

Department of Environmental Protection

Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORM

Ed Modularity
RECEIVED

SEP 04 2012

DIVISION OF AIR
RESOURCE MANAGEMENT

I. APPLICATION INFORMATION

Air Construction Permit – Use this form to apply for an air construction permit:

- For any required purpose at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air operation permit;
- For a proposed project subject to prevention of significant deterioration (PSD) review, nonattainment new source review, or maximum achievable control technology (MACT);
- To assume a restriction on the potential emissions of one or more pollutants to escape a requirement such as PSD review, nonattainment new source review, MACT, or Title V; or
- To establish, revise, or renew a plant wide applicability limit (PAL).

Air Operation Permit – Use this form to apply for:

- An initial federally enforceable state air operation permit (FESOP); or
- An initial, revised, or renewal Title V air operation permit.

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: PHARMA-SAFE LLC	
2. Site Name: PHARMA-SAFE LLC	
3. Facility Identification Number: N/A 7775740	
4. Facility Location. Street Address or Other Locator: 4060 SW 137 TH COURT City: MIAMI County: MIAMI-DADE Zip Code: 33175	
5. Relocatable Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. Existing Title V Permitted Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Application Contact

1. Application Contact Name: JERRY COLLADO	
2. Application Contact Mailing Address... Organization/Firm: PHARMA-SAFE LLC Street Address: 4060 SW 137 TH CT City: MIAMI State: FL Zip Code: 33193	
3. Application Contact Telephone Numbers... Telephone: (786)503-5080 - ext. Fax: (786)364-7263 -	
4. Application Contact E-mail Address: JCOLLADO@CMPINTERNATIONAL.BIZ OR INFO@PHARMA-SAFEUSA.COM	

Application Processing Information (DEP Use)

1. Date of Receipt of Application: 9-5-12	3. PSD Number (if applicable):
2. Project Number(s): 7775740-001-AC	4. Siting Number (if applicable):

APPLICATION INFORMATION

Purpose of Application

This application for air permit is being submitted to obtain: (Check one)

Air Construction Permit

- ☒ Air construction permit.
- ☐ Air construction permit to establish, revise, or renew a plant wide applicability limit (PAL).
- ☐ Air construction permit to establish, revise, or renew a plant wide applicability limit (PAL), and separate air construction permit to authorize construction or modification of one or more emissions units covered by the PAL.

Air Operation Permit

- ☐ Initial Title V air operation permit.
- ☐ Title V air operation permit revision.
- ☐ Title V air operation permit renewal.
- ☐ Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.
- ☐ Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit (Concurrent Processing)

- ☐ Air construction permit and Title V permit revision, incorporating the proposed project.
- ☐ Air construction permit and Title V permit renewal, incorporating the proposed project.

Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:

- ☐ I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

Application Comment

This application is submitted to obtain the required permit to authorize the operation of one unit defined by EPA as Other Solids Waste Incinerator (OSWI).

APPLICATION INFORMATION

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Processing Fee
001	One portable small diesel fired incinerator unit OSWI for disposing of medical wastes, drugs and narcotics	AC1F	\$250,00


Application Processing Fee

Check one: ☒ Attached - Amount: \$250.00 ☐ Not Applicable

APPLICATION INFORMATION

Owner/Authorized Representative Statement


Complete if applying for an air construction permit or an initial FESOP.

1. Owner/Authorized Representative Name : JORE BRACERAS, OR JERRY COLLADO
2. Owner/Authorized Representative Mailing Address... Organization/Firm: PHARMA-SAFE LLC Street Address: 4060 SW 167 TH COURT City: MIAMI State: FLORIDA Zip Code: 33175
3. Owner/Authorized Representative Telephone Numbers... Telephone: (786)333-5790 - ext. Fax: (786)364-7263
4. Owner/Authorized Representative E-mail Address: <u>JCOLLADO@CMPINTERNATIONAL.BIZ</u> OR <u>INFO@PHARMA-SAFEUSA.COM</u>
5. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.</i> <div style="display: flex; justify-content: space-between;"><div style="text-align: center;"> Signature</div><div style="text-align: center;"><u>08/29/2012</u> Date</div></div>

APPLICATION INFORMATION

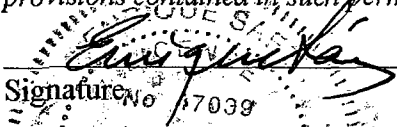
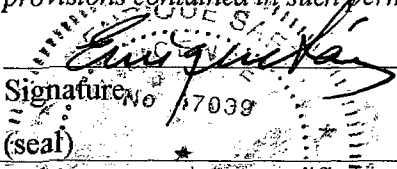
Application Responsible Official Certification

Complete if applying for an initial, revised, or renewal Title V air operation permit or concurrent processing of an air construction permit and revised or renewal Title V air operation permit. If there are multiple responsible officials, the "application responsible official" need not be the "primary responsible official."

1. Application Responsible Official Name: JERRY COLLADO
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable): <input checked="" type="checkbox"/> For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C. <input type="checkbox"/> For a partnership or sole proprietorship, a general partner or the proprietor, respectively. <input type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official. <input type="checkbox"/> The designated representative at an Acid Rain source or CAIR source.
3. Application Responsible Official Mailing Address... Organization/Firm: PHARMA-SAFE LLC Street Address: 4060 SW 137 TH CT City: MIAMI State: FL Zip Code: 33175
4. Application Responsible Official Telephone Numbers... Telephone: (786)333 -5790 ext. Fax: (786)364-7263 -
5. Application Responsible Official E-mail Address: JCOLLADO@CMPINTERNATIONAL.BIZ OR INFO@PHARMA-SAFEUSA.COM
6. Application Responsible Official Certification: <i>I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.</i>  Signature 08/29/2012. Date

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: Enrique Saez Registration Number: PE 47039
2. Professional Engineer Mailing Address... Organization/Firm: E. Saez, P. E. Street Address: 555 Crandon Blvd., Ste 64 (For Mailings: P. O. Box 490372) City: Key Biscayne State: FL Zip Code: 33149
3. Professional Engineer Telephone Numbers... Telephone: (305) 361 - 2984 ext. - Fax: (305) 361 - 5769
4. Professional Engineer E-mail Address:
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i> <i>(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i> <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/>, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i> <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/>, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i> <i>(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i> Signature  No. 47039 (seal)  Date 8/28/2012

* Attach any exception to certification statement.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates... Zone East (km) North (km)		2. Facility Latitude/Longitude... Latitude 25° 43' 47.4" Longitude 80° 25' 0.8"	
3. Governmental Facility Code: 0	4. Facility Status Code: C	5. Facility Major Group SIC Code: 4953	6. Facility SIC(s):
7. Facility Comment: The Latitude and Longitude above are for the office of the Facility. The unit is not operated at any permanent site, as it is portable and moved from one client location to another.			

Facility Contact

1. Facility Contact Name: : JERRY COLLADO			
2. Facility Contact Mailing Address... Organization/Firm: PHARMA-SAFE LLC Street Address: 4060 SW 137 TH CT City: MIAMI State: FL Zip Code: 33193			
3. Application Contact Telephone Numbers... Telephone: (786)503-5080 - ext. Fax: (786)364-7263			
4. Facility Contact E-mail Address:			

Facility Primary Responsible Official

Complete if an "application responsible official" is identified in Section I that is not the facility "primary responsible official."

1. Facility Primary Responsible Official Name:			
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:			
3. Facility Primary Responsible Official Telephone Numbers... Telephone: () - ext. Fax: () -			
4. Facility Primary Responsible Official E-mail Address:			

FACILITY INFORMATION

Facility Regulatory Classifications

Check all that would apply *following* completion of all projects and implementation of all other changes proposed in this application for air permit. Refer to instructions to distinguish between a “major source” and a “synthetic minor source.”

1.	<input checked="" type="checkbox"/> Small Business Stationary Source	<input type="checkbox"/> Unknown
2.	<input type="checkbox"/> Synthetic Non-Title V Source	
3.	<input type="checkbox"/> Title V Source	
4.	<input type="checkbox"/> Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5.	<input type="checkbox"/> Synthetic Minor Source of Air Pollutants, Other than HAPs	
6.	<input type="checkbox"/> Major Source of Hazardous Air Pollutants (HAPs)	
7.	<input type="checkbox"/> Synthetic Minor Source of HAPs	
8.	<input type="checkbox"/> One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9.	<input type="checkbox"/> One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10.	<input type="checkbox"/> One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11.	<input checked="" type="checkbox"/> Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12.	Facility Regulatory Classifications Comment:	

FACILITY INFORMATION

List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?

FACILITY INFORMATION

B. EMISSIONS CAPS

Facility-Wide or Multi-Unit Emissions Caps

1. Pollutant Subject to Emissions Cap	2. Facility-Wide Cap [Y or N]? (all units)	3. Emissions Unit ID's Under Cap (if not all units)	4. Hourly Cap (lb/hr)	5. Annual Cap (ton/yr)	6. Basis for Emissions Cap
7. Facility-Wide or Multi-Unit Emissions Cap Comment:					

FACILITY INFORMATION

C. FACILITY ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1.	Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <u>NA, all Florida</u> <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____
2.	Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <u>Proc. Flow</u> <input type="checkbox"/> Previously Submitted, Date: _____
3.	Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <u>NA, emission units come assembled and ready to use.</u> <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____

Additional Requirements for Air Construction Permit Applications

1.	Area Map Showing Facility Location: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (existing permitted facility)
2.	Description of Proposed Construction, Modification, or Plantwide Applicability Limit (PAL): <input checked="" type="checkbox"/> Attached, Document ID: <u>See comment below</u>
3.	Rule Applicability Analysis: <input checked="" type="checkbox"/> Attached, Document ID: <u>See comment below</u>
4.	List of Exempt Emissions Units: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (no exempt units at facility)
5.	Fugitive Emissions Identification: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
6.	Air Quality Analysis (Rule 62-212.400(7), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
7.	Source Impact Analysis (Rule 62-212.400(5), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
8.	Air Quality Impact since 1977 (Rule 62-212.400(4)(e), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
9.	Additional Impact Analyses (Rules 62-212.400(8) and 62-212.500(4)(e), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
10.	Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

FACILITY INFORMATION

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for FESOP Applications

1. List of Exempt Emissions Units:

☐ Attached, Document ID: _____ ☒ Not Applicable (no exempt units at facility)

Additional Requirements for Title V Air Operation Permit Applications

1. List of Insignificant Activities: (Required for initial/renewal applications only)

☒ Attached, Document ID See comment below ☐ Not Applicable (revision application)

2. Identification of Applicable Requirements: (Required for initial/renewal applications, and for revision applications if this information would be changed as a result of the revision being sought)

☒ Attached, Document ID: See comment below

☐ Not Applicable (revision application with no change in applicable requirements)

3. Compliance Report and Plan: (Required for all initial/revision/renewal applications)

☒ Attached, Document ID See comment below

Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing.

4. List of Equipment/Activities Regulated under Title VI: (If applicable, required for initial/renewal applications only)

☐ Attached, Document ID: _____

☐ Equipment/Activities Onsite but Not Required to be Individually Listed

☒ Not Applicable

5. Verification of Risk Management Plan Submission to EPA: (If applicable, required for initial/renewal applications only)

☐ Attached, Document ID: _____ ☒ Not Applicable

6. Requested Changes to Current Title V Air Operation Permit:

☐ Attached, Document ID: _____ ☒ Not Applicable

FACILITY INFORMATION

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Facilities Subject to Acid Rain, CAIR, or Hg Budget Program

1. Acid Rain Program Forms:

Acid Rain Part Application (DEP Form No. 62-210.900(1)(a)):

☐ Attached, Document ID: _____ ☐ Previously Submitted, Date: _____

☐ Not Applicable (not an Acid Rain source)

Phase II NO_x Averaging Plan (DEP Form No. 62-210.900(1)(a)1.):

☐ Attached, Document ID: _____ ☐ Previously Submitted, Date: _____

☐ Not Applicable

New Unit Exemption (DEP Form No. 62-210.900(1)(a)2.):

☐ Attached, Document ID: _____ ☐ Previously Submitted, Date: _____

☐ Not Applicable

2. CAIR Part (DEP Form No. 62-210.900(1)(b)):

☐ Attached, Document ID: _____ ☐ Previously Submitted, Date: _____

☐ Not Applicable (not a CAIR source)

Additional Requirements Comment

There are no Insignificant Activities to list.

Identification of Applicable Requirements, Compliance Report and Plan are as listed in 40 CFR Subpart EEEE.

Description of Proposed Construction: The emission units are portable small (OSWT) pre-assembled machines purchased as such, which are transported to the customers' sites thorough the State for disposal of medical waste, drugs and narcotics. The machines are diesel fueled and smoke free, the upper chamber is an afterburner.

Rule Applicability Analysis: 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297 F. A. C

EMISSIONS UNIT INFORMATION

Section [1] of [1]

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for an initial, revised or renewal Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for an air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application - Where this application is used to apply for both an air construction permit and a revised or renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes, and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this application that is subject to air construction permitting and for each such emissions unit that is a regulated or unregulated unit for purposes of Title V permitting. (An emissions unit may be exempt from air construction permitting but still be classified as an unregulated unit for Title V purposes.) Emissions units classified as insignificant for Title V purposes are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

EMISSIONS UNIT INFORMATION

Section [1] of [1]

A. GENERAL EMISSIONS UNIT INFORMATION**Title V Air Operation Permit Emissions Unit Classification**

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

- ☐ The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.
- ☐ The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

- ☒ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).
- ☐ This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which have at least one definable emission point (stack or vent) but may also produce fugitive emissions.
- ☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section: Packaged small OSWI machine

3. Emissions Unit Identification Number:

4. Emissions Unit
Status Code: C

5. Commence
Construction
Date: 9/2012

6. Initial Startup
Date: 9/2012

7. Emissions Unit
Major Group
SIC Code: 49

8. Federal Program Applicability: (Check all that apply)

- ☐ Acid Rain Unit
- ☐ CAIR Unit

9. Package Unit: Yes

Manufacturer: Elastec/American Marine

Model Number: MediBurn 20

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment: This machine is a portable small batch diesel fired incinerator (8 ft³ capacity main chamber) for hospitals, clinics, laboratory, and enforcement agencies to dispose of medical wastes, drugs and narcotics.

No chlorinated plastics (PVC, etc) or hazardous wastes will be incinerated in these units.

