LEWISPORTE BIOMEDICAL WASTE INCINERATION
ENVIRONMENTAL ASSESSMENT DOCUMENT

Submitted by: Paul Dalley Holdings Inc.

Name of Undertaking: Lewisporte Biomedical Waste Incineration Project

Proponent:

(i) Name of Corporate Body: PDH Inc. (Paul Dalley Holdings Inc.)

(ii) Chief Executive Officer:
Name: Paul D. Dalley
Official Title: President

(iii) Principal contact Person for purposes of environmental assessment:
Name: Paul D. Dalley
Official Title: President

The Undertaking:

(i) Name of the Undertaking: Lewisporte Biomedical Waste Incineration Project

(ii) Purpose/Rationale/Need for the Undertaking: The Environmental Assessment Regulations, 2003, section 47(1)(b) define our
project as an undertaking requiring environmental review pursuant to the Environmental Protection Act,
SNL 2002, cE-14.2 (the Act).
As part of our due diligence, we are registering the project with the Department of Environment and Climate Change. Currently, no Biomedical Waste Disposal Facility in Newfoundland and Labrador, treats and/or disposes of 100% of Newfoundland and Labrador's biomedical waste, on island. NL Health Services has issued an RFP for the disposal of Biomedical Waste. We submitted a proposal, and our proposal is capable of meeting the needs of the entire Province, while operating an Environmentally Friendly, cost-effective system. The proposed system will save the province Millions of dollars over the initial ten year term, and will effectively treat ***all*** Biomedical Waste generated throughout the province.

Description of The Undertaking:

(i) Geographical Location:

The site proposed is in central Newfoundland, more specifically, situated at 1 7 Roebotham St. in the town of Lewisporte. Attached at the end of this document, are maps showing the building and site within the town….See Town of Lewisporte (**Figure 1**) , See site area,(**Figure 2**) , and the zoom of the Building and Site (**Figure 3**)

(ii) Physical Features:

The undertaking will encompass a building, comprised of approximately 15000 sq. ft, which will house the Biomedical Waste incinerator. The building is situated on a large lot, approximately two acres, near the industrial park of town. There are off-loading areas/load and offload docks in place at the building. Attached are the specifics on the incinerator itself, and where the incinerator will be located in the building. All Biomedical waste disposal will occur within the building, via the Biomedical Waste Incinerator. (**See figure 3**…shaded in green, outlining the site and building). At the end of this document, in **Figure 7**, is a floor plan, outlining the configuration within the building.

As can be seen from the attached maps, there are commercial and industrial infrastructure in the general vicinity of our proposed site, however, there are no potential adverse effects. There are no residential areas within at least one kilometre. Based on the size (only 2 trucks) of the operation and the fact that all activities are done indoors , there will not be any resource conflict. The facility will not have any negative impact on the surrounding area. We have chosen this particular site because of its geographic location. It is centrally located within the province, allowing efficient and effective servicing of all NL Health Services facilities.

(ii) Construction:

The building is constructed, complete with loading bays, wash bays, storage areas, as well as separate office areas, staff lunchroom and washrooms and is ready to accept the Biomedical Waste Incinerator. Minimal modifications are required to ready the building for the installation of the incinerator. Power, water, sewer, utilities and occupancy permits are in place.(**see Figure 7**) The approximate time-frame for delivery, set-up, installation, and commissioning of the incinerator is twenty six weeks. This will commence as soon as NL Health Services awards the contract, which should be sometime summer of 2024.

- There are no potential sources of pollutants during this set up phase.

- Public consultation within the area has occurred with the neighboring infrastructure, with concerns addressed, and welcoming support. As well, the town is aware and supportive of the undertaking. We have met with the town, and council. Lengthy, productive meetings outlined and clarified the specifics of the Biomedical waste incineration project, and the town supports the endeavour as a welcome project.

(iii) Operation:

(iv) - The source of the biomedical waste is NL Health Services, more specifically, various health centres across Newfoundland and Labrador, as mandated by NL Health Services.

- The annual volume of biomedical waste to be handled and disposed of is approximately 450,000 – 500,000 kgs.
- All types of biomedical waste will be collected, transported, stored, and incinerated on island at the processing centre in Lewisporte. The types of waste, including non-anatomical, Anatomical, Cytotoxic, and Pharmaceutical, are outlined specifically in the Appendix, **figure 4.**
- Incoming waste will be inspected and weighed as it arrives at the disposal facility. Segregation will occur at the various health centres with the use of colour-coded bins and bags. (non-anatomical - yellow bag, anatomical and cytotoxic – red bag, and pharmaceutical)
- The biomedical waste of all types will then be auto loaded from containers into the incineration system, as outlined in slide 1 of **Schedule A.** Initial starting of the incinerator requires a relatively small amount of furnace oil or biofuel (40 -60 litres), which will be stored in an approved fuel tank on-site. Following combustion, and once the incinerator reaches operating temperature, the waste itself contains enough calorific value to be the fuel source.
- The re-usable colour-coded biomedical waste containers will then be transferred to the dedicated wash bay for disinfecting and cleaning, in preparation for the return to the health care centres.(**see figure 8**)
- Following the incineration process, the residual waste (ash), will be automatically collected in bottom ash collection container (**see slide 1 of Schedule A**)
- The ash will be disposed of at the Central Newfoundland Waste Management site in Norris Arm, with necessary disposal approvals to be acquired.
- Various Certificates of Approval will be required, and are certainly achievable with proper due diligence.

- - The undertaking will operate as follows: Biomedical waste will be collected in one of our two transport vehicles at various NL Health Services facilities throughout Newfoundland and Labrador, and transported to the Biomedical Waste Facility in Lewisporte, NL. All Biomedical waste will be collected in dedicated, leak-proof, approved medical waste containers (**see figure 5**) These containers will be placed on our refrigerated truck, and securely locked in place for transport. Our trucks are new, with secure, leakproof and refrigerated cargo holds. Upon arrival at the facility, the containers will be unloaded at our dedicated off-load ramp/receiving area, and the contents will be incinerated. As noted in **figure 4** in the appendix, all types of biomedical

waste collected can, and will be incinerated. The containers will then be disinfected in our dedicated wash bay, and made ready for shipment back to the various collection sites. We will utilize a ready-to-use disinfectant cleaner, which is based on a proprietary hydrogen peroxide (AHP) technology to deliver fast and effective cleaning performance. **(See figure 8**) The cleaner disinfects in 60 seconds. Virucide, bactericide, tuberculocide, fungicide, and non-food contact sanitizer. It Kills MRSA and norovirus and meets blood-borne pathogen standards for decontaminating blood and body fluids. It is colorless with a characteristic almond/cherry scent. Our disinfectant meets or exceeds EPA and OSHA blood-borne pathogen standards, and is environmentally responsible: the active ingredient breaks down to oxygen and water. The disinfected waste water from the cleaning process is then perfectly safe for disposal through our sanitary drain system, which is connected to the Town sewer system.

- A list of the typical hazardous and non-hazardous biomedical waste that will be collected from the various NL Health Services sites, can be seen in **figure 4** attached.

- The estimated period of operation will initially be ten years, as per the contract option with NL Health Services.

