May 31, 2023

Mr. Alan Frazier Chattanooga-Hamilton County Air Pollution Control Bureau 6125 Preservation Drive Chattanooga, TN 37416-3638

Subject:

Roadtec, Inc. - Riverside

Application for Four (4) Messer Plasma Cutting Systems

RECEIVED CHATT / HAMILTON CO.

MAY **31** 2023

AIR POLLUTION CONTROL BUREAU

Dear Mr. Frazier:

Roadtec, Inc. (Roadtec) located at 2909 Riverside Dr. in Chattanooga submits the attached forms for four Messer plasma cutting systems (Messer 7221, 7222, 7223, 7224).

Roadtec cuts steel plate for use in manufacturing using the Messer plasma cutters. Emissions are collected and vented through dust collectors. Uncontrolled emissions were calculated based on maximum hourly usage determined by kerf width, average metal plate thickness, cut speed, and emission of fumes as obtained from "Emission of Fume, Nitrogen Oxides, and Noise in Plasma Cutting of Stainless and Mild Steel" by Broman B. et al. dated March 1994.

Roadtec submitted an application for a Kinetic Plasma Cutter in 2022. This was determined to be insignificant, as the hourly particulate emissions were estimated to be 0.48 pounds per hour. Initially, due to similar operating estimates, these four Messer tables were assumed to also be insignificant. According to the Air Pollution Control Bureau (Bureau) Regulations §4-56(c)(12)(ii), a single stack which does not have potential emissions of more than 0.500 pounds per hour of particulates, provided that the total amounts to less than two (2) pounds per hour is an insignificant activity and is not subject to permitting requirements of §4-56(c)(1)-(9). Because of this, we had planned for one of these machines to be subject to the permitting requirements. However, recent data shows that the potential hourly particulate emissions will exceed 0.500 pounds per hour (lb/hr), due to a higher average plate thickness.

All four Messers have similar operating parameters (operating hours, kerf width, average metal plate thickness, and cut speed), but Messer 7223 and Messer 7224 use oxygen plasma, similar to the Kinetic Plasma Cutter. Based on our calculations, the uncontrolled hourly particulate emissions are 0.63 pounds per hour for Messer 7221 and Messer 7222, and 0.47 pounds per hour for Messer 7223 and Messer 7224. These emissions are based on 7,300 operating hours per year. Astec agrees to limit annual operating hours to 7,300 hours:

The supporting calculations and application pages are attached.

I certify that the information contained in this application is true, accurate, and complete based on information and belief formed after reasonable inquiry.

If you have any questions concerning the information in this letter or its attachments, please contact me at 706.313.8518 or my consultant, Shea Cofer, at 615.418.1414.

Omar Rivera

EHS Manager

Attachments

# BASIC APPLICATION FOR EQUIPMENT / AIR POLLUTION PERMIT OR CERTIFICATE OF OPERATION

FORM E001 03/2011

1.	Name of Company Roadtec, Inc. (Riverside) 2. NAICS Code: 333120	_
	(If corporation or LLC, name on file with Tennessee Secretary of State Corporate Records Division)	
3.	Company Official to Contact: Omar Rivera 4. Phone No. 706.313.8518	
5.	Mailing Address: 800 Manufacturers Rd. Chattanooga TN 37405	_
	Street or P.O. Box City State Zip Code	
6.	Physical Location (If different from line 5) 2909 Riverside Dr.  Chattanooga TN 37406	
	(If different from line 5) 2909 Riverside Dr. Chattanooga TN 37406 Street City State Zip Code	
7.	Application for:  Installation Permit  Initial Certificate of Operation  Renewal Certificate of Operation	
	Previous Installation Permit or Certificate of Operation No.: N/A	_
8.	Type of equipment for which application is made:	
	Process Equipment (Form E010 or Form E010A) Previously Submitted Attached	
	☐ Fuel Burning Equipment (Form E011) ☐ Previously Submitted ☐ Attached	
	☐ Incineration Equipment (Form E012) ☐ Previously Submitted ☐ Attached	
	Minor Pollution Source (Form E014)  (Less than 1000 lbs/yr and less than 10 lbs/day total uncontrolled contaminant emissions)  Previously Submitted  RECEIVED  CHATT / HAMILTON CO.	
	The following forms are filed with this application: E010, E102, E106  MAY 31 2023	
9.	Equipment Name:  Messer 7221 (Messer Plasma Table)  AIR POLLUTION CONTROL BUREAU	
10.	If application is for a Certificate of Operation (Initial or Renewal), are there any changes since previous application in the equipment or operation which <u>might</u> :	
	A. Increase, decrease, or alter process materials, fuel, refuse type, etc.?	
	B. Increase, decrease, or alter emissions or emission points?	
11.	Process Weight, lb/hr, (Item 6 on Form E010), Incineration Rate, lb/hr, (Item 3C on Form E012), or Fuel Burning Rate, 1,000 Btu/hr, (Item 7C on Form E011): 14.8 lb/hr  /5.0	
	This is to certify that I am familiar with operations concerning this equipment and the information provided on this application is true and complete to the best of my knowledge:	
	Mail completed form to: CHATTANOOGA-HAMILTON COUNTY  AND DOLL HAMILTON COUNTY  GASZIEL ANAYA	
	AIR POLLUTION CONTROL BUREAU 6125 Preservation Drive, Suite 140 Chattanooga, TN 37416-3638  Name  (CA M G 7)  Title	_
	This form must be completely filled out before it will be processed	_
	Later torm must be completely then out before it will be broserved.	

# BASIC APPLICATION FOR EQUIPMENT / AIR POLLUTION PERMIT OR CERTIFICATE OF OPERATION

FORM E001 03/2011

1.	Name of Company Roadtec, Inc. (Riverside)		ode: 33312	20
	(If corporation or LLC, name on file with Tennessee Secretary of State Corporate Record	ts Division)		
3.	Company Official to Contact: Omar Rivera	4. Phone No	706.313.	8518
5.	Mailing Address: _800 Manufacturers Rd.	Chattanooga	TN	37405
٠,	Street or P.O. Box	City	State	Zip Code
6.	Physical Location (If different from line 5) 2909 Riverside Dr.	Chattanooga	TN	37406
	Street	City	State	Zip Code
7	Application for:  Installation Permit  Initial Certificate of Operation No.: N/A	tion Renewal	Certificate of (	Operation
0	Sec. II New .			
8.	Type of equipment for which application is made:			
	Process Equipment (Form E010 or Form E010A)	ously Submitted		Attached
	☐ Fuel Burning Equipment (Form E011) ☐ Previ	ously Submitted		Attached
	☐ Incineration Equipment (Form E012) ☐ Previ	ously Submitted	· .	Attached
	Minor Pollution Source (Form E014) Previous (Less than 1000 lbs/yr and less than 10 lbs/day total uncontrolled contaminant emis		RECEIVED [	Attached CO.
	The following forms are filed with this application: E010, E102, E106	MA	Y <b>31 2</b> 023	
9.	Equipment Name:  Messer 7222 (Messer Plasma Table)		R POLLUTION ITROL BUREAU	J
10.	If application is for a Certificate of Operation (Initial or Renewal), are there equipment or operation which <u>might</u> :	e any changes since previo	ous application	n in the
	A. Increase, decrease, or alter process materials, fuel, refuse type, etc.?	Yes No		
	B. Increase, decrease, or alter emissions or emission points?	Yes No		34
11.	Process Weight, lb/hr, (Item 6 on Form E010), Incineration Rate, lb/hr, (Item 7C on Form E011): 14.8 lb/hr /5.0	em 3C on Form E012), or	Fuel Burning	
	This is to certify that I am familiar with operations concerning this equipme is true and complete to the best of my knowledge:	ent and the information pr	ovided on this	s application
	Mail completed form to:	_		
	CHATTANOOGA-HAMILTON COUNTY	GASZIEL	ANA Y	1
	AIR POLLUTION CONTROL BUREAU 6125 Preservation Drive, Suite 140	Name		
	Chattanooga, TN 37416-3638	G2AL Title	M 15 7	
	<u> </u>	5/2	1/2023	:
	This form must be completely filled out before it will be processed	Date		