EMISSIONS UNIT INFORMATION

Section [1] of [1]

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description: Afterburner

2. Control Device or Method Code: 112

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description:
--

2. Control Device or Method Code:

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description:
--

2. Control Device or Method Code:

Emissions Unit Control Equipment/Method: Control ___ of ___

1. Control Equipment/Method Description:
--

2. Control Device or Method Code:

EMISSIONS UNIT INFORMATION

Section [1] of [1]

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:
2. Maximum Production Rate: 113.38 lb/hr
3. Maximum Heat Input Rate: 0.2085 million Btu/hr
4. Maximum Incineration Rate: 113.38 pounds/hr 113.38 lb/day x 24 hr/day / 2,000 lb/ton= 1.361 tons/day
5. Requested Maximum Operating Schedule:
<div style="display: flex; justify-content: space-between;"> <div> hours/day weeks/year </div> <div> days/week hours/year </div> </div>
6. Operating Capacity/Schedule Comment:
<p>Operating Cycle.- Cleaning and reloading: 10 min. Burning: 20 min. Cooling: <u>30 min.</u> Total: 60 min., 1 hr.</p> <p>Note: Actual operating cycle may be half, or less, of this rate because that moving the machine to a new customer would take an estimated average of 1hr traveling time.</p> <p>Maximum incineration rate.- Machine capacity: 8 ft³ Clinical Waste Density: 227 Kg/m³ 8 ft³/hr x 227 Kg/m³ x 2.205 lb/Kg / 35.317 ft³/m³ = 113.38 lb/hr</p> <p>Maximum Heat Input.- Diesel usage: Main Chamber: 2.0 gph Afterburner has: <u>2.5 gph</u> Total: 4.5 gph (2.0 + 2.5 = 4.5) Maximum possible diesel usage: 1.5 gph. For 20 min burn/hr Diesel heat content: 138,700 BTU/gal 138,700 BTU/gal x 1.5 gal/hr = 208,050 BTU/hr, or 0. 0.2085 Million BTU/hr</p> <p>Note: No chlorinated plastics (PVC, etc) or hazardous wastes will be incinerated in this unit.</p>

EMISSIONS UNIT INFORMATION

Section [1] of [1].

C. EMISSION POINT (STACK/VENT) INFORMATION

(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: NA		2. Emission Point Type Code: 1	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: A stack with an unobstructed opening discharging in a vertical direction.			
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:			
5. Discharge Type Code: V		6. Stack Height: ≈1 feet	
		7. Exit Diameter: 1 x 1 feet	
8. Exit Temperature: 1,832 – 1,877 °F		9. Actual Volumetric Flow Rate: acfm	
		10. Water Vapor: %	
11. Maximum Dry Standard Flow Rate: dscfm		12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):		14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment: This emission unit is an incinerator machine which is moved from customer to customer, a portable machine.			

EMISSIONS UNIT INFORMATION

Section [1] of [1]

D. SEGMENT (PROCESS/FUEL) INFORMATION**Segment Description and Rate: Segment 1 of 2**

1. Segment Description (Process/Fuel Type): Diesel Fuel		
2. Source Classification Code (SCC): 10100501	3. SCC Units: lb/1,000 gal of Fuel Used	
4. Maximum Hourly Rate: 1.5 gal/hr	5. Maximum Annual Rate: 13,140 gal/year	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 500 ppm	8. Maximum % Ash: Nil.	9. Million Btu per SCC Unit: 138.7 (per 1,000 gal fuel)
10. Segment Comment: Diesel heat value = 138,700 BTU/gal = 138.7 Million BTU/1000 gal.		

Segment Description and Rate: Segment 2 of 2

1. Segment Description (Process/Fuel Type): Solid Waste Burnt, not including sharps metals like needles scalpels that are segregated prior to loading the machine.		
2. Source Classification Code (SCC): 50200101	3. SCC Units: lb/ton of solid burnt	
4. Maximum Hourly Rate: 113.38 lb/hr	5. Maximum Annual Rate: 496.6 Ton/year	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: Nil.	8. Maximum % Ash: $100 \times 74.49 / 496.6 = 15\%$	9. Million Btu per SCC Unit:

10. Segment Comment:

Material	Composition	Quantity (actual)
Fabrics	Gauze, Garments, Bandage & Swabs	36 ton/year
Non-chlorinated plastics	Polyethylene, Polypropylene and Polycarbonate trash bags, containers, IV bags, tubes & specimen cups. Plastics feed must be no more than 25% of the load to prevent damage to control components.	50 ton/year
Paper	Disposable gowns and sheets, water and alcohol pre-moistened towels, and paper towels	72 ton/year
Pathological waste	Body parts and tissue	72 ton/year
Chemicals & drugs	Medical wastes that do not include hazardous wastes. Illegal drug, Marijuana, Cocaine, Methamphetamines, Opiates, Ecstasy, Heroin, Paraphernalia and waste pharmaceuticals	17 ton/year
Sharps	Needles and scalpels shall not be included with materials to prevent handling hazard. Other metallic objects would be recovered sterilized in the ashes	0.5 ton/year
	Total	247.5 ton/year

This segmented process amounts are estimates actual production to be reached when the business reaches full production.

EMISSIONS UNIT INFORMATION

Section [1] of [1]

E. EMISSIONS UNIT POLLUTANTS**List of Pollutants Emitted by Emissions Unit**

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
NOx	Uncontrolled	NA	NS
PM	Uncontrolled	NA	NS
PM10	Uncontrolled	NA	NS
SO _x	Uncontrolled	NA	NS
VOC	Uncontrolled	NA	NS
CO	Uncontrolled	NA	NS
HCl	Uncontrolled	NA	NS

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –
POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS**
(Optional for unregulated emissions units.)

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: H106 Hydrochloric Acid				2. Total Percent Efficiency of Control: 0																																																																																
3. Potential Emissions: 0.5669 lb/hour 2.483 tons/year				4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																																																																																
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year																																																																																				
6. Emission Factor: 10 lb/1,000 gal of fuel used Reference: SSC 50200101						7. Emissions Method Code: 3																																																																														
8.a. Baseline Actual Emissions (if required): tons/year				8.b. Baseline 24-month Period: From: To:																																																																																
9.a. Projected Actual Emissions (if required): tons/year				9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years																																																																																
<p>10. Calculation of Emissions:</p> <p>Solids burnt, potential: 113.38 lb/hr = 496.60 Ton/year</p> <p>Fuel used, potential: 1.5 gal/hr = 13,140.00 gal/year, for 20 min./hr</p> <p>Potential hr/year: 8,760 hr/year</p> <p>Potential Heat Input: 1,823 MMBTU/year</p> <p align="center">Emission Factors</p> <table border="1" style="width:100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th>SCC #</th> <th colspan="2">50200101 10100501*</th> <th colspan="4">Yearly Emissions</th> </tr> <tr> <th></th> <th>lb/ton of</th> <th>lb/1,000 gal</th> <th colspan="2">Emission, lb</th> <th colspan="2"></th> </tr> <tr> <th>Pollutant</th> <th>solid</th> <th>of fuel</th> <th>50200101</th> <th>10100501</th> <th>Total, lb</th> <th>Total, tons</th> </tr> </thead> <tbody> <tr> <td>VOC</td> <td>3.0</td> <td>-</td> <td>1,489.8</td> <td>-</td> <td>1,489.8</td> <td>0.745</td> </tr> <tr> <td>CO</td> <td>10.0</td> <td>-</td> <td>4,966.0</td> <td>-</td> <td>4,966.0</td> <td>2.483</td> </tr> <tr> <td>NOx</td> <td>3.0</td> <td>24.0</td> <td>1,489.8</td> <td>315.4</td> <td>1,805.2</td> <td>0.903</td> </tr> <tr> <td>PM**</td> <td>7.0</td> <td>2.0</td> <td>3,476.2</td> <td>26.3</td> <td>3,502.5</td> <td>1.751</td> </tr> <tr> <td>PM10**</td> <td>4.7</td> <td>2.3</td> <td>2,334.0</td> <td>30.2</td> <td>2,364.3</td> <td>1.182</td> </tr> <tr> <td>SO_x</td> <td>2.5</td> <td>7.18</td> <td>1,241.5</td> <td>94.3</td> <td>1,335.9</td> <td>0.668</td> </tr> <tr> <td>HCl</td> <td>10.0</td> <td>-</td> <td>4,966.0</td> <td>-</td> <td>4,966.0</td> <td><u>2.483</u></td> </tr> <tr> <td align="right" colspan="5">Total</td> <td></td> <td>10.21</td> </tr> </tbody> </table> <p>* None road diesel sulfur content: 500 ppm 0.5669 lb/hr HCl</p> <p>** When there are more than one PMs emission for same SCC, the worse case was used</p>								SCC #	50200101 10100501*		Yearly Emissions					lb/ton of	lb/1,000 gal	Emission, lb				Pollutant	solid	of fuel	50200101	10100501	Total, lb	Total, tons	VOC	3.0	-	1,489.8	-	1,489.8	0.745	CO	10.0	-	4,966.0	-	4,966.0	2.483	NOx	3.0	24.0	1,489.8	315.4	1,805.2	0.903	PM**	7.0	2.0	3,476.2	26.3	3,502.5	1.751	PM10**	4.7	2.3	2,334.0	30.2	2,364.3	1.182	SO _x	2.5	7.18	1,241.5	94.3	1,335.9	0.668	HCl	10.0	-	4,966.0	-	4,966.0	<u>2.483</u>	Total						10.21
SCC #	50200101 10100501*		Yearly Emissions																																																																																	
	lb/ton of	lb/1,000 gal	Emission, lb																																																																																	
Pollutant	solid	of fuel	50200101	10100501	Total, lb	Total, tons																																																																														
VOC	3.0	-	1,489.8	-	1,489.8	0.745																																																																														
CO	10.0	-	4,966.0	-	4,966.0	2.483																																																																														
NOx	3.0	24.0	1,489.8	315.4	1,805.2	0.903																																																																														
PM**	7.0	2.0	3,476.2	26.3	3,502.5	1.751																																																																														
PM10**	4.7	2.3	2,334.0	30.2	2,364.3	1.182																																																																														
SO _x	2.5	7.18	1,241.5	94.3	1,335.9	0.668																																																																														
HCl	10.0	-	4,966.0	-	4,966.0	<u>2.483</u>																																																																														
Total						10.21																																																																														
11. Potential, Fugitive, and Actual Emissions Comment: The amounts shown are estimates calculated for the unit at one location 8,760 hr/year, normal cycle and no transportation time.																																																																																				

EMISSIONS UNIT INFORMATION

Section [1] of [1]

G. VISIBLE EMISSIONS INFORMATION

Complete Subsection G if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype: VE20	2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: 10 % Exceptional Conditions: 20 % Maximum Period of Excess Opacity Allowed: 1 hr.	
4. Method of Compliance: Compliance Test	
5. Visible Emissions Comment: Prior to startup if Manufacturer has no test data.	

Visible Emissions Limitation: Visible Emissions Limitation ___ of ___

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

EMISSIONS UNIT INFORMATION

Section [] of []

H. CONTINUOUS MONITOR INFORMATION

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor ____ of ____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

Continuous Monitoring System: Continuous Monitor ____ of ____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

EMISSIONS UNIT INFORMATION

Section [] of []

H. CONTINUOUS MONITOR INFORMATION (CONTINUED)**Continuous Monitoring System:** Continuous Monitor ____ of ____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

Continuous Monitoring System: Continuous Monitor ____ of ____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	<input type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Model Number: Serial Number:	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment:	

EMISSIONS UNIT INFORMATION

Section [] of []

I. EMISSIONS UNIT ADDITIONAL INFORMATION**Additional Requirements for All Applications, Except as Otherwise Stated**

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) NA <input checked="" type="checkbox"/> Attached, Document ID: <u>Proc. Flow</u> <input type="checkbox"/> Previously Submitted, Date _____
2. Fuel Analysis or Specification: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <u>Diesel Spec.</u> <input type="checkbox"/> Previously Submitted, Date _____
3. Detailed Description of Control Equipment: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <u>Mfg Spec.</u> <input type="checkbox"/> Previously Submitted, Date _____
4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <u>Mfg Proc.</u> <input type="checkbox"/> Previously Submitted, Date _____ <input type="checkbox"/> Not Applicable (construction application)
5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <u>Mfg Plan</u> <input type="checkbox"/> Previously Submitted, Date _____ <input type="checkbox"/> Not Applicable
6. Compliance Demonstration Reports/Records: <input checked="" type="checkbox"/> Attached, Document ID: <u>MediBurn – Emissions Comparisons</u> Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____ <input checked="" type="checkbox"/> To be Submitted, Date (if known): <u>ELASTEC American Marine test</u> Test Date(s)/Pollutant(s) Tested: <u>September 2012, if no data from manufacturer is obtained and submitted</u> <input type="checkbox"/> Not Applicable Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

Section [] of []

Additional Requirements for Air Construction Permit Applications

- ## **Additional Requirements for Title V Air Operation Permit Applications**

- ### **Additional Requirements Comment**

Feed Waste Input:
496.6 Ton/year

Fuel Input:
45.53 Ton/year

INCINERATOR
(Assuming 85%
Weight Reduction)

Ash Output: 74.49 Ton/year

Emission:
422.1 Ton/year, from waste +
45.53 Ton/year, water and
carbon dioxide from fuel

PROCESS FLOW, POTENTIAL. PHARMA-SAFE LLC

MediBurn Medical Waste Incinerator – Emissions Comparison

Pollutant	Testing Method	Small HMIWI (< 200 lb/hr)	MEDIBURN (330 lb/day)
Particulate Matter	EPA Method 5 or 29	69 mg/dscm	53 mg/dscm
Carbon Monoxide (CO)	EPA Method 10 or 10B	40 ppmv	0 – 6 ppm
Dioxins/Furans	EPA Method 23	125 ng/dscm total CDD/CDF or 2.3 ng/dscm TEQ	0.01 ng/m3
Hydrogen Chloride (HCl)	EPA Method 26	15 ppmv	31.69 mg/Nm3 (dry)
Sulfur Dioxide (SO ₂)		55 ppmv	11 – 23 ppm
Nitrogen Oxides (NO _x)		250 ppmv	79 – 116 ppm
Lead (Pb)	EPA Method 29	1.2 mg/dscm or 70% reduction	.42 mg/Nm3 (dry)
Cadmium (Cd)	EPA Method 29	0.16 mg/dscm or 65% reduction	.01 mg/Nm3 (dry)
Mercury (Hg)	EPA Method 29	0.55 mg/dscm or 85% reduction	.00 mg/Nm3 (dry)

Source: Hospital/Medical/Infectious Waste Incinerator (HMIWI) Guidelines from page 16 of the Environmental Protection 40 CFR Part 60 Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Hospital/Medical/Infectious Waste Incinerators; Final Rule

Selected WebFIRE Factors

09 Jul 2012

SCC ⓘ	50200101	
Level 1 ⓘ	Waste Disposal	
Level 2 ⓘ	Solid Waste Disposal - Commercial/Institutional	
Level 3 ⓘ	Incineration	
Level 4 ⓘ	Multiple Chamber	
POLLUTANT ⓘ	Total organic compounds (TOC) NEI ⓘ	CAS ⓘ
Primary Control ⓘ	UNCONTROLLED	

Emission Factor ⓘ	3.000E0 Lb per Tons Solid Waste Burned
Quality ⓘ	D <u>Emissions Factors Applicability</u>

References	EPA. 1995. Section 2.1, Refuse Combustion. In: Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition, AP-42. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina. Chapter 2 Section 2.1
AP 42 Section	
Formula	
Notes	Expressed as methane.