Occupations:

Our hiring practices address employment equity relative to, but not limited to, age and gender. During normal operations, the site will employ approximately 5-6 full time employees. There will be one office employee, two truck drivers, as well as two warehouse/operator workers. The National Occupational Classification Code for these occupations are as follows: Truck driver: 7511 (transport truck driver), Warehouse/Office worker: 7452 (materials handler), and 1411 (general office support worker) The truck drivers will collect the packaged waste from the NL Health Services sites, and transport it to the site. The warehouse employees will be in charge of receiving and processing the waste, washing the reusable containers and handling all paperwork associated with the operations, including manifests, reports, inspections, etc.

All staff will undergo extensive screening process which includes drug use screening, criminal background check and a medical fitness test. Once hired, the staff members go through a comprehensive class room and practical training program. The training program includes the following: Health and Safety Rules and Regulations , Company Health and Safety Policy and Programs, Safe work procedures, Proper lifting techniques and slip/trip/fall prevention, Personal Protective Equipment and Job Hazard Analysis, Workplace Hazardous Materials Information System (WHMIS), Accident and Injury Reporting Procedure, Blood borne pathogens training, Principles of disease transmission (viable infectious agents, modes of transmission, etc.) , Safe handling of medical waste containers, risks and handling procedures, Puncture resistant gloves and other related PPE, Post-exposure Protocol, Infectious materials spills – prevention measures, containment, clean up and Prevention and Response, including contingency and Emergency Response Plans, Standard Operating Procedures and Standard Work, Incinerator Operating Procedures Review and Training , Vehicle Loading and Unloading Procedures, Load Securement Training, Hours of Service and Log Training, Vehicle Inspection Requirements and Reporting, Defensive Driving Techniques, including driving in adverse conditions.

Potential sources of pollutants:

The biomedical waste itself, which will be contained in the leak proof, dedicated medical waste containers. These containers will be automatically loaded into the incinerator with our Auto-Load system. There will be no airborne emissions, as those possible pollutants will be captured in the pollution control system (PCS). There will also be no liquid effluents, as the Pollution Control system is a dry-scrubbing system, comprised of 880 ceramic filters, which capture even microscopic waste particles. The PCS provides continuous filtration of the waste gases and fly ash through a series of filters in self-contained pods. Each filter element is manufactured from a high-density ceramic material designed to remove particles as small as 1 nanogram (billionth of a gram) with 99.99% efficiency.

Our PCS systems meets all European emission standards, EPA and CSA standards and directives, in successfully capturing pollutants that could otherwise pose a threat to the environment, air quality or public health. From an air pollution perspective, the technology we will employ will meet and/or exceed the ambient air quality standards in Schedule A of the Air Pollution Control Regulations, as well as the in-stack concentration limits for mercury as well as dioxins and furans in Schedule B. We have referred to the provincial Air Pollution Control Regulations, and included the emissions performance in **figure 6**.

Type of Equipment for the on-Island treatment (see appendix)

Schedule A outlines the equipment to be employed to treat the biomedical waste. The first slide within Schedule A shows the basic floor plan within the building. Some 20 to 25 percent of the total waste generated by healthcare establishments is regarded as hazardous, and may create a variety of health and environmental risks if not managed and destroyed in an appropriate manner. As noted in the Guidance Document on the Management of Biomedical and Pharmaceutical Waste from the NL Department of Environment and Climate Change, Pollution Prevention Division, Incineration is the only method providing complete destruction and neutralization of the medical waste, ideally at the source.

We propose to provide efficient waste destruction, utilizing the best available technologies, with an environmentally friendly process.

The system we are proposing includes the following significant features and benefits:

1.Automatic loading – this allows the operator to deal with a cold surface operation, allowing improved efficiency, faster loading, and better heat retention.

2.Ceramic pollution control – this is the most advanced form of additional pollution control available, and allows for compliance to European Environmental Regulations, which also meet and exceed EPA and CSA regulations.

3.Automatic ash removal – this allows process of waste for 24 hours per day if required.

Additional Documents:

- Exclusive status as the only approved incinerator supplier on the United Nations's online purchasing portal (UN WEB BUY PLUS).
- General arrangement diagram showing the complete set up. **(see Schedule A)**
- Other Reference Documents:

- The NL Department of Environment Guide to Environmental Assessment
- The NL Department of Environment Guidance Document on the Management of Biomedical and Pharmaceutical Waste (BPW)
- The CCME Guidelines on the Management of Biomedical Waste in Canada
- The CSA standard Z317.10-15: Handling of Healthcare Waste Materials
- The Federal Transportation of Dangerous Goods Regulations and all of its standards

We are well aware of these guidance documents and have incorporated their requirements in our proposed operations. We are also very well aware of all Federal, Provincial and Municipal laws, regulations, by-laws and standards applicable to operations, and will conduct our business in full compliance. Once released from the Environmental Assessment registration, Permits, licences, and certificates of approval will be required from the above authorities, and will certainly be attainable.

Emissions compliance:

The I8-1000 configuration that we have proposed to you is currently our flagship system. It is designed to comply with EU / EPA regulations which are generally considered to be the most advanced in the world. These systems are currently in operation throughout many highly advanced Caribbean Islands, and at multiple United Nations installations globally.

As the largest in our range, the i8-1000 features a 8.80m³ large capacity primary chamber with maximum airflow and circulation for a fast, efficient burn. Features include advanced Coretex Technology, hydraulic top loading door with chamber, operating temperatures up to 1200°C. Our i8-m1000 will be configured with autoloader and auto de-asms for a highly efficient, continuous supply of waste to the incinerator

Sometimes referred to as the 'afterburner', the secondary chamber operates at temperatures up to 1200°C and is specifically designed to contain and re-burn the waste gases for a minimum of 2 seconds, in accordance with the International Emissions Directive (IED) and environmental guidelines. This carefully engineered combination of high temperatures and extended retention time ensures the complete destruction of dioxins and other harmful emissions, providing a smokeless and odourless output from the stack.

The heat exchanger plays a crucial role of rapidly cooling the hot exhaust gases before they are processed through to the pollution control system. This reduces the formation of dioxins and furans.

The heat exchanger is a shell and tube design with the hot contaminated gases passing through the inner tubes. Throughout this process, air is forced around the inside of the shell circulating over the tubes to cool the exhaust gases within.

Pollution Control System (PCS):

Our dry scrubbing PCS operates by injecting sorbent material (sodium bicarbonate and/or active carbon) into the flue gas stream where it reacts and combines to capture and remove the pollutants produced through the incineration process. The PCS provides continuous filtration of the waste gases and fly ash through a series of filters in self-contained pods. Each filter element is manufactured from a high-density ceramic material designed to remove particles as small as 1 nanogram (billionth of a gram) with 99.99% efficiency.

A dry scrubbing PCS is widely recognized in the incineration industry as one of the cleanest and most effective methods of neutralizing harmful emissions and eliminating microscopic waste particles. As the name suggests, dry scrubbing does not use any liquids , therefore, unlike venturi systems, does not produce any wastewater sludge which requires further treatment before disposal. Following the incineration process, the remaining residual ash is 100% neutralized, and automatically contained in a dedicated ash container. Of the volume of waste that enters the incinerator, only 5% remains in the form of environmentally friendly, neutralized ash. Landfill is reduced by an incredible 95%.

As indicated in the chart in the appendix (**figure 6**), Our PCS systems meet or exceed all European emissions standards, Environmental Protection Agency standards, and Canadian Air Quality Standards Regulations, in successfully capturing pollutants that could otherwise pose a threat to the environment, air quality or public health. This data has been provided by the supplier of the Incinerator.