# BASIC APPLICATION FOR EQUIPMENT / AIR POLLUTION PERMIT OR CERTIFICATE OF OPERATION

FORM E001 03/2011

1.	Name of Company Roadtec, Inc. (Riverside) (If corporation or LLC, name on file with Tennessee Secretary of State Corporate Records L		ode: 33312	20
3.	Company Official to Contact: Omar Rivera	4. Phone No.	706.313.	8518
5.	Mailing Address: 800 Manufacturers Rd.	Chattanooga	TN	37405
٥.	Street or P.O. Box	City	State	Zip Code
6.	Physical Location (If different from line 5) 2909 Riverside Dr.	Chattanooga	TN	37406
	Street	City	State	Zip Code
7∞	Application for:  Installation Permit  Initial Certificate of Operation	n Renewal C	ertificate of	Operation
	Previous Installation Permit or Certificate of Operation No.: N/A			
8.	Type of equipment for which application is made:	19		
	Process Equipment (Form E010 or Form E010A)	sly Submitted	[	Attached
	☐ Fuel Burning Equipment (Form E011) ☐ Previou	sly Submitted	[	Attached
	☐ Incineration Equipment (Form E012) ☐ Previou	sly Submitted	. [	Attached
	Minor Pollution Source (Form E014) Previou  (Less than 1000 lbs/yr and less than 10 lbs/day total uncontrolled contaminant emission	sly Submitted	[	Attached
	The following forms are filed with this application: E010, E102, E106	RECEIVE CHATT / HAMILT	TON CO.	
9.	Equipment Name:  Messer 7223 (Messer Plasma-Drill)	MAY <b>3 1</b> 20		
10.	If application is for a Certificate of Operation (Initial or Renewal), are there are equipment or operation which <u>might</u> :	AIR POLLUTI ny changes since previou		n in the
	A. Increase, decrease, or alter process materials, fuel, refuse type, etc.?	Yes No		
	B. Increase, decrease, or alter emissions or emission points?	Yes No		76
11.	Process Weight, lb/hr, (Item 6 on Form E010), Incineration Rate, lb/hr, (Item Rate, 1,000 Btu/hr, (Item 7C on Form E011):  14.8 lb/hr 15.0	3C on Form E012), or Fo	uel Burning	
	This is to certify that I am familiar with operations concerning this equipment is true and complete to the best of my knowledge:	and the information pro	vided on this	s application
	Mail completed form to:	C A - A	. Nasa A	
	CHATTANOOGA-HAMILTON COUNTY AIR POLLUTION CONTROL BUREAU	GAJZIEZ A.	NATH	
	6125 Preservation Drive, Suite 140	Rame C_9A1	MLI	
	Chattanooga, TN 37416-3638	Title	- 1-	1/2
	This form must be completely filled out before it will be recovered	Date	2/3	1/02]
	This form must be completely filled out before it will be processed	Date		

# BASIC APPLICATION FOR EQUIPMENT / AIR POLLUTION PERMIT OR CERTIFICATE OF OPERATION FORM E001 03/2011

03/2011

1.	Name of Company Roadtec, Inc. (Riverside)  (If corporation or LLC, name on file with Tennessee Secretary of State Corporate Records Division)  2. NAICS Code: 333120
3.	Company Official to Contact: Omar Rivera 4. Phone No. 706.313.8518
5.	Mailing Address: 800 Manufacturers Rd. Chattanooga TN 37405
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6.	Physical Location (If different from line 5) 2909 Riverside Dr. Chattanooga TN 37406  Street City State Zip Code
7.	Application for:  Installation Permit  Initial Certificate of Operation  Renewal Certificate of Operation
	Previous Installation Permit or Certificate of Operation No.: N/A
8.	Type of equipment for which application is made:
	Process Equipment (Form E010 or Form E010A) Previously Submitted Attached
	☐ Fuel Burning Equipment (Form E011) ☐ Previously Submitted ☐ Attached
	☐ Incineration Equipment (Form E012) ☐ Previously Submitted ☐ Attached
	Minor Pollution Source (Form E014)  (Less than 1000 lbs/yr and less than 10 lbs/day total uncontrolled contaminant emissions)  Previously Submitted  RECEIVED  CHATT / HAMILTON CO.
	The following forms are filed with this application:  E010, E102, E106  MAY 3 1 2023
9.	Equipment Name:  Messer 7224 (Messer Plasma-Drill)  AIR POLLUTION CONTROL BUREAU
10.	If application is for a Certificate of Operation (Initial or Renewal), are there any changes since previous application in the equipment or operation which <u>might</u> :
	A. Increase, decrease, or alter process materials, fuel, refuse type, etc.? Yes No
	B. Increase, decrease, or alter emissions or emission points?
11.	Process Weight, lb/hr, (Item 6 on Form E010), Incineration Rate, lb/hr, (Item 3C on Form E012), or Fuel Burning Rate, 1,000 Btu/hr, (Item 7C on Form E011): 14.8 lb/hr  /S.O
	This is to certify that I am familiar with operations concerning this equipment and the information provided on this application is true and complete to the best of my knowledge:
	Mail completed form to: CHATTANOOGA-HAMILTON COUNTY AIR POLLUTION CONTROL BUREAU 6125 Preservation Drive, Suite 140 Chattanooga, TN 37416-3638  Title,
	5/31/2023

# PROCESS EQUIPMENT APPLICATION

FORM E010 07/2000

Name of Company (a	s shown on Li	ne 1, Form E001	): Road	ltec, Inc. (Riverside)		
Equipment Name (as	shown on Lin	e 10, Form E001	): Mess	er 7221 (Messer Pla	sma Ta	ble)
Installation Date: Janu	ary 2023	4. <i>Typ</i> e	of Prod	ess: Exhausts outsi	de thro	ugh dust collector
Major Raw Materials	Used: Various	types of carbon st	eel (i.e.,	plate steel)		
Process Weight: 44.8	/ <i>S, O</i> s is the total weig	ht of all materials intr	oduced in	to the process.	unds p	er hour
Control Equipment						
Emissions Uncon	trolled		<b>✓</b> Bag	house (File Form I	≣102)	
☐ Wet Collecting De	vice (File For	m E103)	☐ Iner	tial Separators (Fil	e Forn	n E105)
Electrostatic Prec	ipitator (File F	orm E104)	Oth	er – Specify:		
Control Efficiency	7					
Enter the control efficiency for zeros if the emissions are un			ment (for a	appropriate Forms E102	2, E103,	E104, E105, E107, or enter
	Poll	utant	0/	Efficiency		RECEIVED
	Particulates	diane		99.0%		CHATT / HAMILTON CO
	SO <sub>x</sub>			N/A	4	\$4417 o of 4650
	NO <sub>x</sub>			N/A		MAY <b>31</b> 2023
;	CO			N/A		
	Hydrocarbon	ıs		N/A		AIR POLLUTION
Other:		/A		N/A	•	CONTROL BUREAU
Emissions Summary Enter the amount of each po	Illutant listed in no	ounds per hour				
		Uncontrolled Em		Actual Emissions		Estimated Emissions
Polluta Total Suppordes		(File Form E1		(Stack Test Report)		(See Formula A)
Total Suspended		0.63 lb/hr		N/A		0.006 lb/hr
PM10		0.63 lb/hr		N/A		0.006 lb/hr
Sulfur Oxides		N/A		N/A	OR	N/A
Nitrogen Oxides (as NO <sub>2</sub> ) Other (specify)		N/A		N/A		N/A
Other (spi	ectiy)	N/A		N/A		N/A
F 1 -			(4000)	O-what Eff.		
Formula A:	Estimate	ed Emissions = —	(100% -	Control Efficiency (%	<u>(o))</u>	X Uncontrolled Emissions