SCC ⓘ	50200101	
Level 1 ⓘ	Waste Disposal	
Level 2 ⓘ	Solid Waste Disposal - Commercial/Institutional	
Level 3 ⓘ	Incineration	
Level 4 ⓘ	Multiple Chamber	
POLLUTANT ⓘ	Volatile organic compounds (VOC) NEI VOC ⓘ	CAS ⓘ
Primary Control ⓘ	UNCONTROLLED	

Emission Factor ⓘ	3.000E0 Lb per Tons Solid Waste Burned
Quality ⓘ	A <u>Emissions Factors Applicability</u>

References	This factor was present in AIRS Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants, March 1990, EPA 450/4-90-003. These factors may have been (and may still be) in an AP-42 section, or they may have been added to that March 1990 document from other sources. Please check the latest AP42 to verify.
AP 42 Section	
Formula	
Notes	

SCC [1] 50200101
Level 1 [1] Waste Disposal
Level 2 [1] Solid Waste Disposal - Commercial/Institutional
Level 3 [1] Incineration
Level 4 [1] Multiple Chamber
POLLUTANT [1] ✓ Carbon monoxide NEI CO [1] CAS 630-08-0 [1]
Primary Control [1] UNCONTROLLED

Emission Factor [1] 1.000E1 Lb per Tons Solid
Waste Burned
Quality [1] D Emissions Factors Applicability

References EPA. 1995. Section 2.1, Refuse Combustion. In:
Compilation of Air Pollutant Emission Factors,
Volume 1: Stationary Point and Area Sources, Fifth
Edition, AP-42. U.S. Environmental Protection
Agency, Office of Air Quality Planning and
Standards. Research Triangle Park, North Carolina.
AP 42 Section Chapter 2 Section 2.1
Formula
Notes

SCC [1] 50200101
Level 1 [1] Waste Disposal
Level 2 [1] Solid Waste Disposal - Commercial/Institutional
Level 3 [1] Incineration
Level 4 [1] Multiple Chamber
POLLUTANT [1] ✓ Hydrogen chloride NEI 7647010 [1] CAS 7647-01-0 [1]
Primary Control [1] UNCONTROLLED

Emission Factor [1] 1.000E1 Lb per Tons Solid
Waste Burned
Quality [1] U Emissions Factors Applicability

References Source Test Report, St. Michael's Medical Center
Incinerator Stack Test. May 17 - 18, 1988.
(Confidential Report No. ERC-115)
AP 42 Section
Formula
Notes

SCC [1] 50200101
Level 1 [1] Waste Disposal
Level 2 [1] Solid Waste Disposal - Commercial/Institutional

Level 3 <input type="checkbox"/>	Incineration		
Level 4 <input type="checkbox"/>	Multiple Chamber		
POLLUTANT <input type="checkbox"/>	Nitrogen oxides (NOx)	NEI NOX <input type="checkbox"/>	CAS <input type="checkbox"/>
Primary Control <input type="checkbox"/>	UNCONTROLLED		

Emission Factor <input type="checkbox"/>	3.000E0 Lb per Tons Solid Waste Burned
Quality <input type="checkbox"/>	D <u>Emissions Factors Applicability</u>

References	EPA. 1995. Section 2.1, Refuse Combustion. In: Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition, AP-42. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina.
AP 42 Section	<u>Chapter 2</u> <u>Section 2.1</u>
Formula	
Notes	

SCC <input type="checkbox"/>	50200101		
Level 1 <input type="checkbox"/>	Waste Disposal		
Level 2 <input type="checkbox"/>	Solid Waste Disposal - Commercial/Institutional		
Level 3 <input type="checkbox"/>	Incineration		
Level 4 <input type="checkbox"/>	Multiple Chamber		
POLLUTANT <input type="checkbox"/>	PM, filterable	NEI PM-FIL <input type="checkbox"/>	CAS <input type="checkbox"/>
Primary Control <input type="checkbox"/>	UNCONTROLLED		

Emission Factor <input type="checkbox"/>	7.000E0 Lb per Tons Solid Waste Burned
Quality <input type="checkbox"/>	D <u>Emissions Factors Applicability</u>

References	EPA. 1995. Section 2.1, Refuse Combustion. In: Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition, AP-42. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina.
AP 42 Section	<u>Chapter 2</u> <u>Section 2.1</u>
Formula	
Notes	

SCC <input type="checkbox"/>	50200101
Level 1 <input type="checkbox"/>	Waste Disposal
Level 2 <input type="checkbox"/>	Solid Waste Disposal - Commercial/Institutional
Level 3 <input type="checkbox"/>	Incineration
Level 4 <input type="checkbox"/>	Multiple Chamber

POLLUTANT ⓘ PM10, filterable NEI PM10-FIL ⓘ CAS ⓘ
Primary Control ⓘ UNCONTROLLED

Emission Factor ⓘ 4.700E0 Lb per Tons Solid
Waste Burned
Quality ⓘ A Emissions Factors Applicability

References EPA. In: PM10 Emission Factor Listing Developed
by Technology Transfer. EPA-450/4-89-022. U.S.
Environmental Protection Agency.

AP 42 Section
Formula
Notes

SCC ⓘ 50200101
Level 1 ⓘ Waste Disposal
Level 2 ⓘ Solid Waste Disposal - Commercial/Institutional
Level 3 ⓘ Incineration
Level 4 ⓘ Multiple Chamber
POLLUTANT ⓘ Sulfur dioxide NEI SO2 ⓘ CAS 7446-09-5 ⓘ
Primary Control ⓘ UNCONTROLLED

Emission Factor ⓘ 2.500E0 Lb per Tons Solid
Waste Burned
Quality ⓘ D Emissions Factors Applicability

References EPA. 1995. Section 2.1, Refuse Combustion. In:
Compilation of Air Pollutant Emission Factors,
Volume 1: Stationary Point and Area Sources, Fifth
Edition, AP-42. U.S. Environmental Protection
Agency, Office of Air Quality Planning and
Standards. Research Triangle Park, North Carolina.
AP 42 Section Chapter 2 Section 2.1
Formula
Notes

SCC ⓘ 50200101
Level 1 ⓘ Waste Disposal
Level 2 ⓘ Solid Waste Disposal - Commercial/Institutional
Level 3 ⓘ Incineration
Level 4 ⓘ Multiple Chamber
POLLUTANT ⓘ Sulfur oxides (SOx) NEI ⓘ CAS ⓘ
Primary Control ⓘ UNCONTROLLED

Emission Factor ⓘ 2.500E0 Lb per Tons Solid
Waste Burned

Quality ☐

A Emissions Factors Applicability

References

This factor was present in AIRS Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants, March 1990, EPA 450/4-90-003. These factors may have been (and may still be) in an AP-42 section, or they may have been added to that March 1990 document from other sources. Please check the latest AP42 to verify.

AP 42 Section

Formula

Notes

From Issue 1000000

Selected WebFIRE Factors

07 Jul 2012

SCC (i) 10100501
Level 1 (i) External Combustion Boilers
Level 2 (i) Electric Generation OR INDUSTRIAL
Level 3 (i) Distillate Oil
Level 4 (i) Grades 1 and 2 Oil
POLLUTANT (i) → Nitrogen oxides (NOx) NEI NOX (i) CAS (i)
Primary Control (i) UNCONTROLLED

Emission Factor (i) 2.400E1 Lb per 1000 Gallons
Distillate Oil (No. 1 & 2) Burned
Quality (i) D Emissions Factors Applicability

References
EPA, September, 1998. Section 1.3, Fuel Oil
Combustion. In: Compilation of Air Pollutant
Emission Factors, Volume 1: Stationary Point and
Area Sources, Fifth Edition, AP-42, Supplement E.
U.S. Environmental Protection Agency, Office of Air
Quality Planning and Standards, Research Triangle
Park, North Carolina.
AP 42 Section
Chapter 1 Section 1.3

Formula
Notes
Test results indicate that at least 95% by weight of
NOx is NO for all boiler types and industrial
furnaces, where about 75%
/1000 gallons at full load and
(15%) excess air.

SCC (i) 10100501
Level 1 (i) External Combustion Boilers
Level 2 (i) Electric Generation
Level 3 (i) Distillate Oil
Level 4 (i) Grades 1 and 2 Oil
POLLUTANT (i) PM, condensable NEI PM-COND (i) CAS (i)
Primary Control (i) UNCONTROLLED

Emission Factor (i) 1.300E0 Lb per 1000 Gallons
Distillate Oil (No. 1 & 2) Burned
Quality (i) D Emissions Factors Applicability

References
EPA, September, 1998. Section 1.3, Fuel Oil
Combustion. In: Compilation of Air Pollutant
Emission Factors, Volume 1: Stationary Point and
Area Sources, Fifth Edition, AP-42, Supplement E.
U.S. Environmental Protection Agency, Office of Air
Quality Planning and Standards, Research Triangle

AP 42 Section
Formula
Notes

Park, North Carolina.
Chapter 1 Section 1.3

Factor is for operation with all controls, or uncontrolled. No data are available for numbers 3, 4, and 5 oil. For number 3 oil, use the factors provided for number 2 oil. For numbers 4 and 5 oil, use the factors provided for number 6 oil. 65% of the condensable PM is inorganic, 35% of the condensable PM is organic.

SCC (i) 10100501
Level 1 (i) External Combustion Boilers
Level 2 (i) Electric Generation
Level 3 (i) Distillate Oil
Level 4 (i) Grades 1 and 2 Oil
POLLUTANT (i) → PM, filterable NEI PM-FIL (i) CAS (i)
Primary Control (i) UNCONTROLLED
Emission Factor (i) 2.000E0 Lb per 1000 Gallons
Distillate Oil (No. 1 & 2) Burned
Quality (i) A Emissions Factors Applicability

EPA, September, 1998. Section 1.3, Fuel Oil Combustion. In: Compilation of Air Pollutant Emission Factors, Volume 1. Stationary Combustion and Area Sources, Fifth Edition, AP-42, Supplement 2. Environmental Protection Agency, Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina.

AP 42 Section
Formula
Notes

Chapter 1 Section 1.3

Does not include condensible PM. Filterable PM is that particulate collected on or prior to the filter of an EPA Method 5 (or equivalent) sampling system.

SCC (i) 10100501
Level 1 (i) External Combustion Boilers
Level 2 (i) Electric Generation
Level 3 (i) Distillate Oil
Level 4 (i) Grades 1 and 2 Oil
POLLUTANT (i) → PM10, filterable NEI PM10-FIL (i) CAS (i)
Primary Control (i) UNCONTROLLED
Emission Factor (i) 1.000E0 Lb per 1000 Gallons
Distillate Oil (No. 1 & 2)

Quality ⓘ	Burned E <u>Emissions Factors Applicability</u>
References	EPA. September, 1998. Section 1.3, Fuel Oil Combustion. In: Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources , Fifth Edition, AP-42, Supplement E. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina.
AP 42 Section	<u>Chapter 1</u> <u>Section 1.3</u>
Formula	
Notes	SAME AS 10200501

SCC ⓘ	10100501	
Level 1 ⓘ	External Combustion Boilers	
Level 2 ⓘ	Electric Generation	
Level 3 ⓘ	Distillate Oil	
Level 4 ⓘ	Grades 1 and 2 Oil	
POLLUTANT ⓘ →	PM10, primary NEI PM10-PRI ⓘ	CAS ⓘ
Primary Control ⓘ		
UNCONTROLLED		

Emission Factor ⓘ	2.300E0 Lb per 1000 Gallons Distillate Oil (No. 1 & 2) Burned
Quality ⓘ	E <u>Emissions Factors Applicability</u>
References	This emission factor was derived from other particulate matter emission factors. See Notes.
AP 42 Section	
Formula	
Notes	Sum of PM10-FIL and PM-CON emission factors

SCC ⓘ	10100501	
Level 1 ⓘ	External Combustion Boilers	
Level 2 ⓘ	Electric Generation	
Level 3 ⓘ	Distillate Oil	
Level 4 ⓘ	Grades 1 and 2 Oil	
POLLUTANT ⓘ →	PM2.5, filterable	NEI PM25-FIL ⓘ CAS ⓘ
Primary Control ⓘ	UNCONTROLLED	

Emission Factor ⓘ	2.500E-1 Lb per 1000 Gallons Distillate Oil (No. 1 & 2)
-------------------	--

Quality ⓘ	Burned E <u>Emissions Factors Applicability</u>
References	EPA. September, 1998. Section 1.3, Fuel Oil Combustion. In: Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources , Fifth Edition, AP-42, Supplement E. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina. <u>Chapter 1</u> <u>Section 1.3</u>
AP 42 Section	
Formula	
Notes	Derived factor: 12.5% of PM-FIL factor.

SCC ⓘ	10100501	
Level 1 ⓘ	External Combustion Boilers	
Level 2 ⓘ	Electric Generation	
Level 3 ⓘ	Distillate Oil	
Level 4 ⓘ	Grades 1 and 2 Oil	
POLLUTANT ⓘ →	PM2.5, primaryNEI PM25-PRI ⓘ	CAS ⓘ
Primary Control ⓘ		
UNCONTROLLED		

Emission Factor ⓘ	1.550E0 Lb per 1000 Gallons Distillate Oil (No. 1 & 2) Burned
Quality ⓘ	E <u>Emissions Factors Applicability</u>
References	This emission factor was derived from other particulate matter emission factors. See Notes.
AP 42 Section	
Formula	
Notes	Sum of PM25-FIL and PM-CON emission factors

SCC ⓘ	10100501	
Level 1 ⓘ	External Combustion Boilers	
Level 2 ⓘ	Electric Generation	
Level 3 ⓘ	Distillate Oil	
Level 4 ⓘ	Grades 1 and 2 Oil	
POLLUTANT ⓘ →	Sulfur dioxide	NEI SO2 ⓘ
Primary Control ⓘ	UNCONTROLLED	CAS 7446-09-5 ⓘ

Emission Factor ⓘ	Formula Lb per 1000 Gallons Distillate Oil (No. 1 & 2) Burned
--------------------------	--

Quality ☐

A Emissions Factors Applicability

References

EPA. September, 1998. Section 1.3, Fuel Oil Combustion. In: Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition, AP-42, Supplement E. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina.

AP 42 Section

Chapter 1 Section 1.3

Formula

$1.42E2 * S$

Notes

To determine EF in lb/ton, multiply the EF provided by the weight percent sulfur (S).

SCC ☐

10100501

Level 1 ☐

External Combustion Boilers

Level 2 ☐

Electric Generation

Level 3 ☐

Distillate Oil

Level 4 ☐

Grades 1 and 2 Oil

POLLUTANT ☐

Sulfur oxides (SOx)

NEI ☐

CAS ☐

Primary Control ☐

UNCONTROLLED

Emission Factor ☐

Formula Lb per 1000 Gallons
Distillate Oil (No. 1 & 2) Burned

Quality ☐

A Emissions Factors Applicability

References

EPA. In: Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fourth Edition, AP-42. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina. Total SOx emissions are reported as SO2.

AP 42 Section

Fourth Edition

Formula

$1.436E2 * S$

Notes

Multiply the emission factor provided by the weight percent sulfur content of the fuel to obtain emission factor in lb/activity units. S=% Sulfur content.

SCC ☐

10100501

Level 1 ☐

External Combustion Boilers

Level 2 ☐

Electric Generation

Level 3 ☐

Distillate Oil

Level 4 ☐

Grades 1 and 2 Oil

POLLUTANT ☐

Nitrous oxide

NEI ☐

CAS 10024-97-2 ☐

Primary Control ☐

UNCONTROLLED

Secondary Control

Emission Factor ⓘ	2.600E-1 Lb per 1000 Gallons Distillate Oil (No. 1 & 2) Burned
Quality ⓘ	E <u>Emissions Factors Applicability</u>
References	EPA. September, 1998. Section 1.3, Fuel Oil Combustion. In: Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition, AP-42, Supplement E. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina.
AP 42 Section	<u>Chapter 1</u> <u>Section 1.3</u>
Formula	
Notes	

DieselNet: Fuel Regulations

United States

Diesel Fuel Grades

Historically, the quality of automotive fuels in the United States was specified by ASTM standards. Diesel fuels are covered by the ASTM D975 standard.