Benefits of proposed technology solution

Medical waste naturally carries a huge amount of hazardous material that not only carries risks to humans but also to the environment. Medical waste such as hospital, laboratory and disease containment all carry their own risk and their own makeup of waste materials. Our system is designed to operate at a minimum temperature of 850oC and features a secondary chamber to deliver a two-second retention period, ensuring the complete destruction of all medical waste, eliminating the risk of hazardous materials exposing people and their local area. With up to a quarter of waste generated by healthcare environments considered hazardous and harmful if not managed and destroyed appropriately. The most effective way to safely dispose of medical waste is to neutralize and destroy it by incineration. Wherever possible, incineration should be done at source and Inciner8's medical waste incinerators are designed to provide an efficient and compact solution for disposing of medical waste safely at the point of use. TACKLING PERSONAL PROTECTIVE EQUIPMENT WASTE PPE – personal protective equipment – remains present in our everyday activities and will for some time. In healthcare settings, where the use of PPE was commonplace, there is a need for more resources to be made available, while other industries also continue to use facemasks and face coverings. Global estimates at various times throughout the Covid-19 pandemic, put face covering PPE mask usage at a staggering 3 million masks per minute. As such, it is vital that affected settings have effective waste management tools to destroy PPE. The best approach to infected waste disposal is on-site destruction using incineration. This is because minute particles of infected materials have the capability to cause outbreaks at alarming rates. As such, our incineration solutions are now the preferred method by numerous medical organizations to destroy personal protective equipment.

Following processing through the system, the only residual material (which will be completely neutralized), will be automatically collected in an ash collection container.

The positive overall impact on the environment is significant. The system we are proposing has the lowest emissions available. As well, there is no effluent, and the incineration process eliminates most emissions through the burn process, in conjunction with the pollution control system. Residual material is a fraction of the collected biomedical waste, with only five percent remaining in the form of removable, completely neutral, ash. To clarify, for every 1000 kgs of biomedical waste delivered to our facility, only 50 kgs will remain after treatment, in the form of completely harmless, neutralized ash. This ash is all that will remain after the incineration process, and will be disposed of accordingly at Central Newfoundland Waste Management (CNWM) facility in Norris Arm, NL. Incineration will reduce the amount of waste diverted to landfills by as much as 95%! It should also be noted that landfills produce massive amounts of highly explosive methane – a toxic greenhouse gas and driver for negative climate change. Our incinerator incorporates clean air technology, with a continuous emissions monitoring system (CEMS). The pollution control system captures all the gases, soot and entrained solids emitted by the incinerator. It's efficient, clean, effective, and green.

Emergency Response Plan

We will have a comprehensive Emergency Response Plan, and have enlisted the support and guidance of two expert restoration companys to assist us. Petroleum and Environmental Services (PES), and Winmar Property Restoration are part of our contingency plans in the unlikely event of a spill. The site will be equipped with complete spill kits, including absorbent material, disinfecting solutions, and PPE, to properly contain and clean any spills. A contingency and emergency response plan, to be approved by the Department of Environment, will also be available. All Staff will be fully trained on the requirements of the plan, including how to prevent spills as well as to how to properly contain and clean them. Daily inspections of the site, the incinerator, the trucks, and all relevant equipment and bins, will ensure that the site is operated and maintained. Proactively, we prepare to mitigate, to the best of our ability, any possible issue. These daily inspections will be documented and kept on file.

The I8-1000 configuration that we have proposed is currently a flagship system. It is designed to comply with EU / EPA regulations which are generally considered to be the most advanced in the world.

To be clear, 100% of all biomedical waste from NLHS will be treated on island, and

0%....that is to say, NO biomedical waste will be transported off island.

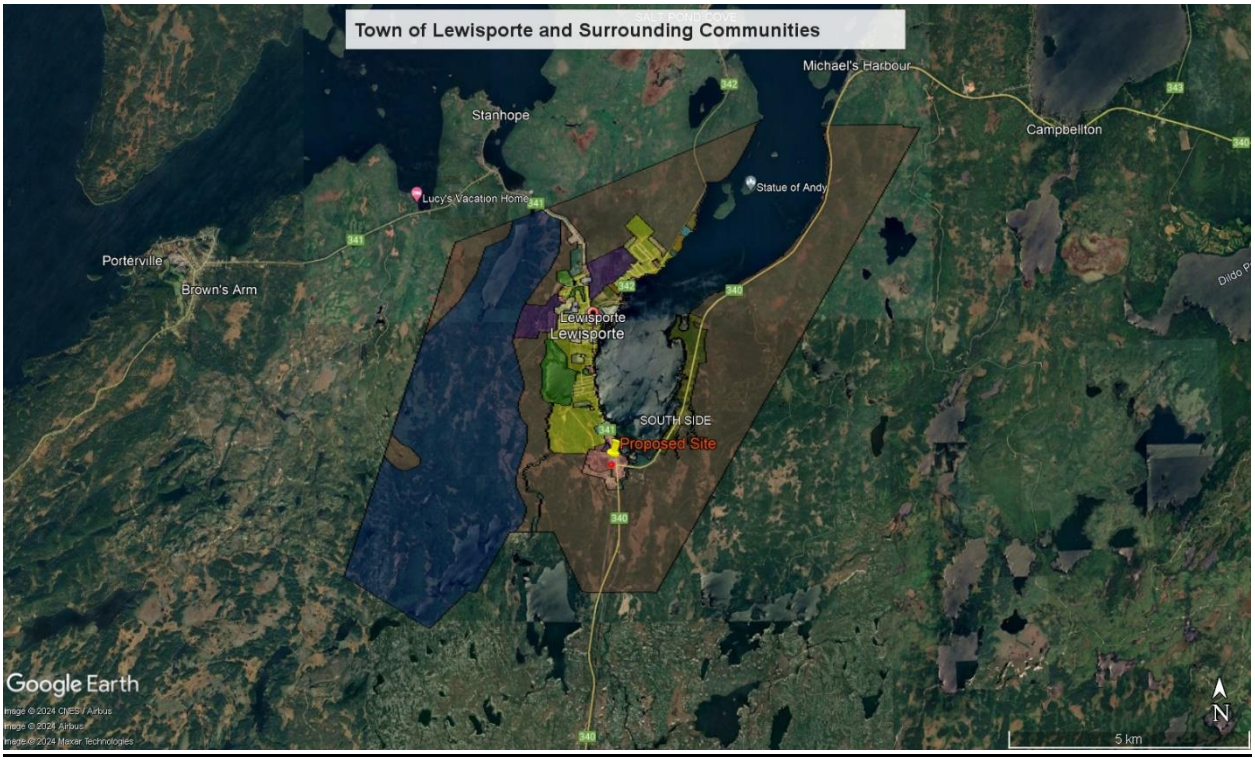
The environmental improvements are quantifiable, in that currently, waste is transported off island, and what remains here, is trucked after autoclaving, to landfill. The after-treated biomedical waste, still comprises its pre-treated mass and volume! Our incineration process is efficient, environmentally friendly, and will divert hundreds of thousands of kilograms of biomedical waste from our landfills.

The incinerator system we are proposing is endorsed by the World Health Organization, as well as the United Nations.

Myth – Incineration pollutes the environment.