10.	Environmental Impact
	Those emissions indicated in Item 9 may at times under normal operating conditions cause (check all that apply):
	Odors Eye Irritations Property Damage Health Effects
	Other nuisances outside of plant property  No environmental damage
11:	Emission Point Data
	Stack Height (emission point) above ground:  Ground Elevation above sea level at stack base:  Stack Diameter:  13 670 75 1.0 x 2.0  Ft. Volume of gas discharged into atmosphere:  Gas exit temperature:  4,300 80 9F Ambient
12.	Ave. Operating Time
	Daily: 20 hours Weekly: 7 Days Yearly: 52 Weeks
Ja	This is to certify that I am familiar with the operations concerning this equipment and that the information provided on this application is true and complete to the best of my knowledge.
1r	nstallation Permit No. 6029-30900198-02I Company Official GRAL M62
	5/31/7023

CHATTANOOGA-HAMILTON COUNTY AIR POLLUTION CONTROL BUREAU 6125 Preservation Drive, Suite 140 Chattanooga, TN 37416-3740

# AIR POLLUTION CONTROL EQUIPMENT DATA - BAGHOUSE

FORM E102 01/2001

1.	Name of Company: Roadtec, Inc. (Riverside)  As shown on Line 1 of Form E001
2.	Name of Equipment: Messer 7221 (Messer Plasma Table)  As shown on Line 9 of Form E001
3.	Equipment Data:  Manufacturer of Baghouse: Camfil APC
	Model Number: GSX8 Cost of Baghouse:
	Date of Manufacture: September 2022 Date of Installation: January 2023
	Pre-cleaning Equipment No Yes  If yes, what type (File appropriate form for control equipment)
	Volume of gas discharged from baghouse at dry standard conditions: 4,300 dscfm
	Total cloth area of baghouse: 3,007 ft <sup>2</sup>
	Air to cloth ratio:  1.43    Ft   (Divide volume of gas discharged by total cloth area)
	CHATT / HAMILTON CO.
4.	Pressure Drop Across Baghouse: Stated by manufacturer: Inches of H <sub>2</sub> O  MAY 3 1 2023
	Measured (actual): Inches of H <sub>2</sub> O AIR POLLUTION
	Calculated: $X$ = CONTROL BUREAU Inches of $H_2O$
	The recommended pressure drop range in inches of H <sub>2</sub> O is 1.5 (minimum) to 8.0 (maximum).
	If the measured or calculated pressure drop falls outside the recommended range, contact the Chattanooga-Hamilton County Air Pollution Control Bureau.
5.	Filter Data:  Type of fabric filters used in baghouse: HemiPleat GSX Cartridge - eXtreme Flame Retardant
	Operating temperature:     Comparison of the com
	If the maximum operating temperature exceeds the recommended operating temperature, contact the Chattanooga-Hamilton County Air Pollution Control Bureau.
6.	Baghouse Components:
	Check all that apply.  Flow rate instrumentation  Inlet gas temperature instrumentation  Evaporative Cooler
	Dew point indicator Differential pressure instrumentation Other (Describe)
	Heat Exchanger Transmissometer
7.	Pachage Operation
12	Baghouse Operation:  Continuous  Intermittent  Page 1 of 3

a 1	
8	Baghouse Description:  Baghouse Inlet (dirty gas):  Bottom Feed  Top Feed
	Exterior Filtration Tangential
	Other (Describe):
	Does the baghouse have a wear-resistant plate?
	Baghouse shape: Rectangular Cubical Cylindrical
	Other (Describe):
	Baghouse volume: Ft <sup>3</sup>
	Baghouse dimensions: Ft Ft Ft Ft Ft Height
	Baghouse shell material:
,	
8.	Bag Cleaning: (check one) Fabric Flexing Reverse Air Cleaning
	Mechanical Shaking & Rapping Reverse Jet
	Sonic Cleaning Reverse Flow
	Collapse Cleaning Manual Cleaning
	Pulse (pressure) – Jet Cleaning
9.	Filter Configuration:  Panels  Multiple Tube Bag
	Circular Cross-Section Tube Other (Describe):
	Filter Fabric:
	Filter Area: 3,007 Ft <sup>2</sup> Number of Filters per Compartment: 4
į.	
10.	Particle Size Distribution in Microns (μ):  Particle Type(s): Moisture in gas stream:%
	Size   0-5μ   5-10μ   10-20μ   20-44μ   Greater than 44μ
11.	Dust Disposal:  Automatic (screw conveyor, etc.)  Manual (Describe):
	How often are hoppers emptied? Every N/A hours Two 55-gallon drums every week
	Name of commercial disposal company (if applicable): N/A
	Is disposed material wetted for transport?
	Disposal Site: Gerdau

12.	Control Efficiency: Manufacturer's Stated Efficiency	y:	99.0			%	
	Required Efficiency:	N/A			%		
	Operational Efficiency (perform	ance testing):	N/A			%	
	Size 0-5μ % by weight	5-10μ	10-20μ	20-44μ	Greater than	1 44μ	
13.	Fan Data:						
	Fan Location: Clean air	side (pull thr	ough) [	Dirty air side	(push throug	h)	
	Fan Type:	Blade	Type:				
	A. Centrifugal (radial flow	v) For	ward Curve	Backward	Curve	Straight	
	B. Axial-flow (propeller)	Pro	peller	Tube Axia	al 🗌	Vane Axial	
	Fan Properties:						
	Diameter: Speed: Volume: Static Pressure:	Inche RPM Cfm ( Inche	inl STP Ou	aking Horsepowe et Area: tlet Area: otor Horsepower:	r:	BHP Ft² Ft² HP	
	Standard Heavy Duty Submitted copy of Manufacturer's Yes No Multirating Tables  Special Construction Materials:						
	Bronze Alloys	Alumi	num [	Stainless Ste	el 🔲	Bisonite	
	Zinc Chromate Primer	Rubbe	er, Phenolics, V	inyls, or Epoxy	Covering		
	C. Compressor	Positive Disp	lacement	Dynamic	Reciproc	cating	
	This is to certify that I am familiar with the capplication is true and complete to the best of						
	Mail to:	Company O	fficial:	Signo	ture		
	CHATTANOOGA-HAMILTON COUNTY AIR POLLUTION CONTROL BUREAU 6125 Preservation Drive Chattanooga, TN 37416		Title:		GRAL 1	462	
	Chattanooga, 114 37410		Date:	5/3	1 2023	}	
		Do not wr	ite below this line				
0	Engineer Approval Permit Nu	mber: <u>602</u>	9-3090	0198-02	I		
	Special Notations:						