Since 2004, the D975 standard has covered seven grades of diesel, Table 1. Heavier fuel oils Grade 5 and 6 (residual), which are used primarily for heating purposes, are described by ASTM D396.

Diesel Fuel Grades

Sulfur Content

Specifications

Table 1
Diesel Fuel Grades

Grade	Description	Max Sulfur
No. 1-D S15	A special-purpose, light middle distillate fuel for use in diesel engine applications with frequent and widely varying speeds and loads or when abnormally low operating temperatures are encountered. Higher volatility than that provided by No. 2-D fuels.	15 ppm
No. 1-D S500		500 ppm
No. 1-D S5000		5000 ppm
No. 2-D S15	A general-purpose, middle distillate fuel for use in diesel engines, especially in applications with relatively high loads and uniform speeds, or in diesel engines not requiring fuels having higher volatility or other properties specified in Grade No. 1-D fuels.	15 ppm
No. 2-D S500		500 ppm
No. 2-D S5000		5000 ppm
No. 4-D	A heavy distillate fuel, or a blend of distillate and residual oil, for low- and medium-speed diesel engines in applications involving predominantly constant speed and load.	

The Sxxx designation was first adopted in the D975-04 edition of the standard to distinguish grades by sulfur content. The S5000 grades correspond to the "regular" sulfur grades, the previous No. 1-D and No. 2-D S500 grades correspond to the previous "Low Sulfur" grades (D975-03). S15 grades are commonly referred to as "Ultra-Low Sulfur" grades or ULSD.

An ASTM standard (D2069) once existed for marine diesel fuels, but it has been withdrawn. It was technically equivalent to ISO 8217. While some marine diesel engines use No. 2 distillate, D2069 covered four kinds of marine distillate fuels: DMX, DMA, DMB, and DMC and residual fuels (see also ISO marine fuel specifications):

- DMX is a special light distillate intended mainly for use in emergency engines.
- DMA (also called marine gas oil, MGO) is a general purpose marine distillate that must be free from traces of residual fuel. DMX and DMA fuels are primarily used in Category 1 marine engines (< 5 liters per cylinder).
- DMB (marine diesel oil, MDO) is allowed to have traces of residual fuel, which can be high in sulfur. This contamination with residual fuel usually occurs in the distribution process, when using the same supply means (e.g., pipelines, supply vessels) that are used for residual fuel. DMB is produced when fuels such as DMA are brought on board the vessel in this manner. DMB is typically used for Category 2 (5-30 liters per cylinder) and Category 3 (≥ 30 liters per cylinder) engines.
- DMC is a grade that may contain residual fuel, and is often a residual fuel blend. It is similar to No. 4-D, and can be used in Category 2 and Category 3 marine diesel engines.
- Residual (non-distillate) fuels are designated by the prefix RM (e.g., RMA, RMB, etc.). These fuels are also identified by their nominal viscosity (e.g., RMA10, RMG35, etc.).

With the growing importance of alternative diesel fuels, standards have also been developed for biodiesel fuels and their blends.

Sulfur Content

Since the 1990's, fuel quality has been increasingly more regulated by the US EPA under the authority of the Clean Air Act. In the context of the increasingly more stringent diesel emission standards, the most important fuel property regulated by the EPA became the sulfur content. Historically, the sulfur content in diesel fuels for highway and nonroad vehicles was limited to 0.5% (wt.) by ASTM specifications. The milestones in US environmental regulations limiting sulfur levels in diesel fuels can be summarized as follows:

- Highway Diesel Fuel

- 500 ppm: Sulfur limit of 500 ppm = 0.05% (wt.) became effective in October 1993. This fuel, commonly referred to as *low sulfur* diesel fuel, was introduced to facilitate sulfate particulate emission reductions, which were necessary for meeting the 1994 emission standards for heavy-duty highway engines.
- 15 ppm: Diesel fuel of maximum sulfur level of 15 ppm was available for highway use beginning in June 2006. This fuel, referred to as *ultra low sulfur diesel* (ULSD), was legislated by the EPA to enable catalyst-based emission control devices, such as diesel particulate filters and NO_x adsorbers necessary for meeting the 2007-2010 emission standards for heavy-duty engines and the Tier 2 light-duty standards.

- Nonroad Diesel Fuel

The following sulfur requirements are applicable to Nonroad, Locomotive and Marine (NRLM) fuels, with the exception of heavy fuel oils (HFO) used in Category 2 and Category 3 marine diesel engines.

- 500 ppm: Sulfur limit of 500 ppm became effective in June 2007 for nonroad, locomotive and marine fuels.
- 15 ppm: Sulfur limit of 15 ppm (ULSD) becomes effective in June 2010 for nonroad fuel, and in June 2012 for locomotive and marine fuels. ULSD has been legislated for nonroad engines to enable advanced emission control systems for meeting the Tier 4 nonroad emission standards.

- Category 3 Marine Engine Fuel

The United States and Canada applied to the IMO to establish an emission control area (ECA) along their shorelines. Once the ECA is established, it will trigger international and US EPA sulfur limits in marine fuels:

- International IMO limits applicable in ECAs are 1% (10,000 ppm) sulfur beginning in 2010, and 0.1% (1,000 ppm) sulfur from 2015. SO_x aftertreatment, such as SO_x scrubbers, are allowed in lieu of low sulfur fuel.
- US EPA 2009 EPA Category 3 marine engine rule established a sulfur limit of 1,000 ppm for marine fuels produced and/or sold for use within an ECA. SO_x aftertreatment can be used in lieu of low sulfur fuel. Additional flexibilities apply to vessels operated on the Great Lakes and Saint Lawrence Seaway: the low sulfur requirements can be deferred—subject to fuel availability and economic hardship provisions—and are not applicable to steamships.

Specifications

- Automotive Diesel Fuel
- Certification Fuels
- Biodiesel Fuel

Fuel type	MJ/L	MJ/kg	BTU/imp gal	BTU/US gal	Research octane number (RON)
Regular gasoline/petrol	34.8	~47	150,100	125,000	Min. 91
Premium gasoline/petrol		~46			Min. 95
Autogas (LPG) (60% propane and 40% butane)	25.5–28.7	~51			108–110
Ethanol	23.5	31.1 ^[2]	101,600	84,600	129
Methanol	17.9	19.9	77,600	64,600	123
Gasohol (10% ethanol and 90% gasoline)	33.7	~45	145,200	121,000	93/94
E85 (85% ethanol and 15% gasoline)	33.1	44	108,878	90,660	100–105
Diesel	38.6	~48	166,600	138,700	N/A (see cetane)
BioDiesel	35.1	39.9	151,600	126,200	N/A (see cetane)
Vegetable oil (using 9.00 kcal/g)	34.3	37.7	147,894	123,143	
Aviation gasoline	33.5	46.8	144,400	120,200	80-145
Jet fuel, naphtha	35.5	46.6	153,100	127,500	N/A to turbine engines
Jet fuel, kerosene	37.6	~47	162,100	135,000	N/A to turbine engines
Liquefied natural gas	25.3	~55	109,000	90,800	
Liquid hydrogen	9.3	~130	40,467	33,696	

Neither the gross heat of combustion nor the net heat of combustion gives the theoretical amount of mechanical energy (work) that can be obtained from the reaction. (This is given by the change in Gibbs free energy, and is around 45.7 MJ/kg for gasoline.) The actual amount of mechanical work obtained from fuel (the inverse of the specific fuel consumption) depends on the engine. A figure of 17.6 MJ/kg is possible with a gasoline engine, and 19.1 MJ/kg for a diesel engine. See Brake specific fuel consumption for more information.

Fuel efficiency of vehicles

See also: Fuel economy in automobiles

The fuel efficiency of vehicles can be expressed in more ways:

- Fuel consumption** is the amount of fuel used per unit distance; for example, litres per 100 kilometres (L/100 km). In this case, the lower the value, the more economical a vehicle is (the less fuel it needs to travel a certain distance). In the industrialized countries, even some motorbikes (except in the UK and Denmark - see below), New Zealand, Australia and Canada. Also in Uruguay, Paraguay, Guatemala, Colombia, Japan, China, and Madagascar.^[*citation needed*], as also in post-Soviet space.

Incineration

From Wikipedia, the free encyclopedia

Incineration is a waste treatment process that involves the combustion of organic substances contained in waste materials.^[1] Incineration and other high temperature waste treatment systems are described as "thermal treatment". Incineration of waste materials converts the waste into ash, flue gas, and heat. The ash is mostly formed by the inorganic constituents of the waste, and may take the form of solid lumps or particulates carried by the flue gas. The flue gases must be cleaned of gaseous and particulate pollutants before they are dispersed into the atmosphere. In some cases, the heat generated by incineration can be used to generate electric power.

Incineration with energy recovery is one of several waste-to-energy (WtE) technologies such as gasification, Plasma arc gasification, pyrolysis and anaerobic digestion. Incineration may also be implemented without energy and materials recovery.

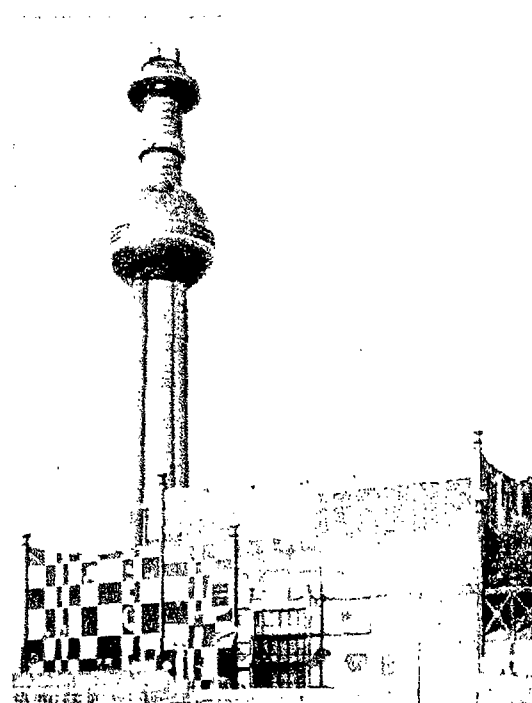
In several countries, there are still concerns from experts and local communities about the environmental impact of incinerators (see arguments against incineration).

In some countries, incinerators built just a few decades ago often did not include a materials separation to remove hazardous, bulky or recyclable materials before combustion. These facilities tended to risk the health of the plant workers and the local environment due to inadequate levels of gas cleaning and combustion process control. Most of these facilities did not generate electricity.

Incinerators reduce the solid mass of the original waste by 80–85% and the volume (already compressed somewhat in garbage trucks) by 95–96 %, depending on composition and degree of recovery of materials such as metals from the ash for recycling.^[2] This means that while incineration does not completely replace landfilling, it significantly reduces the necessary volume for disposal. Garbage trucks often reduce the volume of waste in a built-in compressor before delivery to the incinerator. Alternatively, at landfills, the volume of the uncompressed garbage can be reduced by approximately 70% ^[citation needed] by using a stationary steel compressor, albeit with a significant energy cost. In many countries, simpler waste compaction is a common practice for compaction at landfills.

Incineration has particularly strong benefits for the treatment of certain waste types in niche areas such as clinical wastes and certain hazardous wastes where pathogens and toxins can be destroyed by high temperatures. Examples include chemical multi-product plants with diverse toxic or very toxic wastewater streams, which cannot be routed to a conventional wastewater treatment plant.

Waste combustion is particularly popular in countries such as Japan where land is a scarce resource. Denmark and Sweden have been leaders in using the energy generated from incineration for more than a century, in localised combined heat and power facilities supporting district heating schemes.^[3] In 2005, waste incineration produced 4.8 % of the electricity consumption and

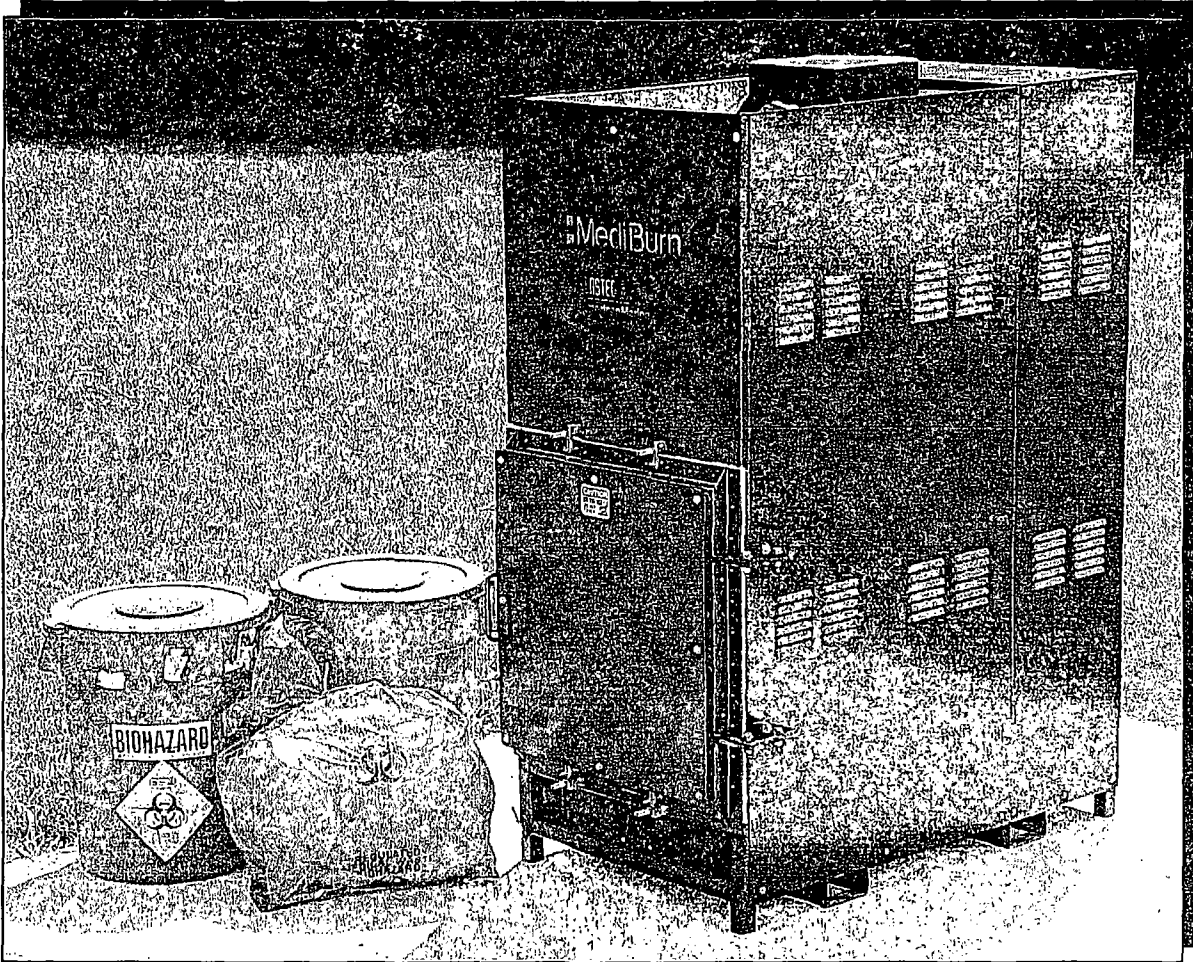


The Spittelau incineration plant in Vienna, designed by Friedensreich Hundertwasser.