Incineration ***Truth:***

- Saves money with regards to transport.
- Saves fossil fuel consumption significantly with less trucks transporting waste over our highways
- Sheer size of reduction (90%) is beneficial to land (less space is used compared to landfill.)
- Can be used in order to reduce waste going into landfill.
- Destroys leachates and gas that would have been produced through landfill.
- Disposes completely of hazardous waste so no direct risk to the environment.


Town of Lewisporte and Surrounding Communities
Michael's Harbour
Stanhope
Campbellton
Lucy's Vacation Home
Statue of Andy
Porterville
Brown's Arm
Lewisporte
Lewisporte
SOUTH SIDE
Proposed Site
Google Earth
5 km
N

(figure 1)


Proposed Lewisporte Biomedical Waste Incineration Site
(Surroundings in 1 km)
Come From Away Nightly Rentals
Brittany Inns
SOUTH SIDE
Proposed Site
Blue Ridge Inc
Google Earth
800 m
N

(figure 2)


Proposed Lewisporte Biomedical Waste Incineration Site
Canadian Tire
Snowmobile loading ramp and parking area
Notre Dame Agencies Recreation Centre
McDonald's
Proposed Site
341
340
Cabot Car Wash
Riff's Department Store
Google Earth
200 m
N

(figure 3)

APPENDIX


BIO-MEDICAL WASTE CHART
BLACK
CYTOTOXIC WASTE
• Expiry Medicine
• Radio Active Waste
• BioMedical Waste Bags
• Anatomical Waste
• Discarded Medications
• Chemotherapy Waste
GREEN
RECYCLABLE WASTE
• Office Stationary
• Tissue Paper
• Kitchen Waste
• Disposable Paper Cups
• Disposed Mail
• Water Bottles
RED
BIO-HAZARD INFECTIOUS PLASTIC WASTE
• Syringe without needles
• Catheters
• Gloves
• Goggles
• Urine Bag
• Dialysis Kit
• IV Bottles
• I.V. Set
YELLOW
BIO-HAZARD INFECTIOUS WASTE
• Pathological Waste
• Cotton Waste
• Infectiouse Dressing Materials (Gauze, etc)
• Body Fluid Contaminated Paper and Cloth
• Face Mask, Cap
• Bedding
BLUE
BIO-HAZARD INFECTIOUS SHARP WASTE
• Glass Bottles
• Lab Slides
• Scissors
• Infectious Vials
• Nails
• Metallic Body Implants
WHITE
INFECTIOUS AND INJURIOUS SHARP WASTE
• Used Needles
• Used Scapel Blades
• Lancets
• Broken Glass Slides

Figure 4

(Figure 6) **INCINER8 Emissions Performance**

Equipment: I8-1000

Waste Streams: Medical waste & General Waste (subject to vary depending on waste mix). **Parameters**	**Unit**	**Standards**	**Monitoring Frequency**	**Limit**	**Inciner8 Expected Performance***
Total dust	mg/Nm3	UNI EN 13284-1:2017	Continuous	5	<5
TVOC	mg/Nm3	UNI EN 12619:2013/13649:2002	Continuous	3	<3
HCl	mg/Nm3	UNI EN 1911 : 2010DM 25/08/00 All.2UNI CEN/TS 16429 :2013 oppure metodo interno	Continuous	< 6	< 6
HF	mg/Nm3	UNI 10787:1999ISO 15713:2006DM 25/08/00 All. 2 oppure metodo interno	Continuous	< 1	< 1
SO2	mg/Nm3	DM 25/08/2000 All. 1 oppureUNI 10393:1995 oppureUNI EN 14791:2017	Continuous	30	<30

	Unit	Standards	Monitoring Frequency	Limit	Inciner8 Expected Performance*
NH3	mg/Nm3	UNICHIM 632/84	Continuous	10	<10
(PCDD + PCDF)	mg/Nm3	UNUNI EN 1948 I EN 1948-1, 2, 3:2006 -4 :2014	Once per 6 months	4E-08	4E-08
IPA	mg/Nm3	DM 25/08/00 All. 3 UNI EN 1948-1:2006 ISO 11338-1,2:2003	N/A	0,01	<0,01
PCB	mg/Nm3	UNI EN 1948 UNI EN 1948 - 1, 2, 3:2006 -4 :2014	Once per 6 months	6E-08	6E-08
Cd + Tl	mg/Nm3	UNI EN 14385:2004	Twice per year	0,02	<0,02
Hg	mg/Nm3	UNI EN 13211:2003 o metodo interno	Continuous	0,05	<0,05
Sb+As+Pb+Cr +Co+ Cu+Mn+Ni+V	mg/Nm3	UNI EN 14385:2004	Twice per year	0,3	<0,3
CO	mg/Nm3	UNI EN 15058:2006 internooppur e metodo	Continuous	50	<50

Figure 5

MW-151 – MW Series 150 Gallon Regulated Medical Waste Cart – 46 x 25 x 25

The MW Series MW-151 150 Gallon Regulated Medical Waste Cart is a reusable regulated medical waste transport cart. Seamlessly molded polyethylene will not crack, dent or rust, offering heavy-duty, leak-proof carts for safe and efficient transport of medical, biohazard and infectious waste. Dot and packaging group ii compliant. Ships fully assembled and ready for immediate use. Features double-bottom

containment base with independent dolly and lid. Parts easy to replace on-site as needed. Heavy-duty, 5 x 2" casters for ease of maneuverability and efficient use by single operator. Designed and engineered to fit through 32" doors. Stack two or three high for storage and transport with pallet jack and fork-lift access. Compatible with most tilt, dump and sterilization systems. Customization options include hot-stamps, permanent PE decals, branding and colors, caster selection, reinforced dollies, etc. Industry leading, world-class product line used by federal government, military, leading public and private hospitals, national, regional and local RMW transporters and processors with extensive and proven track-record of nearly four decades. Also referred to as medical waste, hazardous waste transporters. One hundred fifty-gallon model.

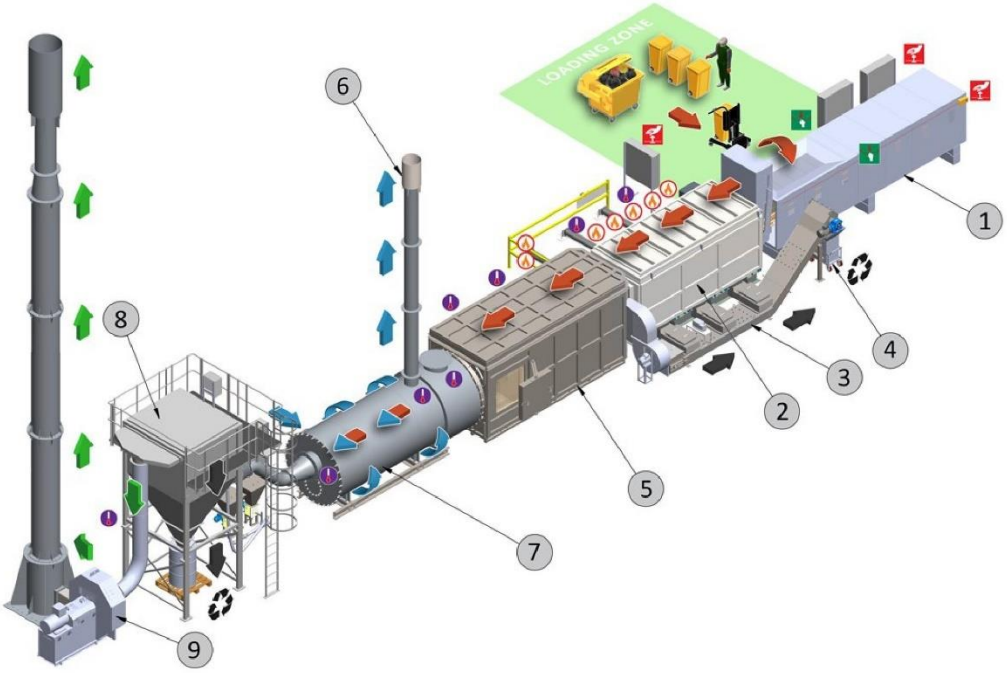
Specifications for MW-151 150 Gallon Regulated Medical Waste Cart