# POLLUTION ESTIMATION FORM

FORM E106 01/2001

1.	Name of Company:	Roadtec, Inc. (Riverside)								
	As shown on Line 1 of Form E001									
2.	Equipment Name:	me: Messer 7221 (Messer Plasma Table)  As shown on Line 9 of Form E001								
3.	Type of pollutant for	r which estimate is made: Par	ticulate (metal dust)							
٥.	Type of politicality ion	15 111401 15 111400 1	trouter (mount date)	<del></del>						
				The state of the s						
4.	Pollution Emission I	Factor (PEF):								
		\ \ \ /\(\)	(Give value & units in lbs/ton, lbs/lb, l	bs/gal, gr/ft³, etc.)						
		<b>.</b>								
	Source of Emission	Factor:								
5										
	Uncontrolled Polluti	ion Emission Rate:								
		X	=							
	(PEF	F from Item 4) (Give ope	erating rate for this equipment	(Give value & units)						
			ppropriate units in either ns/hr, gal/hr, or cfm)	·						
		103/111, 101	mann, gann, or egm)							
6.	The sector that Decises	Please s	ee attached calculation	Pounds emitted per hour						
	Uncontrolled Emissi	ion Rate:		Founds emitted per nour						
	This is to certify that I a correct to the best of my i	nn familiar with the operations conce knowledge. <u>This form must be comple</u>		GASUEL ANATA						
		HAMILTON COUNTY	Company Official.	0/130:03						
		CONTROL BUREAU								
	6125 Preservation D		Title	GRAL MG7						
	Chattanooga, TN 37	410	Title: _	0,0						
			Date: _	5/31/2023						
		DO NO	WRITE BELOW THIS LINE							
1	109									
1	Engineer	Approval								
Thi	is form corresponds to	permit number: 6029	-30900198-02I							
1										

Roadtec, Inc. 2909 Riverside Drive Chattanooga, TN 37406

Messer 7221 Emissions

Operating Estimates(1)		- 5	Assumptions:	8760	
Thickness (Average)	1	in	Time Cutting (2)	8,760 <del>1,300</del>	hr
Kerf Width	0.147	in	<b>Cutting Time</b>	<b>-50</b>	min/hr
Cutting Speed	360	in/hr		60	
Cut Length	1,261,440	in	<b>Unit Conversions</b>	<u>u</u>	
Volume	185,740	in <sup>3</sup>	lb/gram	0.002	
Mass	52,007	lbs	cm/in	2.54	
Control Efficiency	99.00%				

#### **Process Emissions**

Emission of Fumes <sup>(3)</sup> (Ib particulate/Ib mild steel removed)	Mild Steel Density (g/cm³)	Thickness (in)	Kerf Width (in)	Cutting Speed (in/min)	Cutting Time (min/hr)	Control Efficiency	PM (Uncc
0.05	7.85	1	0.147	6	<del>-50.00 -</del>	99.0%	<del>-0.63</del>

#### Example Calculations/Note:

- 1. Operating estimates are from Kumar Vemuri.
- 2. 7,300 hours is based on 20 hours/day and 365 days/year.
- 3a. Emission of fumes was obtained from "Emission of Fume, Nitrogen Oxides, and Noise in Plasma Cutting of Stainless and Mild Steel" by Broman
- 3b. This particular number is for mild steel and is based on a thickness of 8mm and a cutting speed of 3.5 m/min.
- 4. Uncontrolled Emission Rate = Emission of Fumes \* (1 % Reduction) \* Density \* Thickness \*Kerf Width \*Cutting Speed \* Cutting Time \* (1 lb / 45
- 5. Estimated Emissions = (1 Control Efficiency) \* Uncontrolled Emission Rate
- 6. Annual Emissions (tpy) = Emissions (lb/hr) \* 7,300 (hr/yr) / 2,000 (lb/ton)

lin. 0.147 in. 360 
$$\frac{in}{hr}$$
 . 7, 85  $\frac{9}{cm^3}$  . 0.05  $\frac{1b}{1b}$  .  $\frac{11b}{453.59237g}$  CHATT/HAM.

(2.54  $\frac{cm}{in}$ )  $^3 = 0.750404$  1b/hr before control

AIR POLLUTION CONTROL BU

0.750

## PROCESS EQUIPMENT APPLICATION

FORM E010 07/2000

Name of Company (as shown on Line 1, Form E001): Roadtec, Inc. (Riverside)						
Equipment Name (as shown on Line 10, Form E001): Messer 7222 (Messer Plasma Table)						
Installation Date: February 2023	4. <i>Typ</i>	e of Prod	ess: Exhausts outsi	de thro	ough dust collector	
Major Raw Materials Used: Various	types of carbon	steel (i.e.,	plate steel)			
Process Weight: 44.8 15.0  This is the total weight	Process Weight: 44.8 15.0  This is the total weight of all materials introduced into the process.  Pounds per hour					
Control Equipment						
Emissions Uncontrolled		<b>√</b> Bag	house (File Form E	E102)		
☐ Wet Collecting Device (File Form	n E103)	Ine	tial Separators (File	e Forr	n E105)	
Electrostatic Precipitator (File Fo	orm E104)	Oth	er – Specify:			
Control Efficiency						
Enter the control efficiency for each pollutant of zeros if the emissions are uncontrolled as note		ipment (for	appropriate Forms E102	2, E103,	E104, E105, E107, or enter	
Polli	utant	%	Efficiency		RECEIVED	
Particulates			99.0%		CHATT / HAMILTON CO.	
SO <sub>x</sub>			N/A			
NO <sub>x</sub>			N/A	•	MAY <b>3 1 2</b> 023	
СО		N/A				
Hydrocarbon	ns		N/A		AIR POLLUTION	
Other: N	/A	N/A			CONTROL BUREAU	
Emissions Summary						
Enter the amount of each pollutant listed in po	unds per hour.				a	
Pollutant	Uncontrolled E (File Form E		Actual Emissions (Stack Test Report)		Estimated Emissions (See Formula A)	
Total Suspended Particulate	0.63 lb/l	hr	N/A		0.006 lb/hr	
PM10	0.63 lb/h	nr	N/A		0.006 lb/hr	
Sulfur Oxides	N/A		N/A	OR	N/A	
Nitrogen Oxides (as NO <sub>2</sub> )	N/A		N/A		N/A	
Other (specify)	N/A		N/A		N/A	
8						
Formula A: Estimated Emissions = (100% - Control Efficiency (%))  100% X Uncontrolled Emissions						

Environme Impact	ental							
Those emissio	ns indicated in	n Item 9 may at 1	imes under n	ormal operat	ing co	nditions cause (che	ck all that apply):	
Odors		Eye Irritatio	ns	Prop	perty	Damage	Health Effe	cts
Other r	nuisances c	outside of pla	nt property			✓ No enviror	nmental damage	
Emission F Data	Point	:						
	Elevation abov	n point) above gi ve sea level at si		13 670 1.0 x 2.0	Ft. Ft. Ft.	Volume of gas disc Gas exit temperatu	charged into atmosphere: ire:	4,300 c 80 or Ambient
Ave. Opera Time	nting							
Daily:	20	hours	Weekly:	7		Days	Yearly: 52	_ Weeks
and complete t	to the best of r	niliar with the opmy knowledge.					Company Official	application is t
							G2AL /	462
							5/31/2	2023

CHATTANOOGA-HAMILTON COUNTY AIR POLLUTION CONTROL BUREAU 6125 Preservation Drive, Suite 140 Chattanooga, TN 37416-3740