Waste Materials – Density Data

Waste Material	Density - kilograms per cubic metre		
	Low	Medium	Compacted
Paper	76	152	228
Cardboard – Compacted Dry	130	130	130
Cardboard - Compacted Wet	260	260	260
Cardboard - Loose Dry	55	55	55
Cardboard - Loose Wet	190	190	190
Cardboard - Waxed	55	92	130
Food - Kitchen	343	514	1029
Food - Dense	514	1029	1029
Vegetation - Garden	91	227	445
Garden - Grass	91	227	445
Garden - Trees	150	450	900
Wood - Timber	156	156	156
Wood - Pallets	156	156	156
Wood - Furniture	160	170	400
Wood - Fencing	170	170	170
Wood - MDF	156	156	156
Wood - Posts	900	1000	1100
Leather - Textiles Furniture	90	100	450
Leather - Textiles	91	91	240
Leather - Textiles Car	100	150	350
Mattress	50	50	50
Foam	30	30	90
Tyres - Rubber	200	200	400
Other - Rubber	200	200	400
Glass	411	411	411
Glass Jars	250	250	411
Plasticbags	39	78	156
Plastic - Hard	72	72	72
Polystyrene	14	21	28
Garbage Bags	87	170	348
Metal - Ferrous	120	120	120
Metal - NonFerrous	139	139	139
Low Level Contaminated Soil	922	922	922
Cleanfill / Soil	950	950	950
Rubble	1048	1048	1048
Clay	1150	1150	1150
Concrete	830	830	830
Tiles	900	1500	2000
Bricks	828	828	828
Sand	1000	1000	1000
Asphalt	680	680	680
Plasterboard	227	227	227
Linoleum	100	150	350
Insulation	60	100	350
Clinical Waste	227	227	227
Electronics	105	113	120
Whitegoods	105	113	120
Batteries	900	1000	1500
Fluorescent Tubes	285	285	285
Sawdust	250	300	350
Cement Sheets	830	830	830
Hospital General Waste Garbage Bags	87	170	348



MEDIBURN 20



AmericanMarine^{INC.}

www.elastec.com

Introduction	1
Contact Information	1
Product Description	2
General Information	3
Control Panel	4
How it Works	5
Butterfly Assembly	7
Door Lock Motor Assembly	8
Burnables	9
Safety Instructions	10
Preparing for Disposal	11
Cycle Completion	13
Ash Removal	13
Error Codes	14
Trouble Shooting Guide	15
Maintenance	18
Storage	18
Fuse ID	19
Controller Parts List	20
Chamber Parts List	21
Chamber Brick Assemblies	22
Chamber Brick Assembly Parts List	23
Brick Location	23
Burner Parts List	24
Under-Air Parts List	24
Spare Parts List	25
Warranty	26



AmericanMarine

INTRODUCTION

www.elastec.com

This manual contains information on the Elastec/American Marine MediBurn20 manufactured by Elastec / American Marine. All data in this publication is based on the latest product information.

Elastec/American Marine reserves the right to make changes at any time without notice and without incurring any obligations. If a problem is encountered, or if you have questions about your Elastec / American Marine equipment, please call one of our consultants at **+1 (618) 382-2525**.

Elastec/American Marine products are USA-designed and built to provide safe and dependable service when operated according to instructions. Please remember that working with an incineration device can be dangerous. Read and understand this manual before operating this system. Failure to do so may result in personal injury and/or equipment damage.

Your serial number is _____

✦ **SERIAL NUMBER MUST BE INCLUDED WHEN ORDERING PARTS.**

CONTACT INFORMATION

Elastec/American Marine
1309 West Main Street
Carmi, IL 62821
USA

Telephone: +1 (618) 382-2525
Fax: +1 (618) 382-3610
E-mail: elastec@elastec.com
Website: www.elastec.com



AmericanMarine

PRODUCT DESCRIPTION

www.elastec.com

The Elastec/American Marine MediBurn20 is a portable, small batch medical waste incinerator. It enables small hospitals, clinics and laboratories to dispose of medical waste in a safe and efficient manner. The MediBurn20 is designed to be easily and safely operated by existing personnel with minimal training. The MediBurn20 can be used at any convenient location on existing property. Before using the MediBurn20, the operator should read and follow the instructions in this manual.

FUEL AND POWER CONSUMPTION

- Modulating burners & under-air technology provide up to 50% fuel savings.
- Ready to use upon delivery.
- Updated electronic control system with multiple languages available.
- Dual chamber combustion & high exhaust temperatures in excess of 1000 degrees C.
- Safety features such as door lock and sensor.
- Replaceable ceramics.

SPECIFICATIONS

Length: 62" (157 cm)
Width: 34" (86 cm)
Height: 82" (208 cm) without stack
100" (254 cm) with stack
Weight: 1,800 lbs approx. 672 kg

Primary Chamber Volume: 10.5 cu ft (28 cu m)
Suggested Load Volume: 8 cu ft (22 cu m)

FUEL AND POWER CONSUMPTION

Electric: Variable 0.45 KW
Fuel: 2-3 gallons/hour (7-11 liters/hour)



AmericanMarine

GENERAL INFORMATION

www.elastec.com

CAUTION: Operators must wear gloves and safety glasses while operating the unit.

CAPACITY

One MediBurn20 is capable of disposing of 8 cubic feet of medical waste per load. Since there is a broad range of densities in waste materials, the actual amount may vary. The waste is reduced to approximately 5% of its original volume. Ash is removed by means of a special rake (supplied with the unit) and can be emptied directly into appropriate containers.

HOOK-UP

Electrical: In some cases, plugs may have to be installed on the end of the wires extending from the unit to be compatible with local electrical fittings.

Fuel: There are two options for the supply of diesel to the unit:

Gravity-fed system: A large fuel tank supplies the unit. The bottom of the tank should be higher than the top of the burner on the secondary chamber.

Mounted tank: Fuel supply is mounted under the unit with a fuel pump and return line.

CONTROL PANEL OPERATION

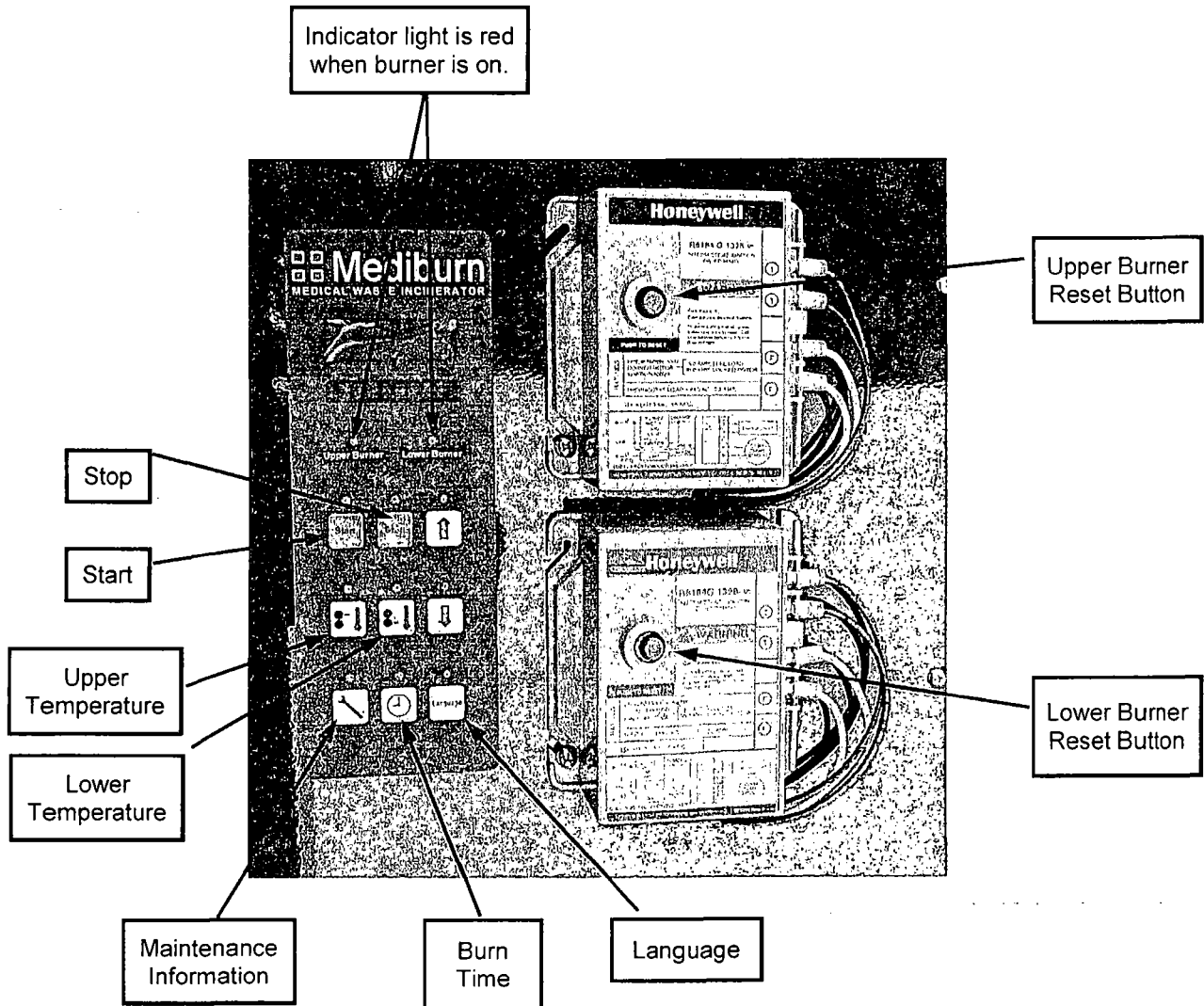
The burn times are adjusted using the UP and DOWN arrows on the controller, located on the control panel. When the cycle time is chosen, push the START button, and the MediBurn20 will begin its operating cycle. To change the cycle time, push the STOP button and change the cycle time. Then restart the unit.

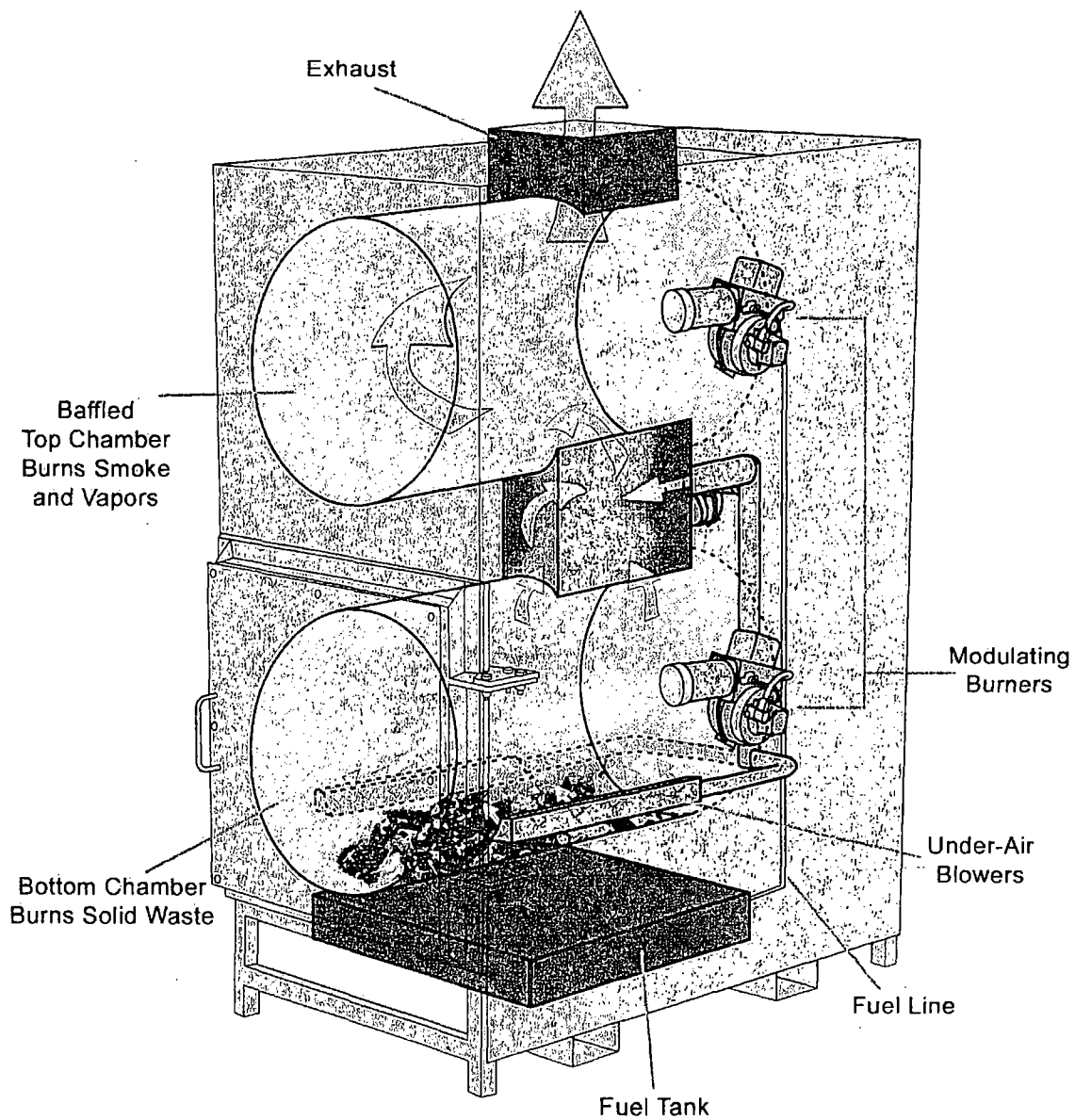
COMPLETE CYCLE

- Unit is switched on, burn chamber door will lock and the 30-second purge begins (fans only).
- 7-minute pre-heat (secondary chamber burner fires and begins the pre-heat process).
- Burn cycle begins.
- After the firing cycle is complete, blowers in both primary and secondary chambers blow cool air until the temperature of the unit is 300 degrees Celsius. If the temperature rises again, blowers will be activated cyclically until the temperature remains below 300 degrees Celsius.

OPERATING TEMPERATURES

Temperature readouts are visible on the control panel. The unit is designed to preheat the secondary chamber for 7 minutes before incineration begins in the primary chamber. Exhaust temperatures are automatically controlled to range from 1000 degrees Celsius to 1025 degrees Celsius during the burn cycle. Lower temperatures noted during operation indicate that the materials in the batch load have been incinerated.