Weight	100
Outer Dimensions (OD) (LxWxH)	51 x 31 x 34"
Inner Dimensions (ID) (LxWxH)	46 x 25 x 25"
Capacity (GAL)	150
Capacity (LBS)	400
Nestable	No
Stackable	Yes
Colors	Red, Green, custom any color

Benefits & Features for MW-151 150 Gallon Regulated Medical Waste Cart

- 100% recyclable
- Made in the USA
- Custom colors available at specific quantities
- Optional custom branding (hot-stamp, decals) available
- Please inquire below
- Dolly ships in matching tub and lid color.

Schedule A



Waste Flow Diagram and Key Sub-Components of a Typical i8-1000 System

Typical i8-1000 System Components	
1. Autoloader	Emergency Stop push button
2. Incinerator Primary Chamber	Emergency Stop pull cord
3. Auto De-Ash Conveyor	Burner
4. Bottom Ash Collection	Thermocouple
5. Secondary Chamber	Waste & hot gases
6. Heat Exchange Clean Air Outlet	Cooling air
7. Heat Exchange	Clean gases
8. Pollution Control System (PCS)	Fly ash
9. Flue Fan	Bottom Ash / Fly Ash (Recover & Recycle)

TECHNICAL BREAKDOWN

model: i8-1000G

HT THERMOCOUPLES

Independent control of primary and secondary temperatures via the control panel.

SECONDARY CHAMBER

Retains and re-burns the exhaust gases for minimum of 2 seconds at 850°C.

CHIMNEY STACK

Stainless steel stack for longevity. Fitted with a velocity cowl as standard.

PRIMARY CHAMBER

Chamber designed for maximum air flow and circulation which in turn improves efficiency and total burn time.

SAFE USE HANDLES

Easy to open and close loading door. Designed to increase operator safety.

COOL TOUCH CLADDING

Steel cladding to reduce risk of infection and increase longevity of system.

LOW NOX BURNERS

These are some of the cleanest, most efficient burners available today. These can be supplied as gas or oil fired.

HOW INCINERATION WORKS

Incineration is a waste treatment process that utilizes the combustion of organic substances contained within materials to convert waste into ash, heat and flue gas. The ash residue is mostly formed by inorganic constituents of the waste which may take the form of solid lumps or powder.

Heat produced by the incineration process can be fed into a heat exchanger to produce hot water or air which can be used for cleaning or heating purposes. The remaining flue gases are passed through pollution control devices in the form of a secondary combustion chamber or additional filtration (if required) and then expelled to the atmosphere.

APPLICATIONS

Our versatile range of medical incinerators are designed for a wide range of waste types. This particular model benefits from a front loading design and very simple operation process. Ideal as a stand-alone machine where limited staff are available to operate.

- Plastics & packaging
- Camp waste
- Domestic waste
- Industrial Waste
- Hotels & Resorts
- Mining Operations
- Wood/Construction
- Document Waste
- Emergency/Refugee Camps

For additional information, or to speak to one of our expert team:

Call
+44 (0) 1704 884020

Email
sales@incinerⅧ.com

INCINERⅧ
www.incinerⅧ.com

TECHNICAL INTRODUCTION

model: **i8-PCS & HEAT EXHANGER**

The i8-PCS is our pollution control device that is designed to cool combustion gases at the first stage to around 425°C to prevent de novo formation of dioxins and furans. The consistent process then passes the combustion gases through a catalytic converter using hydrated lime to act as a reagent to remove acid gases and capture the resulting solids. The resultant combustion gases are then filtered through ceramic filtration to directly capture and remove particulates. All this is done to achieve a pollution-free environment.

SYSTEM OVERVIEW

Increasingly stringent EU and worldwide environment legislation present fresh challenges to the many different industries generating hot polluted gas as a waste product from their operations. From incineration of medical waste to a variety of hazardous waste, the hot gases generated must be treated and cleaned before they can be discharged into the atmosphere. Our i8-PCS can remove particulate emissions to below 3 mg/m3, typically around 1mg/m3 and can remove all acid gases.

SYSTEM OVERVIEW

The i8-PCS is designed to do the following:

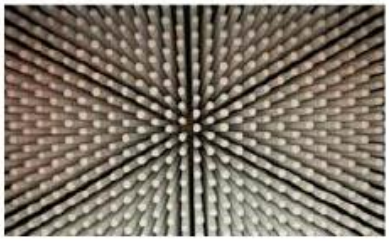
- Remove particulates by direct capture in the ceramic filter
- Handle up to 6,500 m^3/hr of gas flow
- Ideal for control of dioxin and particulate emissions
- Remove acidic gases by reaction with hydrated lime and capture of the resulting solid
- Avoid 'De Novo' dioxin formation by removing necessary reactants before the gasses cool to the temperature window where formation occurs
- Remove condensed heavy metals as particulates in the filter
- Instruments to display temperature and pressure
- A hood to fit over the existing Incinerator flue gas outlet to collect the flue gas with a small amount
- Compressed air reverse pulse cleaning system and impact vibrator.

HOW THE I8-PCS WORKS

Our i8-PCS is a highly complex pollution control unit using some of the highest quality materials we produce in order to achieve the absolute minimum pollution levels whilst running our incinerators. Below will show you a step by step process of how our I8-PCS works and how it delivers such great results.

ABOUT HOT GAS FILTRATION

Hot gas emissions are produced by a wide range of processes, containing impurities or products which may be dangerous, toxic and polluting. They must not be allowed to escape into the atmosphere without being properly filtered. Industrial waste gases often reach temperatures of over 400°C and particulate matter is often sub-micron and will pass through conventional filters for this type of waste to be filtered properly a different filtration principle is needed for this type of application, that of ceramic filtration.



For additional information, or to speak to one of our expert team:

Call
+44 (0) 1704 884020

Email
sales@incinerr8.com

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TECHNICAL SPECIFICATION

model: i8-PCS & HEAT EXHANGER

FILTER SPEC	
Filtration Area (m^2)	100.32m^2
Filtration Rate (m^3/hr)	Up to 6500m^3/hr
Pressure Drop (mmWG)	100-200 (300 MAX)
Particulate Emissions Level (mg/Nm^3)	Below 5 (typically 1)
Temp At Filter Inlet (°C)	250°C MAX
Material Of Construction	Mild Steel
Gasket Types	Non Asbestos

PHYSICAL SPEC	
Assembled L/W/H (mm)	4136 x 3569 x 6639
Assembled Weight (Kg)	5000kg
Door Size (mm)	560 x 560mm
Number of elements (Qty)	440
Element Type	Ceramic Fibre
Material Of Construction	Mild/Galvanised Steel
Paint Finish (2 Coats)	High Temp Black
Hand Railing Manufactured To	BS535

Due to innovation and technical changes, Dimensions and filter elements are subject to change depending on incinerator model size.