## AIR POLLUTION CONTROL EQUIPMENT DATA - BAGHOUSE

FORM E102 01/2001

1.	Name of Company: Roadtec, Inc. (Riverside)  As shown on Line 1 of Form E001	
2.	Name of Equipment: Messer 7221 (Messer Plasma  As shown on Line 9 of Form E001	Table)
3.	Equipment Data:  Manufacturer of Baghouse: Camfil APC	, -
	Model Number: GSX8	Cost of Baghouse:
	Date of Manufacture: September 2022	Date of Installation: February 2023
	Pre-cleaning Equipment No Yes If ye	es, what type (File appropriate form for control equipment)
	Volume of gas discharged from baghouse at dry stan	dard conditions: 4,300 dscfm
	Total cloth area of baghouse: 3,007	ft <sup>2</sup>
	Air to cloth ratio: 1.43 Ft Min (Divide	e volume of gas discharged by total cloth area)
. 1		RECEIVED
4.	Pressure Drop Across Baghouse: Stated by manufacturer:	Inches of H <sub>2</sub> O
	Measured (actual):	Inches of H <sub>2</sub> O MAY <b>3 1</b> 2023
	Calculated: X (K Factor) X Air to cloth ratio in fi	= Inches of AIR POLLUTION
	The recommended pressure drop range in inches	of H <sub>2</sub> O is 1.5 (minimum) to 8.0 (maximum).
	If the measured or calculated pressure drop falls outside the r County Air Pollution Control Bureau.	ecommended range, contact the Chattanooga-Hamilton
5.	Filter Data:  Type of fabric filters used in baghouse: HemiPlea	t GSX Cartridge - eXtreme Flame Retardant
	Operating temperature: <160 °F  Manufacturer's Recommended	Ambient (~80) °F 160 °F  Normal Maximum
	If the maximum operating temperature exceeds the recommen County Air Pollution Control Bureau.	ded operating temperature, contact the Chattanooga-Hamilton
6.	Baghouse Components:	
	Check all that apply.  Flow rate instrumentation Inlet gas temp	erature instrumentation  Evaporative Cooler
	Dew point indicator Differential pr	ressure instrumentation Other (Describe)
	Heat Exchanger Transmissome	eter
<b>7</b> ₄∷	Baghouse Operation:  Continuous	Intermittent Page 1 of 3

8.	Baghouse Description:
	Baghouse Inlet (dirty gas): Dottom Feed Top Feed
	Exterior Filtration Tangential
	Other (Describe):
	Does the baghouse have a wear-resistant plate?
	Baghouse shape: Rectangular Cubical Cylindrical
	Other (Describe):
	Baghouse volume: Ft <sup>3</sup>
	Baghouse dimensions:  Length  Ft  Width  height
	Length Width height Baghouse shell material:
<b>Q</b> .	Pag Classic Assistance
8.	Bag Cleaning: (check one)  Fabric Flexing  Reverse Air Cleaning
	Mechanical Shaking & Rapping  Reverse Jet
	Sonic Cleaning Reverse Flow
	Collapse Cleaning Manual Cleaning
	Pulse (pressure) – Jet Cleaning
9.	Filter Configuration:  Panels  Multiple Tube Bag
	Circular Cross-Section Tube Other (Describe):
	Filter Fabric:
	Filter Area: 3,007 Ft <sup>2</sup> Number of Filters per Compartment: 4
10.	Particle Size Distribution in Microns (μ):  Particle Type(s): Moisture in gas stream: %
	Size         0-5μ         5-10μ         10-20μ         20-44μ         Greater than 44μ           % by weight         —
1 <sub>2</sub>	Dust Disposal:
	Automatic (screw conveyor, etc.)  Manual (Describe):
	How often are hoppers emptied? Every <u>N/A</u> hours Two 55-gal drums every week
	Name of commercial disposal company (if applicable): N/A
	Is disposed material wetted for transport?  Yes  No
	Disposal Site: Gerdau
Ţ	Page 2 of 3

12.		ol Efficiency: nufacturer's Sta	ited Efficien	cy:	99.0	_		%
	Red	quired Efficienc	y:		N/A			%
	Op	erational Efficie	ency (perform	nance testing):	N/A			%
		Size	0-5μ	5-10μ	10-20μ	20-44μ	Greater than	4411
		% by weight	υ-5μ	3-10µ	10-20μ	20-11	Greater than	1 1 1 1 1
		76 by weight						
l								
13.	Fan D	ata:						
	Far	Location:	Clean a	ir side (pull thi	rough)	Dirty air side	(push throug	h)
				•			•	ŕ
	Far	n Design (check o	ne - A R or C	i.				
	1 41.	1 Design (check o	ne-A, $B$ , $Or C$	•				
	F	Т		Disda	Т			
3	<u>Far</u>	Type:		Blade	Type:			
	A.	■ Centrifug	gal (radial flo	w)   🔳 For	rward Curve	Backward	l Curve	Straight
	B.	Axial-flo	w (propeller	Pro	opeller	Tube Axi	al 🗌	Vane Axial
			(FF	/	· F			
	For	Properties:						
	l rai	i riopetties.						
					_			2112
		Diameter:		Inche		aking Horsepowe	r:	BHP
		Speed:		RPM	Inl	et Area:		Ft <sup>2</sup>
		Volume:	18	Cfm	@ STP Ou	ıtlet Area:		Ft <sup>2</sup>
		Static Pressure	e:		~	otor Horsepower:		HP
						, , , , , , , , , , , , , , , , , , ,		
		Standard		Haarm Dute	Submitted	opy of Manufacturer	s Vas	No
				Heavy Duty	Multirating		's Yes	☐ NO
						240.40		
	Spe	ecial Construction	on Materials	:				
								0
		Bronze All	loys	Alum	inum	Stainless Ste	el 📗	Bisonite
		Zinc Chron	mate Primer	Rubbe	er Phenolics V	Vinyls, or Epoxy	Covering	
		Zino cino.			, 1 1101101100,	injis, or Epony	covering	
1								
				بم بناما			<b>□</b> √ .	
	C.	Compres	sor	Positive Disp	lacement	Dynamic	Reciproc	cating
							// 4	
						ent and that the inform		
	applicat	tion is true and com	plete to the bes	t of my knowledge.	This form must	be completely filled o	ut before it will l	be processed.
						-	Tell	
						1111	WHILL	
				Company C	Official:	1112	1100	
	Mail to:		==-			Sign	ature	
	CHATT	ANOOGA-HAMII	LTON				//	
	COUNT	TY AIR POLLUTION	ON		Title:	1 6	hA1	162
		ROL BUREAU			1 me.	V C	nois i	707
		eservation Drive				150	10 500	
	Chattan	ooga, TN 37416		Į,		-	-121/20	762
					Date:	, J	131/00	25
				Do not w	rite below this line	2		
	OM	P		1 1	00		0-	
	HUD	Engineer Approv	al Permit N	umber: 6/12	27- 309	00198-0	51	
1	1	T B TIVE						
	Special	Notations						
	Special	Notations:						

## POLLUTION ESTIMATION FORM

FORM E106 01/2001

1.	Name of Company:	Roadtec, Inc. (Riverside)						
	As shown on Line 1 of Form E001							
2.		nent Name: Messer 7222 (Messer Plasma Table)						
2	As shown on Line 9 of Form E001  Type of pollutant for which estimate is made: Particulate (metal dust)							
3.	Type of pollutant for	which estimate is made:	Particulate (metal dust)					
4.								
	Pollution Emission Fa	actor (PEF):	(Give value & units in lbs/ton, lbs.	//h lha/gal ga/ft <sup>3</sup> ata )				
			(Give value & units in tostion, tost	no, rosigui, griji , etc.)				
	Source of Emission F	actor:						
		<u> </u>						
- 1								
5.	Uncontrolled Pollution	on Emission Rates						
		on Emission Rate.						
		X	=					
	(PEF)		e operating rate for this equipment the appropriate units in either	(Give value & units)				
			hr, tons/hr, gal/hr, or cfm)					
9								
<u> </u>								
6.	Uncontrolled Emission	on Rate:	ase see attached calculation	Pounds emitted per hour				
	Oncontrolled Limssic	n Rate.		Tounds enfitted per flour				
	This is to certify that I an correct to the best of my ki	n familiar with the operations c nowledge. <u>This form must be co</u>	oncerning this equipment and that the inform mpletely filled out before it is processed,	ation provided on this application is true and				
	Mail to:		Company Official:	GAZZIEL AVAYA				
	1	HAMILTON COUNTY						
	AIR POLLUTION C 6125 Preservation Dr							
	Chattanooga, TN 374		Title:	62AL MG2				
			D .	5/31/2017				
			Date:	- 131/2023				
				* a				
	DO NOT WRITE BELOW THIS LINE							
	Engineer A	Approval						
This form corresponds to permit number: 6029 - 30900198 - 03T								
Spe	ecial Notations:							

