *Markets and Markets*, the global Medical Waste Management Market is expected to reach USD 13.3 Billion by 2020 from USD 10.3 Billion in 2015, at a CAGR of 5.2% from 2015 to 2020.

Medical waste is often mixed with general household waste, and either disposed of in municipal waste facilities or dumped illegally². Current practices include incineration, which results in dioxins, metal vapours and furans emissions, and ash deposition. Microwaves and autoclaves, where disinfection and sterilisation respectively take place, but *no destruction is achieved*. All of the above methods are pricey, and leave solid residues that have to be disposed of.

The aim is to construct *NOXYCLEAN*TM; a self-contained, clean and compact unit, which sterilises and destroys medical waste, of both solid and liquid phases. *NOXYCLEAN*TM's prospective purpose is to be constructed on-site in medical practices for in-house treatment of wastes, saving much cost and avoiding many of the pollution hazards and cost associated with transportation.

*NOXYCLEAN*TM consists of (1) a mechanical and thermal pre-treatment section, combined with (2) a supercritical water oxidation section (SCWO) for complete destruction and disinfection.

¹ Medical Waste Management Market by Type of Waste (Non-Hazardous, Infectious, Sharps, Pharmaceuticals), Service (Treatment, Disposal, Recycling), Treatment Type (Incineration, Autoclaving), Treatment Site (Offsite, Onsite) - Global Forecast to 2020.

² C. Georgescu, Report of the Special Rapporteur on the adverse effects of the movement and dumping of toxic and dangerous products and wastes on the enjoyment of human rights, UN General Assembly, 2011.