ADDITIONAL INFORMATION

The expected element life is dependent on the process application and maintenance regime. Typically for combustion and incineration processes element lifetimes of 3 years can be expected, element lifetime of 5 or more years is not uncommon. Build up of un-burnt carbon and any subsequent fire can lead to the build up of sinter on the element causing increased pressure drop and possible premature failure. Premature blinding of elements can be caused by operating below the dew point which causes condensing salts to dissolve from the sodium bicarbonate. The element supplied by Glosfume is sized to an industry wide standard. Elements are available from other manufactures and are available worldwide.

Fires within the filter must not be allowed to occur as temperatures above the filter service temperature may be reached. Operation must not occur above the recommended service temperature. Temperatures above 450oC will distort the Mild Steel construction whilst temperatures above 900oC will also cause the elements to distort. Fires may also cause 'clinker' to be sintered on to the elements, causing damage and reducing filtration efficiency. Operation must not occur above the fusion temperature of the Sodium Bicarbonate and incoming dust. Failed elements need to be replaced as soon as practical and in accordance with the installation manual ensuring that the filter head is thoroughly vacuumed clean. Reintroduction of dust into the elements will cause abrasion.

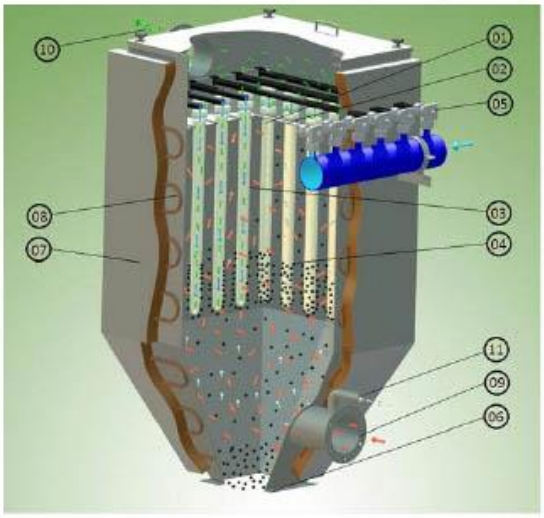
TECHNICAL BREAKDOWN

model: i8-PCS & HEAT EXHANGER

HOW THE I8-PCS WORKS

Our I8-PCS is a highly complex pollution control unit using some of the highest quality materials we produce in order to achieve the absolute minimum pollution levels whilst running our incinerators. Below will show you a step by step process of how our I8-PCS440 works and how it delivers such great results.

- The Element (1) hangs vertically from header plate (2) within the filter vessel. The header plate separates the filter's clean and dirty compartments.
- Hot Gas is drawn through the filter medium (3) from outside to inside.
- Particulates and dry scrubbing sorbents are collected on the outer surface (4) of each filter element. These consist of the PM10, PM 2.5 size ranges; these agglomerate.
- The particles are removed from the element by reverse jet cleaning (5). This reversal causes the accumulated solids to be detached from the outer surface of the ceramic filter elements.
- The particulates and spent dry-scrubbing sorbents are discharged through the hopper outlet (6) for collection and disposal.
- The filter body can be protected with insulation (7) and trace heated (8) to prevent the formation of the condensation when the equipment is not in use.
- Incoming gas stream (9) and sorbent (if required).
- Outgoing cleansed gas stream (10) Injection point for activated carbon and/or sodium bicarbonate.



WHAT WASTE REQUIRES AN I8-PCS

Not all waste types require pollution control units as they might be of organic matter or waste that does not give off any harmful gases or metals. You should always check your waste type and only incinerate it in the correct type of unit depending on its contents. Here is a list of waste that would need a pollution control unit for the incineration to be safe and compliant.

- High Plastic waste
- Waste To Energy Plants
- Paints
- Inorganic chemicals manufacturing
- Vials & syringes
- Pesticides
- Bandages and gauzes
- Laboratory Chemicals
- PPE waste
- Silicate Production
- Animal Carcass Manufacture
- Gold Recovery
- Mining Waste
- Municipal Waste Incineration

For additional information, or to speak to one of our expert team:

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Typical Medical Waste Applications

All our incinerators are hand-built in the UK by time-served welders and fabricators. Our **award winning design team** are always on hand to offer their advice and technical know-how to ensure we get your project off the ground without delay. We can also assist you in the preparation for your planning or permit application where required.