Roadtec, Inc. 2909 Riverside Drive Chattanooga, TN 37406

Messer 7222 Emissions

Operating Estimates(1)			Assumptions:	8760	
Thickness (Average)	1	in	Time Cutting <sup>(2)</sup>	8,760 <del>1,300</del> -	hr
Kerf Width	0.147	in	<b>Cutting Time</b>	<del>50</del>	min/hr
Cutting Speed	360	in/hr		60	
Cut Length	1,261,440	în	<b>Unit Conversions</b>		
Volume	185,740	in <sup>3</sup>	lb/gram	0.002	
Mass	52,007	lbs	cm/in	2.54	
Control Efficiency	99.00%				

#### **Process Emissions**

Emission of Fumes <sup>(3)</sup> (Ib particulate/Ib mild steel removed)	Mild Steel Density (g/cm³)	Thickness (in)	Kerf Width (in)	Cutting Speed (in/min)	Cutting Time (min/hr)	Control Efficiency	PM (Unco
0.05	7.85	1 "	0.147	6	- <del>50</del> -	99.0%	0.63

#### **Example Calculations/Note:**

- 1. Operating estimates are from Kumar Vemuri.
- 2. 7,300 hours is based on 20 hours/day and 365 days/year.
- 3a. Emission of fumes was obtained from "Emission of Fume, Nitrogen Oxides, and Noise in Plasma Cutting of Stainless and Mild Steel" by Broman
- 3b. This particular number is for mild steel and is based on a thickness of 8mm and a cutting speed of 3.5 m/min.
- 4. Uncontrolled Emission Rate = Emission of Fumes \* (1 % Reduction) \* Density \* Thickness \*Kerf Width \*Cutting Speed \* Cutting Time \* (1 lb / 45
- 5. Estimated Emissions = (1 Control Efficiency) \* Uncontrolled Emission Rate
- 6. Annual Emissions (tpy) = Emissions (lb/hr) \* 7,300 (hr/yr) / 2,000 (lb/ton)

 $| in. 0.147 in. 360 \frac{in.}{hr} \cdot 7.85 \frac{g}{cm^3} \cdot 0.05 \frac{1b}{1b} \cdot \frac{11b}{453.59237g}$   $\cdot (2.54 \frac{cm}{in.})^3 = 0.750404 \frac{1b}{hr} \text{ before control}$  $0.007504 \frac{1b}{hr} \text{ controlled}$  RECEIVED CHATT / HAMILTON CO.

MAY 3 1 2023

AIR POLLUTION CONTROL BUREAU

## PROCESS EQUIPMENT APPLICATION

FORM E010 07/2000

Name of Company (a	as shown on Li	ne 1, Form E001	): <u>Road</u>	ltec, Inc. (Riverside)				
Equipment Name (as	shown on Lin	e 10, Form E001)	): Mess	ser 7223 (Messer Pla	sma-Dr	rill)		
Installation Date: Apr	ril 2023	4. <i>Type</i>	of Proc	ess: Exhausts outsi	de thro	ugh dust collector		
Major Raw Materials	Used: Various	types of carbon ste	eel (i.e.,	plate steel)				
Process Weight: 14.8	5 <i>IS.0</i> is is the total weig	ht of all materials intro	oduced in		unds p	er hour		
Control Equipment	L							
Emissions Uncon	trolled		✓ Bag	house (File Form I	E102)			
☐ Wet Collecting De	evice (File For	m E103)	☐ Iner	tial Separators (Fil	e Form	n E105)		
Electrostatic Pred	cipitator (File F	orm E104)	Oth	er – Specify:				
Control Efficiency								
Enter the control efficiency zeros if the emissions are u	for each pollutant ncontrolled as not	emitted by this equipmed in Item 7.	nent (for a	appropriate Forms E102	2, E103,	E104, E105, E107, or enter		
	Poll	utant	%	Efficiency		RECEIVED.		
	Particulates			99.0%	-	CHATT / HAMILTON CO		
	SO <sub>x</sub>			N/A				
	NO <sub>x</sub>		N/A N/A N/A		MAY <b>3 1</b> 2023			
	CO				•			
	Hydrocarbor	ns			•	AIR POLLUTION		
Other:		A N/A			CONTROL BUREAU			
Emissions	1							
Summary								
Enter the amount of each p	ollutant listed in po	ounds per hour.				mas .		
Polluta		Uncontrolled Emi (File Form E1		Actual Emissions (Stack Test Report)		Estimated Emissions (See Formula A)		
Total Suspende	d Particulate	0.47 lb/hr		N/A	] [	0.005 lb/hr		
PM1		0.47 lb/hr		N/A	] [	0.005 lb/hr		
Sulfur Oxides		N/A		N/A	<sub>OB</sub> [	N/A		
Nitrogen Oxides (as NO <sub>2</sub> )		N/A		N/A	OR	N/A		
Other (specify)		N/A		N/A		N/A		
Formula A:	Estimat	ed Emissions = —	(100% -	Control Efficiency (%	<u>//))</u>	X Uncontrolled Emissions		
Formula A:	Estimat	ed Emissions = —	(100% -	Control Efficiency (9	<u>(6))                                   </u>	X Uncontrolled Emissi		

10,	Environmental Impact
	Those emissions indicated in Item 9 may at times under normal operating conditions cause (check all that apply):
	Odors Eye Irritations Property Damage Health Effects
	Other nuisances outside of plant property  No environmental damage
11.	Emission Point Data
	Stack Height (emission point) above ground:  Ground Elevation above sea level at stack base:  Stack Diameter:  14  Ft. Volume of gas discharged into atmosphere:  4,000  80  80  9F  Ambient
12.	Ave. Operating Time
	Daily: 20 hours Weekly: 7 Days Yearly: 52 Weeks
	This is to certify that I am familiar with the operations concerning this equipment and that the information provided on this application is true and complete to the best of my knowledge.
	Installation Permit No. 6029-30900198-04-I
	G2AL M62 Title
	5/31/2023

CHATTANOOGA-HAMILTON COUNTY AIR POLLUTION CONTROL BUREAU 6125 Preservation Drive, Suite 140 Chattanooga, TN 37416-3740