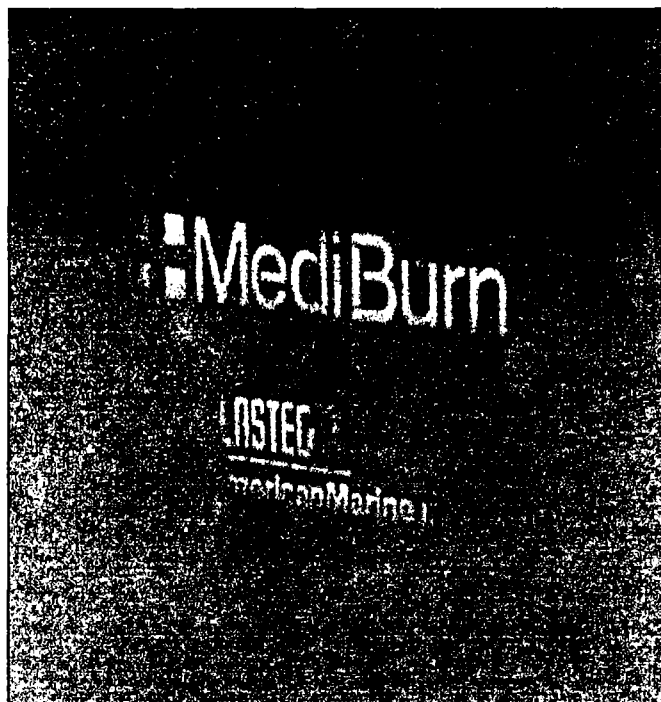




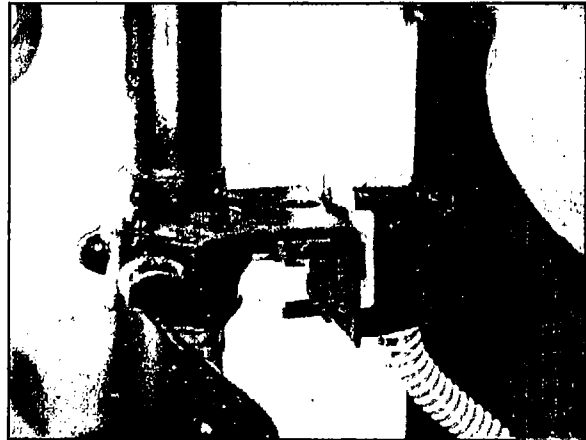
The operating functions of the burners on the MediBurn20 differs from those of the original MediBurn in that the 30 has two-stage pumps, which oscillate based on temperature, rising and falling during normal burn operation. As the unit starts its burn cycle and the temperature climbs, the pumps decrease fuel usage at specified temperatures. This lowers the heat output of the burners. However, the temperature continues to rise as the under-fired air in the primary chamber raises the load temperature by increasing the flame of the burning material. This process increases temperature to a preset point where the lower burner can shut off, further reducing fuel usage. The upper burner also oscillates fuel usage as it works to keep the stack temperature at or above 1000 degrees Celsius.

The MediBurn20 incorporates two 24-volt continuous stall motors. One of these motors is used to operate and maintain the automatic door lock, which is activated when the START button is pushed. The other 24-volt motor is used to open and close the under-fired air bypass.

All of these components are controlled by temperature through the system controller. Should you as the owner or system user have problems with these components, please refer to the Troubleshooting Guide or call Elastec/American Marine at (618) 382-2525.



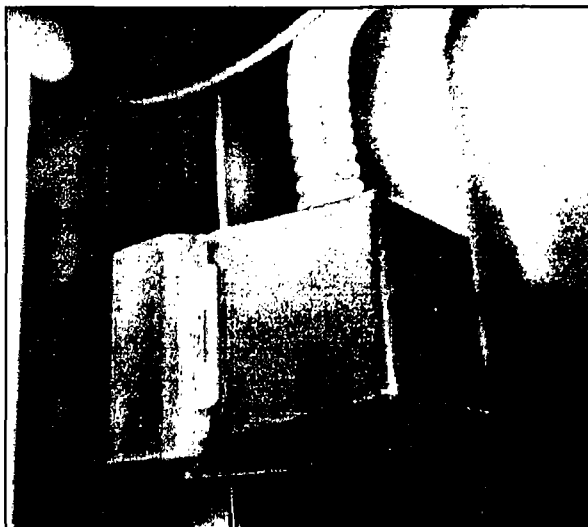
The butterfly assembly located just above the lower burner is used to open and close an air bypass. This motor function should be checked on a regular basis to ensure that it is working properly. There is a small hole in the top of the motor bracket that will allow you to view the shaft coupler set screw. This set screw will turn and disappear out of sight when the motor is activated. This process can be easily viewed when the lower chamber temperature is between 600° Celcius and 1000° Celcius (1112° Fahrenheit and 1832° Fahrenheit).



The picture to the right shows the set screw as it appears when the MediBurn20 is in idle. This set screw will rotate out of view when the temperature climbs above 600° Celcius (1112° Fahrenheit), indicating the butterfly valve has opened, allowing air to bypass into the under-air system. When the lower chamber temperature reaches 1000° Celcius (1832° Fahrenheit), the butterfly valve will close and the set screw will again be visible. It can also be felt by using your finger. This bracket rarely gets very hot, due to the cold air that passes through the tubing and butterfly valve, making it possible to check this by hand as well as sight. Should you have to replace this motor, be sure to orient the set screw so that it can be viewed through the view hole.

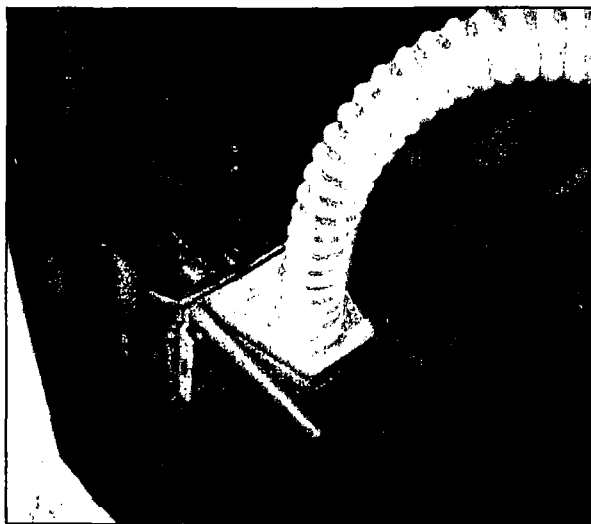
NOTE: It is important to maintain this motor in good working condition, as it is instrumental in the process of fuel savings.





The door lock motor assembly is located on the right side of the burner compartment. It is designed to lock the burn chamber door as soon as the START button is pushed. The door-locking system is designed as a safety feature and is built in such a way that, if tampered with, the MediBurn20 will not start. When the burn chamber door is open, the controller scrolls "door open," and if the burn chamber door is opened during the burn cycle, the unit will automatically cycle into cool mode and the unit will have to cool to 300C before restart can begin.

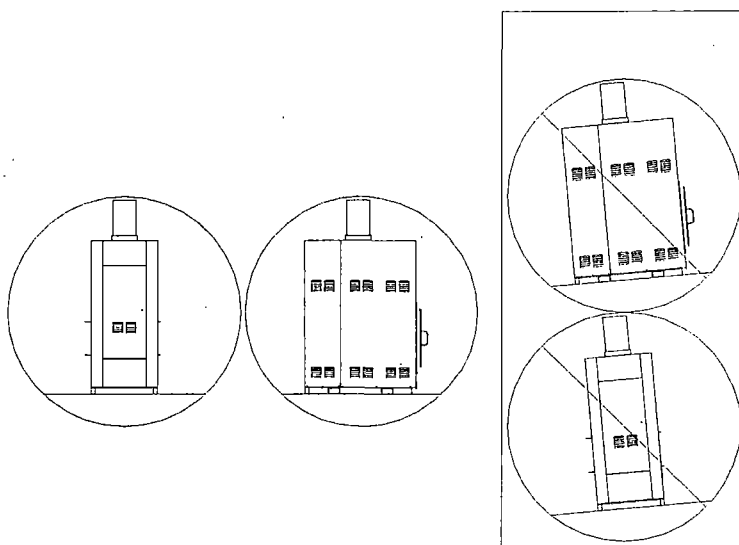
NOTE: The MediBurn20 must always be cooler than 300° Celcius (572° Fahrenheit) before trying to load unit.





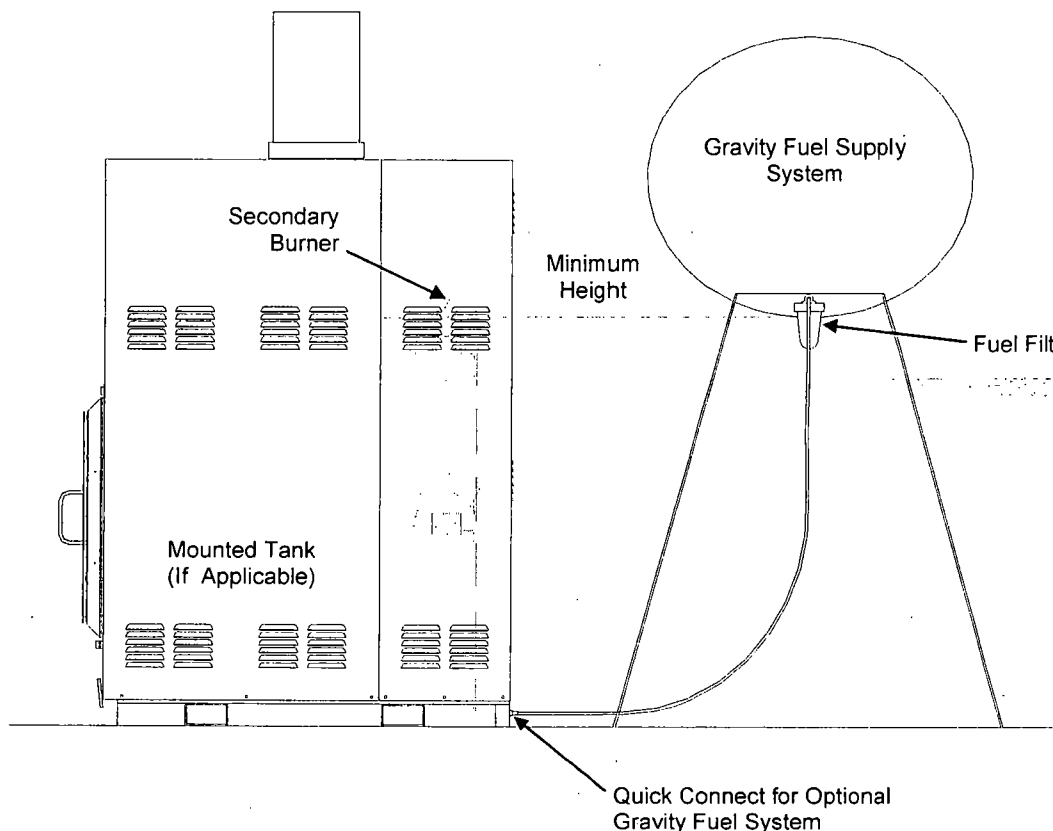
Before using your medical waste incinerator, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons.

1. Read and understand the instructions in this manual.
2. Follow all warnings and instructions marked on the product.
3. The unit must be disconnected from the power source when there is a chance water may come in contact with the electrical connections.
4. The unit must be on stable ground and in no danger of falling or tipping.



5. The unit must stand free and clear of surrounding buildings, vegetation or other combustible material.
6. Ensure there are no flammable items above the exhaust stack.
7. Never touch the surfaces of the unit while in operation or during the cool-down period.
8. Do not use the unit in the vicinity of flammable gases.
9. Never put aerosol or other pressurized cans into the unit.
10. If unsure about the safety of disposing of certain items in the unit, consult your local distributor for details and instructions.
11. Refer servicing to qualified personnel under the following conditions:
 - Power supply cord is frayed or damaged.
 - Liquid has been in contact with the electrical system.
 - The product has been damaged and exhibits a distinct change in performance.
 - Fuel is leaking inside the burners.

1. Position unit on a level surface at least 2 meters (7 feet) away from existing structures. Please ensure that there are no overhangs from the building or overhead wires above the exhaust stack.
2. Connect the electrical plug extending from the control panel of the unit to an appropriate extension cord. Cord should be no lighter than 12 gauge at 7.5 meters (25 feet). If a longer cord is needed, a heavier gauge wire is required.
3. Connect the fuel supply to the burners on the unit with the quick-connect couplings provided. **NOTE:** You may be required to bleed air from the fuel system before the first burn. Refer to the burner parts list for instructions. See below for connecting a gravity fuel supply system. The fuel tank should be mounted so that the bottom of the fuel tank is higher than the secondary burner. (**NOTE:** If the unit has an on-board fuel tank, the gravity fuel supply system will not be needed.)
4. Check door gasket before each use.





5. Load medical waste material into primary chamber. See below for recommended loading procedure.

CORRECT

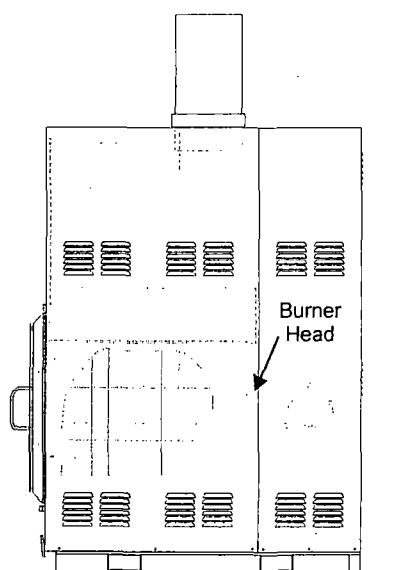


Figure 1

In Figure 1, waste has been loaded correctly. The operator must allow a 6-inch/15-cm space between burner head and medical waste.

INCORRECT

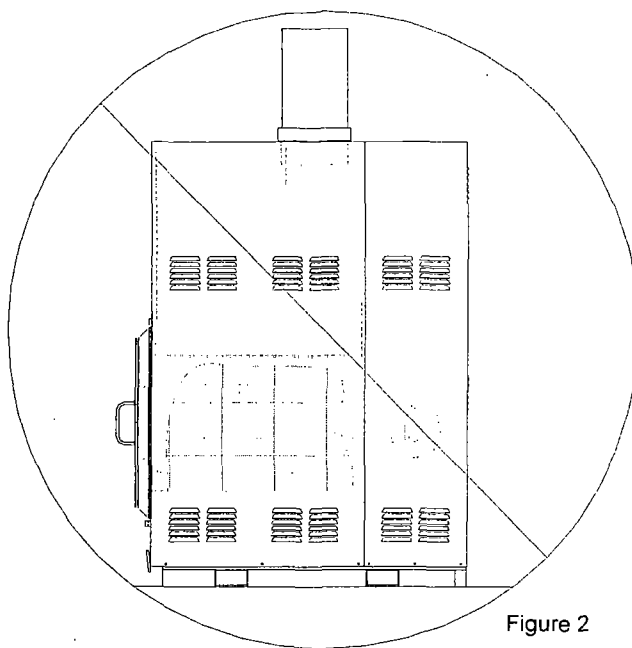


Figure 2

In Figure 2, waste has been loaded incorrectly. It is too close to the burner head.

6. Securely close door.
7. Choose appropriate cycle time on control panel. See Page 5 for control panel identification.
8. Push start button to begin cycle.
9. Controller will read idle once cycle is complete.