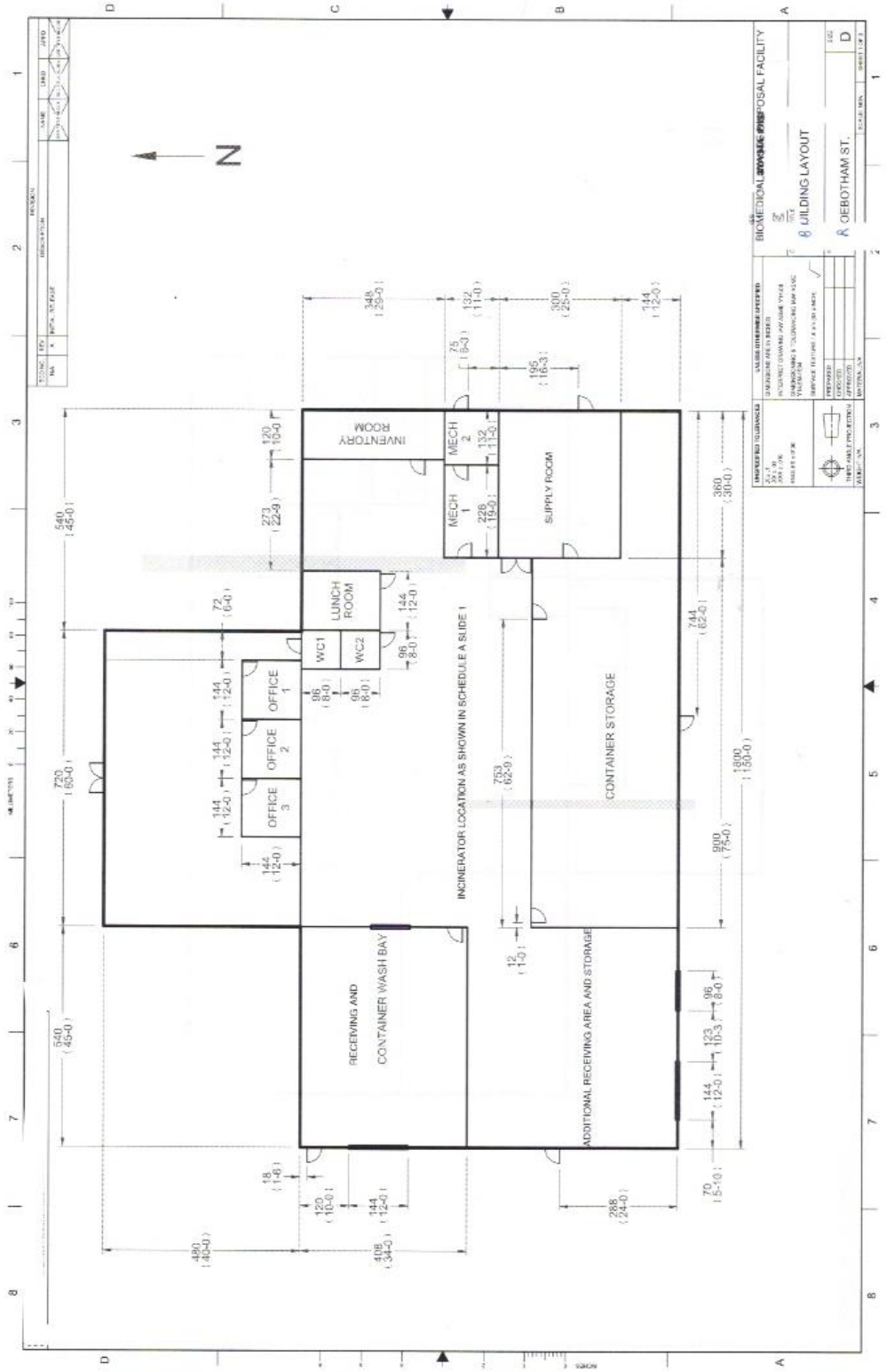
Technical Specs

Operational Specs		Physical Specs	
Combustion Chamber Volume (m3)	6.75m3	**External Length (mm)**	6230mm
Burn Rate*	up to 600kg per hour	**External Width (mm)**	1910mm
Average Fuel Consumption	40-50 l per hour at start Then 0 fuel	**External Height (mm)**	5760mm
Operational Temperature	850 - 1320°C	**Shipping Weight**	21000kg
Gas Retention in Secondary Chamber	2 secs		
Temperature Monitoring	Yes		
Average ash residue (%)	3%		
Thermostatic Device	Yes		

*Subject to calorific value of waste stream. For reference only, not to be used for installation purposes.

Maintenance and repairs

This equipment is supplied with extensive operator and maintenance training, as well as on-going service and support from the manufacturer.


N
INVENTORY ROOM
MECH 2
MECH 1
SUPPLY ROOM
LUNCH ROOM
WC1
WC2
OFFICE 1
OFFICE 2
OFFICE 3
INCINERATOR LOCATION AS SHOWN IN SCHEDULE A SLIDE 1
CONTAINER STORAGE
RECEIVING AND CONTAINER WASH BAY
ADDITIONAL RECEIVING AREA AND STORAGE
BIOMEDICAL WASTE DISPOSAL FACILITY
BUILDING LAYOUT
OEBOTHAM ST.

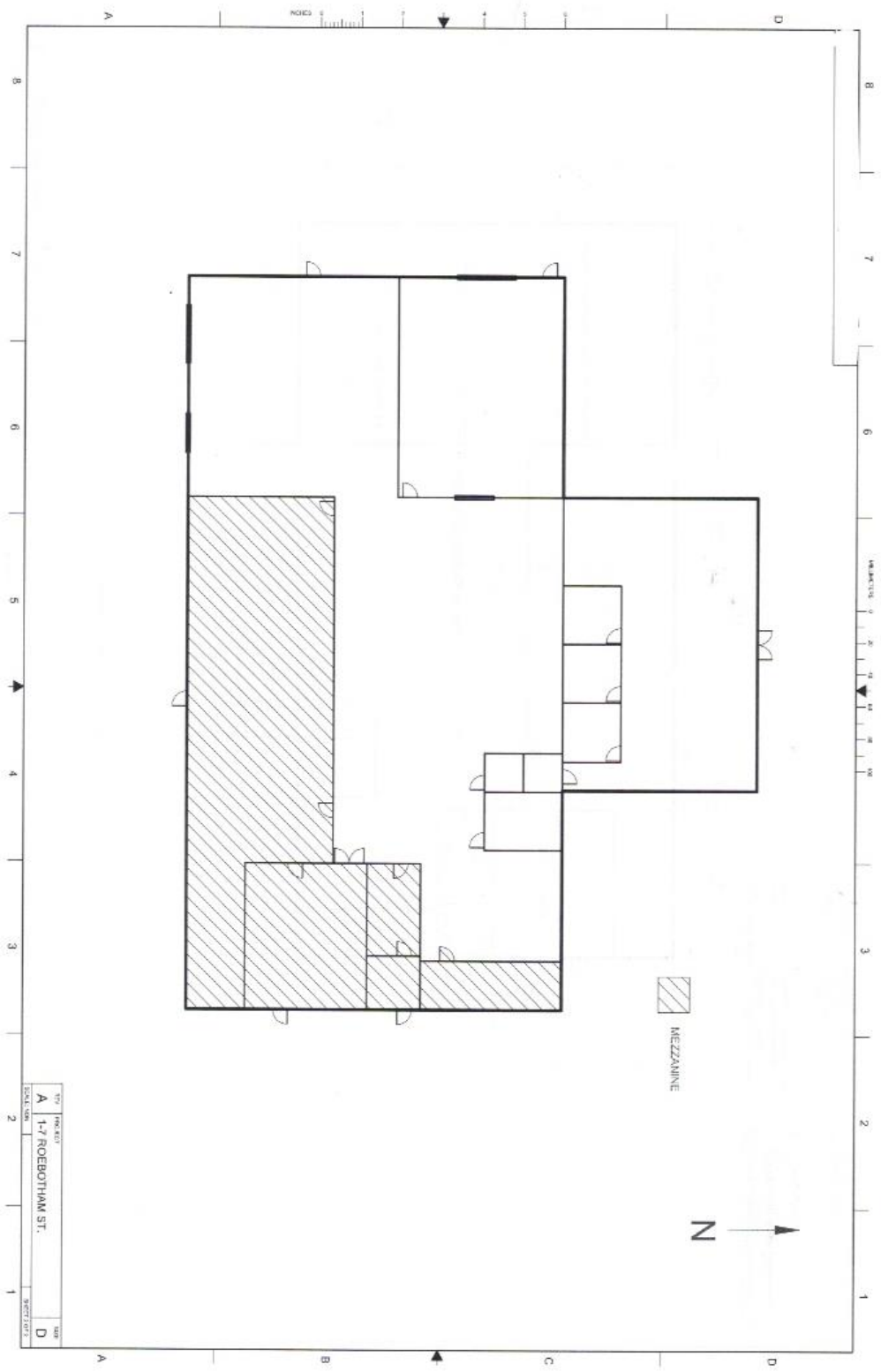


Figure 7

Figure 8

Oxivir® Tb
Virucide, Bactericide, Tuberculocide, Fungicide, Sanitizer

Revision: 2021-05-25 **Version:** 03.0

1. IDENTIFICATION

Product name: Oxivir® Tb
Virucide, Bactericide, Tuberculocide, Fungicide, Sanitizer
SDS #: MS0800255
Recommended use: • Industrial/Institutional
• Disinfectant / Deodorizer / Sanitizer
• This product is intended to be used neat.
Uses advised against: Uses other than those identified are not recommended
Emergency telephone number: 1-800-851-7145; 1-651-917-6133 (Int'l)

2. HAZARDS IDENTIFICATION

Classification for the undiluted product
This product is not classified as hazardous according to OSHA 29CFR 1910.1200 (HazCom 2012-GHS) and Canadian Hazardous
Products Regulations (HPR) (WHMIS 2015-GHS).
Hazard Statements
None required.
Precautionary Statements
None required.
Health hazards not otherwise classified (HHNOC) - Not applicable
Physical hazards not otherwise classified (PHNOC) - Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Classified Ingredients
Ingredient(s) CAS # Weight %
Benzyl alcohol 100-51-6 1 - 5%
Hydrogen peroxide 7722-84-1 > 0.1 - < 1%