# AIR POLLUTION CONTROL EQUIPMENT DATA - BAGHOUSE

FORM E102 01/2001

1.	Name of Company: Roadtec, Inc. (Riverside)  As shown on Line 1 of Form E001	
2.	Name of Equipment: Messer 7223 (Messer Plasma-As shown on Line 9 of Form E001	-Drill)
B.:	Equipment Data:  Manufacturer of Baghouse: Camfil APC	:
	Model Number: GSX16	Cost of Baghouse:
	Date of Manufacture: December 2022	Date of Installation: April 2023
	Pre-cleaning Equipment No Yes If ye	es, what type (File appropriate form for control equipment)
	Volume of gas discharged from baghouse at dry stan	dard conditions: 4,000 dscfm
	Total cloth area of baghouse: 5,970	$ft^2$
	Air to cloth ratio: 0.67 Ft Min (Divide	e volume of gas discharged by total cloth area)
I.	Purceaux Duran Armore Deckman	RECEIVED CHATT / HAMILTON CO.
۲.	Pressure Drop Across Baghouse: Stated by manufacturer:	Inches of H <sub>2</sub> O
	Measured (actual):	Inches of H <sub>2</sub> O MAY <b>3 1</b> 2023
	Calculated: X Air to cloth ratio in fi	AIR POLLUTION Inches of High BUREAU
	The recommended pressure drop range in inches	of H <sub>2</sub> O is 1.5 (minimum) to 8.0 (maximum).
	If the measured or calculated pressure drop falls outside the r County Air Pollution Control Bureau.	recommended range, contact the Chattanooga-Hamilton
5.	Filter Data:  Type of fabric filters used in baghouse: HemiPlea	t GSV Contridge a Vtroma Flores Datoudant
	Operating temperature:     Compared to the first discussion of the state of the sta	Ambient (~80) °F 160 °F  Normal Maximum °F
	If the maximum operating temperature exceeds the recommen County Air Pollution Control Bureau.	ded operating temperature, contact the Chattanooga-Hamilton
5	Baghouse Components: Check all that apply.	
		erature instrumentation
	Dew point indicator Differential pr	ressure instrumentation  Other (Describe)
	Heat Exchanger Transmissome	eter
7.	Baghouse Operation:  Continuous	Intermittent Page 1 of 3

8.	
٥.	Baghouse Description: Baghouse Inlet (dirty gas):  Bottom Feed Top Feed
	Exterior Filtration Tangential
	Other (Describe):
	Does the baghouse have a wear-resistant plate?
	Baghouse shape: Rectangular Cubical Cylindrical
	Other (Describe):
	Baghouse volume: Ft <sup>3</sup>
	Baghouse dimensions: Ft Ft Ft
	Length Width height Baghouse shell material:
8.	Bag Cleaning: (check one)  Fabric Flexing  Reverse Air Cleaning
	Mechanical Shaking & Rapping  Reverse Jet
	Sonic Cleaning Reverse Flow
	Collapse Cleaning Manual Cleaning
	Pulse (pressure) – Jet Cleaning
	77 - 12
9.	Filter Configuration: Panels Multiple Tube Bag
	Circular Cross-Section Tube Other (Describe):
	Filter Fabric:  Woven Number of Compartments: 2
	Filter Area: 5,970 Ft <sup>2</sup> Number of Filters per Compartment: 8
10.	Particle Size Distribution in Microns (μ):  Particle Type(s): Moisture in gas stream: %
	Size 0-5μ 5-10μ 10-20μ 20-44μ Greater than 44μ
	% by weight
11.	Dust Disposal:
	Automatic (screw conveyor, etc.) Manual (Describe):
	How often are hoppers emptied? Every N/A hours Two (2) 55-gal drums every week
	Name of commercial disposal company (if applicable): N/A
	Is disposed material wetted for transport? Yes No
	Disposal Site: Gerdau
- 1	Page 2 of 3

Control Efficiences										
Control Efficiency: Manufacturer's State	ed Efficienc	ey:	99.0			%				
Required Efficiency	<i>'</i> :		N/A			%				
Operational Efficiency (performance testing): N/A %										
Size % by weight	0-5μ	5-10μ	10-20μ	20-44μ	Greater than	ι 44μ				
76 by weight										
Fan Data: Fan Location: Clean air side (pull through) Dirty air side (push through)										
Fan Design (check one – A, B, or C):										
Fan Type:		Blade	Туре:							
A. Centrifuga	l (radial flo	w) 🔳 For	ward Curve	Backward	Curve	Straight				
B. Axial-flow	(propeller)	Pro	peller	Tube Axia	al	Vane Axial				
Fan Properties:										
Speed: Volume: Static Pressure:	Volume: Cfm @ STP Outlet Area: Static Pressure: Inches WC Motor Horsepower:									
Standard  Special Construction		Heavy Duty	Submitted co Multirating	opy of Manufacturer's Tables	s Yes	No				
Bronze Allo	ys	Alumin	num [	■ Stainless Stee	el 🗌	Bisonite				
Zinc Chrom	ate Primer	Rubber	r, Phenolics, V	inyls, or Epoxy (	Covering					
C. Compresso		Positive Displa	_	Dynamic [	Reciproce	•				
This is to certify that I am fan application is true and compl	niliar with the o ete to the best o	operations concern of my knowledge.	ning this equipment This form must b	nt and that the inform te completely filled ou	ation provided or at before it will be	this processed.				
Mail to: CHATTANOOGA-HAMILT	ON	Company Of	ficial:	GAJZIETO Signal		471				
COUNTY AIR POLLUTION CONTROL BUREAU 6125 Preservation Drive Chattanooga, TN 37416			Title:	G2AL	M62					
Chattanooga, 117 37410			Date:	5/31/	12023					
Dall		Do not writ	te below this line.							
Engineer Approval	Permit Nur	mber: 602°	9-30900	1198-04	I					
Special Notations:										

## POLLUTION ESTIMATION FORM

FORM E106 01/2001

1.	Name of Company: Roadtec, Inc. (Riverside)											
	As shown on Line 1 of Form E001											
2.	Equipment Name: Messer 7223 (Messer Plasma-D	rill)										
	As shown on Line 9 of Form E001											
3.	Type of pollutant for which estimate is made: Pa	articulate (metal dust)	:									
4 1												
4.	Pollution Emission Factor (PEF):											
- 1	` · · · ·	(Give value & units in lbs/ton, lbs/lb,	lbs/gal, gr/ft³, etc.)									
- 1	Source of Emission Factor:											
Į												
- I												
5.	Uncontrolled Pollution Emission Rate:											
	Oncommoned I officion Emission Rate.											
	X	(=)										
		perating rate for this equipment	(Give value & units)									
		appropriate units in either ons/hr, gal/hr, or cfm)	,									
	tos/m, te	ms/m, gai/m, or cfm)										
- 100												
6.	N											
	Uncontrolled Emission Rate:	see attached calculation	Pounds emitted per hour									
Į												
	This is to certify that I am familiar with the operations conce correct to the best of my knowledge. This form must be compl	erning this equipment and that the information that the information that the information of the third that the information of the third that	on provided on this application is true and									
2	Mail to:	Company Official:	GABRIEL ANAYA									
	CHATTANOOGA-HAMILTON COUNTY	Company Official: _	CHSULL HOP 113									
	AIR POLLUTION CONTROL BUREAU											
	6125 Preservation Drive											
	Chattanooga, TN 37416	Title:	GRAL MGZ									
Į			5/31/2023									
			=1-1/22									
		Date: _	3/51/2025									
			ares									
			RECEIVED CHATT / HAMILTON CO.									
	DO NO	T WRITE BELOW THIS LINE	GHATTY THAT DETON CO.									
	lan	William Below Hills Ellive	MAY <b>3 1</b> 2023									
_/	Engineer Approval		MULI OF A. EVEV									
V		Y TORANIOR ANT	AIR POLLUTION									
CENT :	6 6/1/9	-50700148-041	CONTROL BUREAU									
This	s form corresponds to permit number:	this form corresponds to permit number: 6029-30900198-041 CONTROL BUREAU										
	•											
	cial Notations:											

Roadtec, Inc. 2909 Riverside Drive Chattanooga, TN 37406

Messer 7223 Emissions

Operating Estimates <sup>(1)</sup>			Assumptions:	24740000	
Thickness (Average) Kerf Width Cutting Speed	1 0.147 360	in in in/hr	Time Cutting <sup>(2)</sup> Cutting Time	<del>7,3</del> 00- 50- 60	hr min/hr
Cut Length	1,261,440	in	Unit Conversions:		
Volume	185,740	in <sup>3</sup>	lb/gram	0.002	
Mass Control Efficiency	52,007 99.00%	lbs	cm/in	2.54	