Once the cycle is complete and the cool-down phase has taken place, the door lock will disengage. The unit can then be loaded for another cycle. At this time, the unit is still hot. Care should be taken to avoid touching the surfaces of the burn chambers. Gloves should be worn at all times.

If refuse from a previous cycle remains in the primary chamber, additional medical waste may be added to the remains.

If the operator has chosen a cycle that is too short to completely destroy the load, simply restart the unit. It is not necessary to add additional waste.

Before moving the unit, at least a 30-minute cool-down time should be allowed.

For best results, the manufacturer recommends that ash be removed while the unit is cool and before the incineration of more waste.

ASH REMOVAL

Ash should be removed before the first burn of the day when the unit is cool rather than at the end of the day when the unit is hot.

The supplied rake can be used for removing ash from inside the lower chamber.

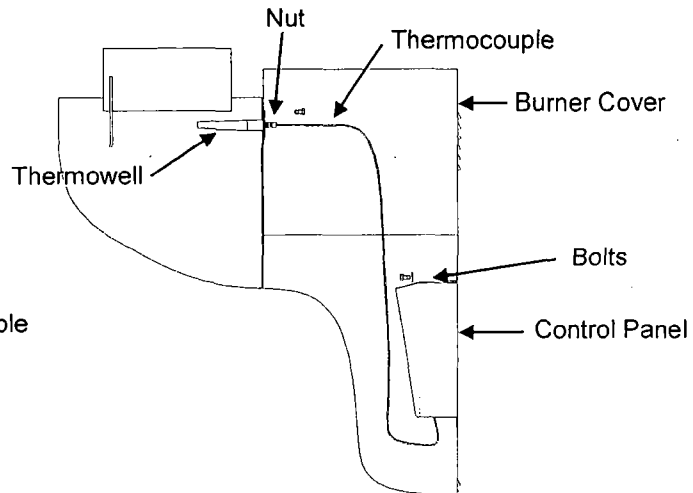
When an error is active and able to be displayed, the control will replace the normal display with the appropriate error text.

DISPLAY	DISPLAY (Example)	CONDITION
	□ □ 1 Upper In	Sensor failure on Input 1. (Temperature too high)
	□ □ □ Lower In	Sensor failure on Input 2. (Temperature too high)
	□ □ □ Ambient Sensor	Ambient-temperature surrounding the controller is too high or too low.
	□ □ 1 Defaults	Controller EEPROM initialization (first time use). (Restart)

PROBLEM	CAUSE	SOLUTION
Excess material near loading door not burned	Burn time not long enough	Increase burn time.
	Not enough air flow through lower burner	Increase air flow through lower burner in small increments until problem ceases.
Lower chamber burning at too high a temperature	Too much air through lower burner shutter	Close air shutter in small increments until problem ceases.
	Too much plastic in load	Decrease the amount of plastic in the load or balance plastics and rubber to be equal, if possible.
Upper chamber not burning at 1000° Celsius	Too much air through upper chamber burner	Close air shutter on burner in small increments until problem ceases.
	Not enough burn material in load chamber	Verify load chamber is burning properly and lower burner is in functioning properly.
	Lower burner not functioning properly	
Unit using an excessive amount of fuel	Air shutters on burners not adjusted properly	Lower: Look through rear of burner while adjusting air and set at brightest point. Adjust air until smoke is gone from smoke stack.
	Fuel bypass solenoids are bad	Check solenoid for damage. Replace if needed.

Unit operates erratically and does not complete the burn cycles properly.

- Thermocouple is damaged or worn out.

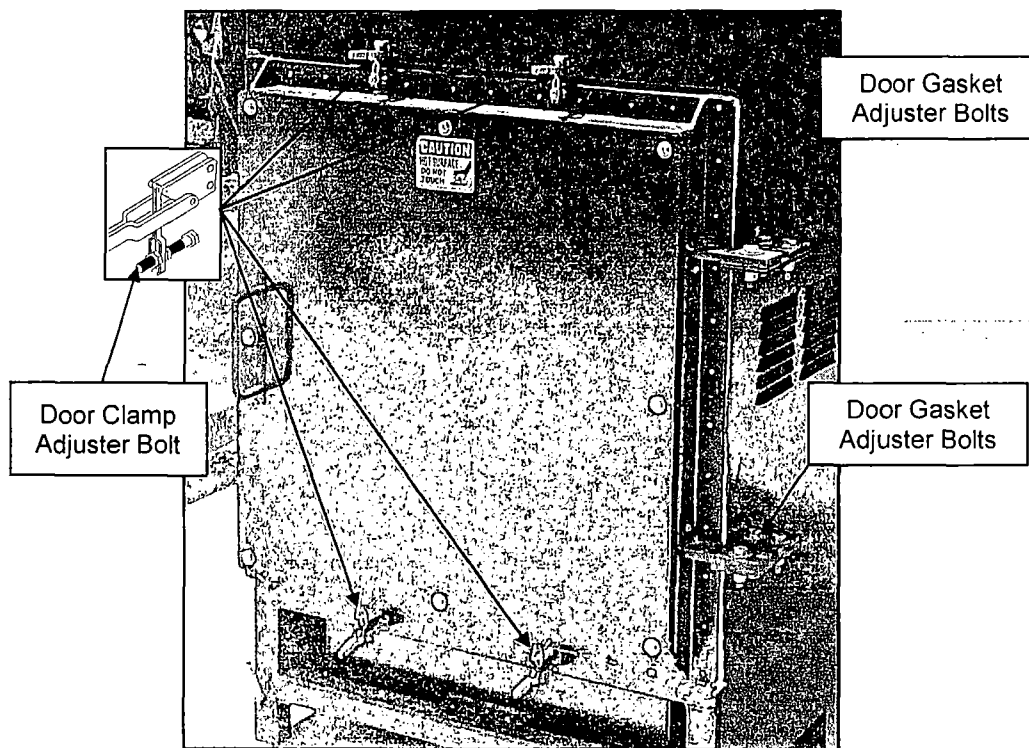


To Remove Thermocouple:

1. Remove two bolts.
2. Swing panel open.
3. Remove and reinstall thermocouple wires from Watlow.
4. Loosen nut on thermocouple and pull unit out.
5. Install new thermocouple and tighten nut.

Smoke is emitted from the door gasket.

- Adjust door clamps and/or door hinges.



Burner ignites but shuts down after a short period.

- Fuel supply is low.
- The supply hose is kinked and/or obstructed.
- Fuel filter is clogged.
- Cad cell needs to be replaced.

Burner will not ignite.

- Power supply to unit is not connected.
- Fuel supply has air in system. Reset by pushing the RESET button on the blower motor.
- Fuel pump coupler is damaged.

Dark smoke is emitted from the unit.

- Adjust airflow to upper burner. The airflow can be adjusted by rotating the air inflow bracket on the side of the motor. The air flow adjustments are factory set but may need to change, depending on the type of material you are burning. To eliminate smoke, increase the amount of air supplied to the top burner, and decrease the amount of air to the lower burner until the optimum setting is reached. As the bracket is rotated, larger numbers on the scale indicate more air intake; lower numbers on the scale indicate less air intake. For normal operation, the operator will learn which setting for air intake best suits the typical load.

Fans do not start, burners do not light and smoke is coming from the air intake on the burners.

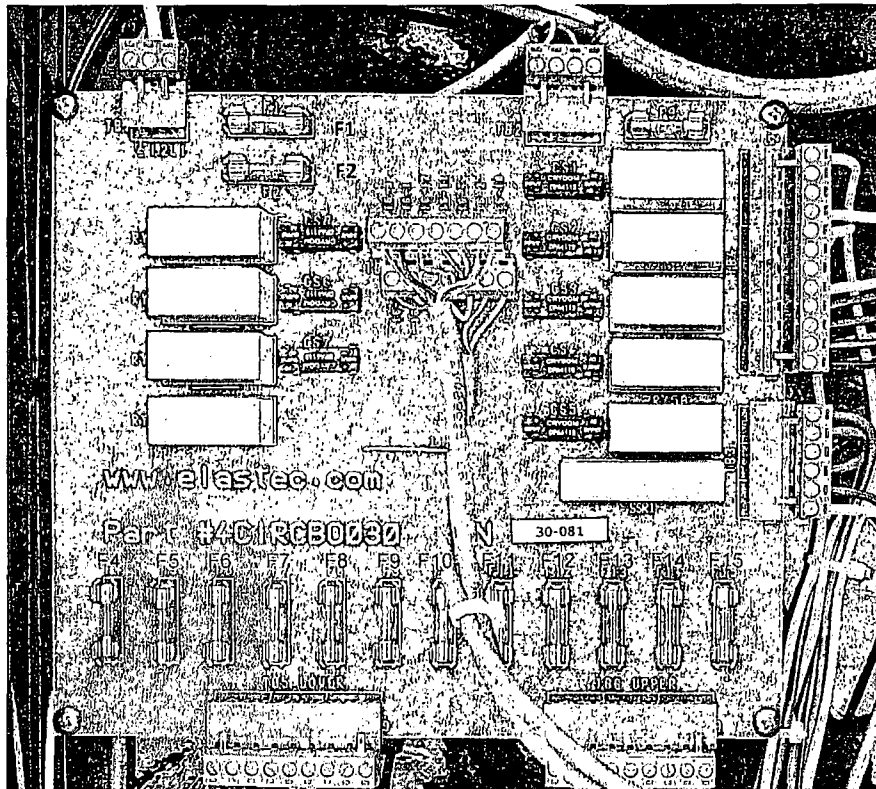
- Press the BURNER RESET button. The button is located on the burner. It cannot be seen by the operator but can be reached by placing the fingers on the round motor housing on the burner. It is unlikely that this will be a problem, but if it occurs, other burner damage may result. Please check with the manufacturer if burners continue to malfunction after the RESET button is pushed.

1. Records should be kept to note maintenance and repair times.
2. The fuel filter should be checked at regular intervals. If water has accumulated in the tank because of condensation or a contaminated fuel supply, the water will be trapped in the fuel filter. The water should be drained from the filter by using the drain screw at the base of the filter. The fuel filter can be changed at service intervals determined by the operator based on frequency of use.
3. The burner heads should be checked after 500 hours of operation. Burner heads deteriorate over time and should be replaced when damaged or worn excessively.
Burner head replacement:
 - Disconnect fuel lines.
 - Remove burner-retaining bolts.
 - Slide the burner back to expose the burner head. It is held in place by retaining screws.Damaged burner heads create problems with the burn cycle, as noted in the troubleshooting guide found on Page 16.
4. Door clamps should be checked every 100 hours or if smoke is being emitted from the door. Door clamps can be adjusted to tighten the door. Door gasket adjustment may also be required.
5. The thermocouple may need to be replaced every 300-400 hours or when the unit operates erratically.
6. If the burner will not ignite, the pump drive coupler may need to be replaced. A faulty pump drive coupler may also cause the BURNER RESET button to disengage. If this happens, it will need to be reset.
7. To bleed the fuel system, turn the air bleeder screw counter-clockwise for 15 seconds or until fuel flows from the fitting.

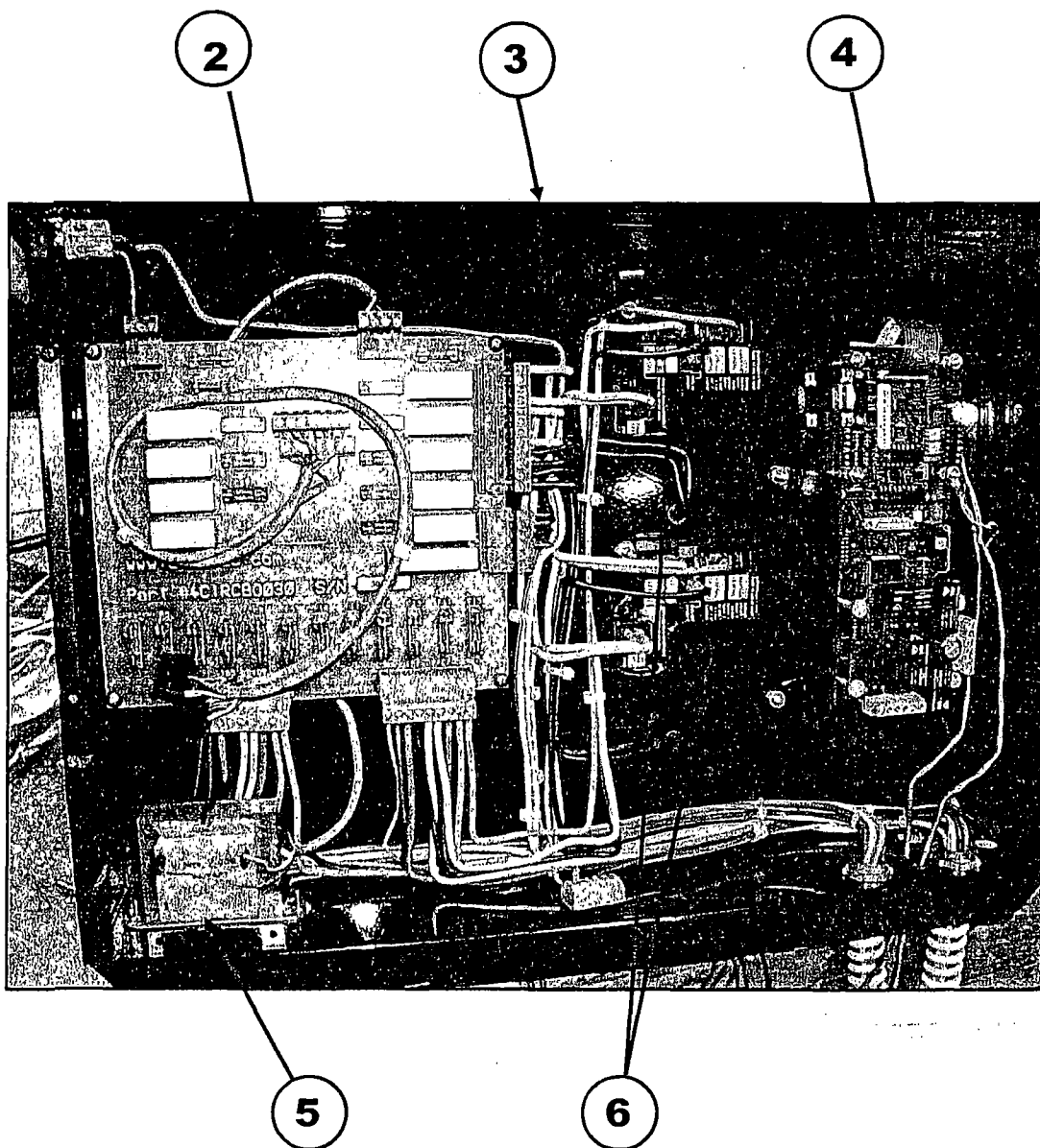
STORAGE

- The MediBurn20 is designed to operate in all weather.
- Rain does not affect the performance of the unit. However, some owners build an enclosure for the unit, in order to reduce its exposure to the elements.
- The unit should be allowed to cool before storing.
- Units with an external fuel source should be disconnected from the fuel source before storing. Quick-connect fittings are installed at the fuel filter for this purpose.
- The unit should be disconnected from the electrical supply when stored.