4. FIRST AID MEASURES

Undiluted Product:
Manufacturer, importer, supplier:
US Headquarters
Diversey, Inc.
1300 Altura Rd., Suite 125
Fort Mill, SC 29708
Phone: 1-888-352-2249
SDS Internet Address: https://sds.diversey.com

Canadian Headquarters
Diversey Canada, Inc.
6150 Kennedy Road Unit 3
Mississauga, Ontario L5T 2J4
Phone: 1-800-668-7171
Eyes: Rinse with plenty of water. If irritation occurs and persists, get medical attention.
Skin: No specific first aid measures are required.
Inhalation: No specific first aid measures are required.
Ingestion: IF SWALLOWED: Call a Poison Center (1-800-851-7145) or doctor/physician if you feel unwell.
Most Important Symptoms/Effects: No information available.
Immediate medical attention and special treatment needed Not applicable.

5. FIRE-FIGHTING MEASURES

Specific methods: No special methods required
Suitable extinguishing media: The product is not flammable. Extinguish fire using agent suitable for surrounding fire.
Specific hazards: None known.
Special protective equipment for firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH
(approved or equivalent) and full protective gear.

Extinguishing media which must not be used for safety reasons: No information available.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Put on appropriate personal protective equipment (see Section 8.).
Environmental precautions
and clean-up methods:
Clean-up methods - large spillage. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. Use a water rinse for final clean-up.

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes. FOR COMMERCIAL AND INDUSTRIAL USE ONLY.
Storage: Keep tightly closed in a dry, cool and well-ventilated place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines: .
Ingredient(s) CAS # ACGIH OSHA
Hydrogen peroxide 7722-84-1 1 ppm (TWA) 1 ppm (TWA)
1.4 mg/m3 (TWA)

Undiluted Product:

Engineering measures to reduce exposure:
Good general ventilation should be sufficient to control airborne levels.
Personal Protective Equipment
It is the responsibility of the employer to determine the potential risk of exposure to hazardous chemicals for employees in the workplace in order to
determine the necessity, selection, and use of personal protective equipment.
Eye protection: No personal protective equipment required under normal use conditions.
Hand protection: No personal protective equipment required under normal use conditions.
Skin and body protection: No personal protective equipment required under normal use conditions.
Respiratory protection: No personal protective equipment required under normal use conditions. Wear a half face respirator with chemical specific cartridges and N95 filters when an electrostatic sprayer is used.
Hygiene measures: Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid **Color:** Clear , Clear
Evaporation Rate: No information available **Odor:** Cherry Almond Surfactant
Odor threshold: No information available. **Boiling point/range:** Not determined
Decomposition temperature: Not determined **Autoignition temperature:** No information available
Solubility: Completely Soluble **Solubility in other solvents:** No information available
Relative Density (relative to water): 1.01 **Density:** 1.01 Kg/L
Vapor density: No information available **Bulk density:** No information available
Oxivir® Tb
Virucide, Bactericide, Tuberculocide, Fungicide, Sanitizer
2 of 4
Explosion limits: - upper: Not determined **- lower:** Not determined ≈ 3
* - Title 17, California Code of Regulations, Division 3, Chapter 1, Subchapter 8.5, Article 2, Consumer Products, Sections 94508

10. STABILITY AND REACTIVITY

Reactivity: Not Applicable
Stability: The product is stable
Hazardous decomposition products: None reasonably foreseeable.
Materials to avoid: Do not mix with any other product or chemical unless specified in the use directions.
Conditions to avoid: None known.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure:
Skin contact, Inhalation, Eye contact
Delayed, immediate, or chronic effects and symptoms from short and long-term exposure
Skin contact: Unlikely to be irritant in normal use.
Eye contact: May be mildly irritating to eyes.
Ingestion: No information available.
Inhalation: No information available.
Sensitization: No known effects.
Target Organs (SE): None known
Target Organs (RE): None known
Numerical measures of toxicity
ATE - Oral (mg/kg): >5000
ATE - Dermal (mg/kg): >5000
ATE - Inhalatory, mists (mg/l): >20

12. ECOLOGICAL INFORMATION

Ecotoxicity: No information available.
Persistence and Degradability: No information available.
Bioaccumulation: No information available.

13. DISPOSAL CONSIDERATIONS

Do not contaminate water, food, or feed by storage or disposal.
Waste from residues / unused products (undiluted product):
This product, as sold, if discarded or disposed, is not a hazardous waste according to Federal regulations (40 CFR 261). Under RCRA, it is the
responsibility of the user of the product to determine, at the time of disposal, whether the waste solution meets RCRA criteria for hazardous waste.
Dispose in compliance with all Federal, state, provincial, and local laws and regulations.
Pesticide Storage:
Refer to product label.
Vapor pressure: No information available. **Flash point (°F):** > 200 °F > 93 °C
Partition coefficient (n-octanol/water): No information available **Viscosity:** 1
Elemental Phosphorus: 0.12 % by wt. **VOC:** 0 % *
pH: ≈ 2.7 **Flammability (Solid or Gas):** Not applicable
Corrosion to metals: Not corrosive to metals
Oxivir® Tb
Virucide, Bactericide, Tuberculocide, Fungicide, Sanitizer
3 of 4
Sustained combustion: Not applicable
Pesticide Disposal:
Refer to product label.
Container Disposal:
Refer to product label.
RCRA Hazard Class (undiluted product): Not Regulated.

14. TRANSPORT INFORMATION

DOT/TDG/IMDG: The information provided below is the full transportation classification for this product. This description does not account for the
package size(s) of this product, that may fall under a quantity exception, according to the applicable transportation regulations. When shipping
dangerous goods, please consult with your internal, certified hazardous materials specialist to determine if any exceptions can be applied to your
shipment.
DOT (Ground) Bill of Lading Description: NOT REGULATED
IMDG (Ocean) Bill of Lading Description: NOT REGULATED

15. REGULATORY INFORMATION

International Inventories at CAS# Level
TSCA All components are listed or otherwise exempt
U.S. Regulations
EPA Reg. No. : 70627-56
This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling
requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data
sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The
pesticide label also includes other important information, including directions for use.
ENVIRONMENTAL HAZARDS: This product is toxic to birds, fish and aquatic invertebrates. Caution should be used when applying indoors
because pets may be at risk.
CERCLA/ SARA
Ingredient(s) CAS # Weight % CERCLA/SARA RQ (lbs) Section 302 TPQ (lbs) Section 313
Hydrogen peroxide 7722-84-1 > 0.1 - < 1% 1000
Canadian Regulations

16. OTHER INFORMATION

NFPA (National Fire Protection Association)
Rating Scale: (Low Hazard) 0 - 4 (Extreme Hazard)
Health 0
Flammability 0
Instability 0
Special Hazards -
Revision: 2021-05-25
Version: 03.0
Reason for revision: Not applicable
Prepared by: North American Regulatory Affairs
Additional advice: • Does not contain an added fragrance
Oxivir® Tb
Virucide, Bactericide, Tuberculocide, Fungicide, Sanitizer
4 of 4