Photo I took



FUSE	FUNCTION
F1	240VAC Mains
F2	240VAC Mains
F3	24VAC Mains
F4	Lower Chamber Low Fire
F5	Lower Chamber Low Fire
F6	Lower Blower
F7	Lower Fuel Valve
F8	Lower Blower
F9	Lower Cad Cell
F10	Upper Chamber Low Fire
F11	Upper Chamber Low Fire
F12	Upper Blower
F13	Upper Fuel Valve
F14	Upper Blower
F15	Upper Cad Cell



Parts List		
Item#	Part #	Description
1	4CONTBO030C	Complete Controller (all components listed)
2	4CIRCBO030	Circuit Board, MediBurn 30
3	4CONTBO030P	Control Box , MB 30 Welded w/Paint
4	4WATLME030	Time and Temperature Control, MB 30
5	7160	Transformer #TCT40-02E07AB
6	4CONTBU012	Burner Control Upper or Lower

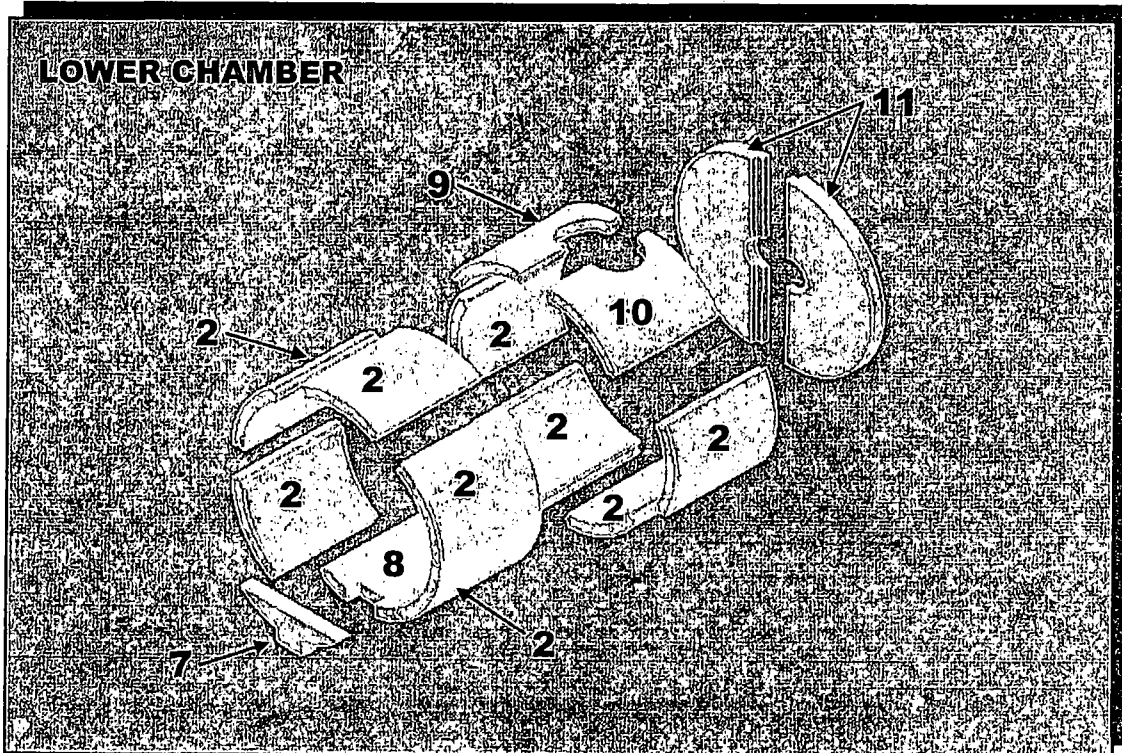
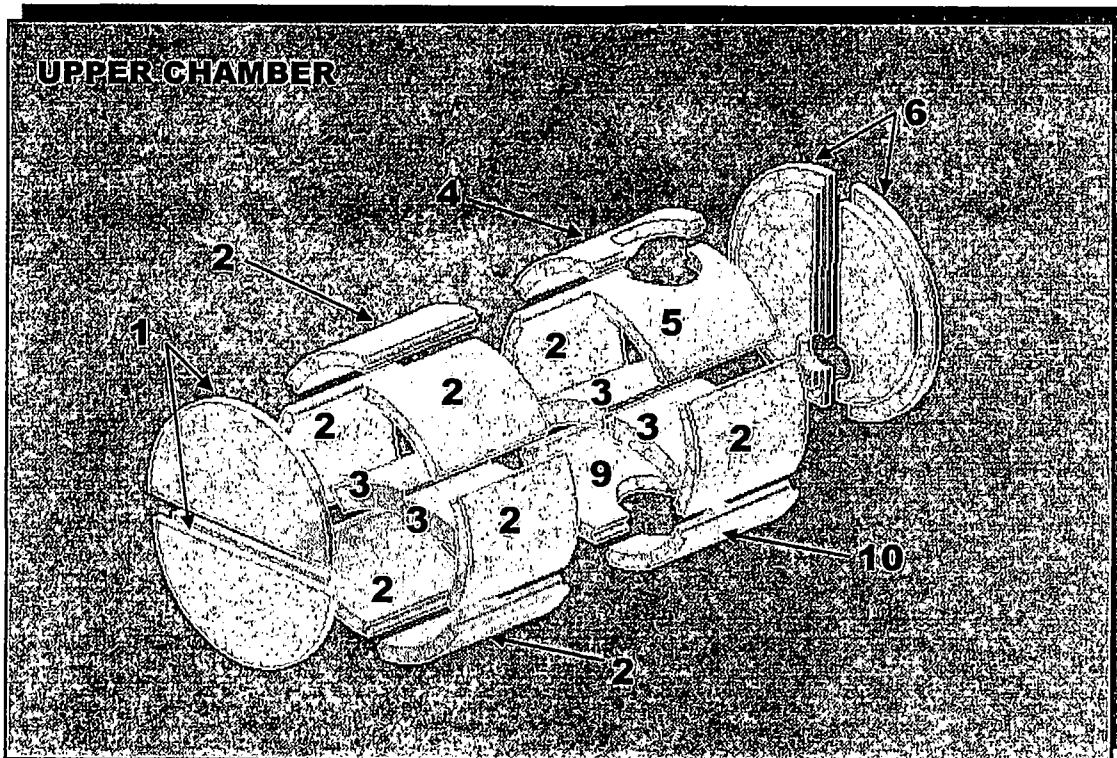


AmericanMarine

CHAMBER PARTS LIST

www.elastec.com

Parts List		
Item#	Part #	Description
1	4SHIEHE133R	Heat Shield Front Top
2	4SHIEHE122C	Heat Shield Left Side
3	4SHIEHE124C	Heat Shield Right Side
4	4REFRBO010B	Upper Refractory Board
5	4REFRBO010A	Lower Refractory Board
6	4COVEBU050C	Burner Cover Detail C
7	4COVEBU050W	Burner Cover Complete
8	4BURNCH055W	Burn Chamber (Includes Cart)
9	4CARTME010W	Cart (Included with Burn Chamber)
10	4STACME010W	Burn Chamber Stack (Removable)
11	4THERCO000C	Thermocouple, Complete
12	4THERWE010C	Thermowell, Complete
13	4SHIEHE133C	Shield Heat Front Top C
14	4REFRBO010	Refractory Board MB 30
15	4COVEBU050C	Burner Cover, Complete, Square
16	4BURNME204C	Lower Burner, MB 220V, 204 50/60 Hz
17	4BURNME205C	Upper Burner, MB 220V, 205 50/60 Hz
18	4BLOWME220C	Blower, MB 220 V 168 cfm, 50/60Hz
19	4TANKFU010C	Fuel Tank Complete (Optional)
20	4HANDLA000	Latch Handle (For Door Clamps)
21	4CLAMTO202	Toggle Door Clamps
22	4GASKCE010	1/8" x 2" (.23 cm x 5 cm) Chamber Door Gasket
23	4DOORBU000C	Burn Chamber Door Complete
24	4RAKEAS048	Ash Rake
25	4FILTFU510	Water Block Filter Element
26	4ABSOSH010	Shock Absorber, MediBurn
27	4BRICME034	Brick/MB Door Lip Plate
28	4REFRBU010	Refractory Repair Material
29	4HOLDFU030	Fuse Holder 12 Ga. 30 Amp
30	4BIT-DR030	Drill Bit 1" x 6" (For Air Passages)
31	4SWITPR010	Proximity Switch, Chamber Door
32	4LOCKDO030P	Door Lock Rod, MB 30
33	4FUNNBU010	Fuel Funnel 6 Quart
34	4TANKFU010C	Fuel Tank Complete (Optional)





AmericanMarine

CHAMBER BRICK ASSEMBLY PARTS LIST

www.elastec.com

0KIT-BR010 MediBurn 20 Brick Kit			
Item#	Part #	Description	Qty.
1	4BRICME042	Brick/MB End Chamber Top Front	1
2	4BRICME028	Brick/MB Chamber	17
3	4BRICME004R1	Brick/MB Baffle 3" (2 Piece Set)	2
4	4BRICME018	Brick/MB Chamber Left 10" Hole	2
5	4BRICME024	Brick/MB Chamber Right 10" Hole	2
6	4BRICME014	Brick/ MB Chamber End Top Back	1
7	4BRICME034	Brick/MB Door Lip Plate	1
8	4BRICME022	Brick/MB Chamber Rectangle Hole	1
9	4BRICME019	Brick/ MB Chamber Left 8" Hole	1
10	4BRICME025	Brick/MB Chamber Right 8" Hole	1
11	4BRICME012	Brick/MB Chamber End Bottom	1

BRICK LOCATION

4BRICME004R1 QTY - 2	4BRICME012 QTY - 1 L & 1 R 4BRICME014 QTY - 1 L & 1 R	
4BRICME044 QTY - 1	4BRICME024 QTY - 2 4BRICME018 QTY - 2 4BRICME025 QTY - 1 4BRICME019	4BRICME028 QTY - 6
4BRICME008 QTY - 1	4BRICME028 QTY - 5 4BRICME022 QTY - 1	4BRICME028 QTY - 6
4BRICME004R1 QTY - 2		

Parts List		
Item#	Part #	Description
1	4BURNHE220	Burner Head F220 Upper Chamber
2	4NOZZBU250	Nozzle 2.50 GPH Upper Burner
3	0KIT-EL010	Kit Electrode 6" Tube MediBurn
4	4DETECA010	Detector, Cad Cell
5	4IGNIME012	Burner Ignitor 220 Volt
6	4COUPFU012	Coupler Fuel Pump "Green and Gray"
7	4BURNHE160	Burner Head F160 Lower Chamber
8	4NOZZBU200	Nozzle 2.00 GPH Lower Burner
9	4FILTFU540	Filter Fuel
10	4VALVCH008	Fuel Check Valve
11	4HOSEFU809	Fuel Line, Burner to Burner
12	4PUMPFU030	Fuel Pump, 2 Stage, MB 30
13	4SOLEFU012	Solenoid, Fuel, MediBurn
15	Air Bleeder Screw	For Information Only - Not a Replacement Part

UNDER-AIR PARTS LIST

Parts List		
Item#	Part #	Description
16	4MOTODA010	Motor Damper, 24 Volt
17	4VALVBU010	Valve Butterfly 2"
18	4PLENUN010P	Plenum Under Air
19	4PIPEEX030P	Pipe, Exhaust, Tee, MB 30
20	4PIPEEX033P	Pipe, Exhaust, Coupler, MB 30
21	4PIPEEX034P	Pipe, Exhaust, Inlet Tube, MB 30

0KIT-SP133 Spare Parts List		
Part #	Description	Qty.
4BURNHE220	Burner Head F220	1
0KIT-HA020	Kit Hardware MB Door Bolt	1
0KIT-HA030	Kit Hardware MB30 UnderAir	1
0KIT-HA040	Kit Hardware MB Bolts	1
4DETECA010	Detector Cad Cell	2
4NOZZBU250	Nozzle Burner 2.50	2
4THERCO000C	Thermocouple MB Complete	8
4FILTFU510	Filter Fuel Water Bick	4
4SILIH030	Silicone High Temp Red RTV 3 oz Tube	1
4BURNHE160	Burner Head F160	1
4NOZZBU200	Nozzle Burner 2.0, 60 Degree	2
4CLAMTO202C	Clamp Toggle Complete	2
4FUSEME030	Fuse MediBurn Slow Blow 1.25 Amp 5x20mm	10
4FUSEME031	Fuse MediBurn Slow Blow 2.5 Amp 5x20mm	10
4FUSEME032	Fuse MediBurn Slow Blow 10 Amp 5x20mm	10
4FUSEME033	Fuse MediBurn Slow Blow 15 Amp 5x20mm	10
4FUSEBL004	Fuse Blade-style Low-voltage Standard 4 Amp	2
4REFRBU010	Refractory Repair Material	10 lbs
4BRICME034	Brick/MB Door Lip Plate	1



AmericanMarine

WARRANTY

www.elastec.com

Elastec/American Marine warrants and guarantees that articles supplied are free from defects in materials and workmanship, but seller's liability hereunder is limited to making good by replacement or repair without charge to the buyer any such defects as arise within the period of one year from dispatch of the articles (with the exceptions listed below), provided always that such defects are notified in writing to the seller within 14 days of their discovery and that the defective parts, where reasonable, are promptly sent carriage paid to the seller's premises. Such liability shall not extend to such faults as are caused by ordinary wear and tear, incorrect handling of the articles or their defective maintenance or storage.

Unless otherwise noted, products are warranted against defects in material and workmanship under normal use and service for a period of one year.

Elastec/American Marine's obligation under this warranty is limited solely to repairing or replacing parts that in its judgment are defective in material and/or workmanship. Elastec/American Marine will be responsible for shipping of replacement parts to customer.

Limitations:

Elastec/American Marine is not liable for expenses incurred in repairs or alterations made outside its factories or licensed dealer locations without prior authorization, nor shall it be responsible for the performance of this product to which any revisions or alterations have been made by others.



AmericanMarine

ITEMS NOT COVERED

www.elastec.com

1. Products that have been subjected to alteration, modification, neglect or repairs.
2. Products no longer owned by the original purchasers.
3. Products suffering shipping or freight damage, normal wear, accident, improper maintenance or improper protection in storage.
4. Rental costs, return transportation cost of product to Elastec/American Marine or phone communications.
5. Any repeat or shop comeback repairs resulting from poor service work, improper diagnosis or testing. Replacement of parts as a trial and error method of diagnosis will not be considered for warranty.
6. Replacement parts other than those sold or supplied by Elastec/American Marine.
7. Any normal replacement and/or service of wiper blades.
8. Natural calamities such as fire, flood, etc.
9. Any damage caused by failure to immediately correct a known or suspected problem with skimmer products.

In the case of components or accessories that have been supplied to the buyer's design, the seller shall be under no liability to replace or repair defects arising therefrom.

The guarantee contained in the clause above shall constitute the seller's sole liability for latent and other defects and is in full exclusion of any warranty or liability whatsoever implied of common law, statute or otherwise as to the quality of the goods, their fitness for any particular purpose, their merchantability or otherwise, and the seller shall not be liable for the consequential loss, injury or damage of any nature whatsoever arising out of or in connection with the supply of the articles.