#### **Process Emissions**

0.05	Emission of Fumes <sup>(3)</sup> (lb particulate/lb mild steel removed)	Oxygen Plasma Reduction <sup>(4)</sup> (%)	Mild Steel Density (g/cm³)	Thickness (in)	Kerf Width (in)	Cutting Speed (in/min)	Cutting Time (min/hr)	Control Efficiency	
0.03   25%   7.85   1   0.147   6   50   00.00	0.05	25%	7.85	4					1

## Example Calculations/Note:

- 1. Operating estimates are from Kumar Vemuri.
- 2. 7,300 hours is based on 20 hours/day and 365 days/year.
- 3a. Emission of fumes was obtained from "Emission of Fume, Nitrogen Oxides, and Noise in Plasma Cutting of Stainless and Mild Steel" by Broman B. et al, M 3b. This particular number is for mild steel and is based on a thickness of 8mm and a cutting speed of 3.5 m/min.
- 4. Using oxygen as the plasma gas reduces emissions by 25%.
- 5. Uncontrolled Emission Rate = Emission of Fumes \* (1 % Reduction) \* Density \* Thickness \*Kerf Width \*Cutting Speed \* Cutting Time \* (1 lb / 453.59237 &
- 6. Estimated Emissions = (1 Control Efficiency) \* Uncontrolled Emission Rate
- 7. Annual Emissions (tpy) = Emissions (lb/hr) \* 7,300 (hr/yr) / 2,000 (lb/ton)

RECEIVED CHATT / HAMILTON CO.

60

0.563 lb/hr uncontrolled

1 in. · 0. 147 in. · 360 in. · 7.85 on · 0.05 16 · 0.75 · 1 16 453,597379 · (2.54 cm) = 0.562803 16/hr 0.005628 16/hr controlled before control

MAY 3 1 2023

AIR POLLUTION

## PROCESS EQUIPMENT APPLICATION

FORM E010 07/2000

Name of Company (a	s shown on Li	ne 1, Form E001):	Road	tec, Inc. (Riverside)		
<b>Equipment Name</b> (as	shown on Line	e 10, Form E001):	Mess	er 7224 (Messer Pla	sma-Di	rill)
Installation Date: May	2023	4. <i>Type</i> o	of Proc	ess: Exhausts outsi	de thro	ugh dust collector
Major Raw Materials	Used: Various	types of carbon stee	el (i.e., <u>j</u>	plate steel)		e
Process Weight: 14:8	-11-0			Do	ında n	or hour
Thi	s is the total weig	ht of all materials intro	duced int		inus p	er hour
Control Equipment						
Emissions Uncon	trolled	[	<b>√</b> Bag	house (File Form I	E102)	
☐ Wet Collecting De	evice (File Form	m E103)	Iner	tial Separators (Fil	e Forn	n E105)
Electrostatic Prec	ipitator (File F	orm E104) [	Othe	er – Specify:		
Control Efficiency						
Enter the control efficiency f zeros if the emissions are u			ent (for a	appropriate Forms E102	2, E103,	E104, E105, E107, or enter RECEIVED
	Dall	utont Î	0/	Efficiency.	CHA	TT / HAMILTON CO.
	Particulates	utant	70	Efficiency 99.0%		
	SO <sub>x</sub>					MAY <b>3</b> 1 2023
	NO <sub>x</sub>		N/A N/A			
	CO			N/A		AIR POLLUTION
	Hydrocarbon	· ·		N/A	S CC	ONTROL BUREAU
Other:		/A		N/A		
Emissions	1					
Summary						
Enter the amount of each po	ollutant listed in po	ounds per hour.				
Polluta		Uncontrolled Emis (File Form E10		Actual Emissions (Stack Test Report)		Estimated Emissions (See Formula A)
Total Suspended		0.47 lb/hr		N/A		0.005 lb/hr
PM10		0.47 lb/hr		N/A		0.005 lb/hr
Sulfur Ox		N/A		N/A	OR	N/A
Nitrogen Oxides (as NO <sub>2</sub> )		N/A		N/A		N/A
Other (sp	ecify)	N/A		N/A		N/A
Formula A:		,	(100% -	Control Efficiency (%	6))	X Uncontrolled Emissions

0,	Environmental Impact
	Those emissions indicated in Item 9 may at times under normal operating conditions cause (check all that apply):
	Odors Eye Irritations Property Damage Health Effects
	Other nuisances outside of plant property  No environmental damage
1.	Emission Point Data
	Stack Height (emission point) above ground:  Ground Elevation above sea level at stack base:  Stack Diameter:  14  Ft. Volume of gas discharged into atmosphere:  670  Ft. Gas exit temperature:  1.0 x 1.5  Ft. Gas exit temperature:  75  Ambient
2.	Ave. Operating Time
	Daily: 20 hours Weekly: 7 Days Yearly: 52 Weeks
,	This is to certify that I am familiar with the operations concerning this equipment and that the information provided on this application is true and complete to the best of my knowledge.  GASZIEL ANAYA  Company Official  Installation Permit No. 6029-30900198-05I
	5/31/2023
	Date

CHATTANOOGA-HAMILTON COUNTY AIR POLLUTION CONTROL BUREAU 6125 Preservation Drive, Suite 140 Chattanooga, TN 37416-3740

# AIR POLLUTION CONTROL EQUIPMENT DATA - BAGHOUSE

FORM E102 01/2001

1.	Name of Company: Roadtec, Inc. (Riverside)  As shown on Line 1 of Form E001		_
2,	Name of Equipment: Messer 7224 (Messer Plasma-D  As shown on Line 9 of Form E001	Orill)	
3.	Equipment Data:  Manufacturer of Baghouse: Camfil APC	=	
	Model Number: GSX16	Cost of Baghouse:	_
	Date of Manufacture: December 2022	Date of Installation: May 2023	_
	Pre-cleaning Equipment No Yes  If yes,	, what type (File appropriate form for control equipment)	
	Volume of gas discharged from baghouse at dry standa	ard conditions: 4,000 dscfr	m
	Total cloth area of baghouse: 5,970 f	ft <sup>2</sup>	
	Air to cloth ratio: 0.67 Ft Min (Divide ve	volume of gas discharged by total cloth area)  RECEIVED  CHATT / HAMILTO	ON CO
4.	Pressure Drop Across Baghouse:	Inches of H <sub>2</sub> O MAY <b>3 1</b> 200	23
	Stated by manufacturer:	AIR POLITIC	
		CONTROL BUR	EAU
	Calculated: X Air to cloth ratio in ft/m	$= \underline{\qquad} Inches of H2O$	
	The recommended pressure drop range in inches of	f H <sub>2</sub> O is 1.5 (minimum) to 8.0 (maximum).	
	If the measured or calculated pressure drop falls outside the reco County Air Pollution Control Bureau.	commended range, contact the Chattanooga-Hamilton	
5.	Filter Data:		
	Type of fabric filters used in baghouse: HemiPleat (		<b>-</b> ₹
	Operating temperature: <160 °F A  Manufacturer's Recommended	Ambient (~80) °F 160 °F  Normal Maximum °F	
	If the maximum operating temperature exceeds the recommended County Air Pollution Control Bureau,	ed operating temperature, contact the Chattanooga-Hamilton	
6.	Baghouse Components:  Check all that apply.		
	1 1	rature instrumentation Evaporative Cooler	
	Dew point indicator Differential pres	ssure instrumentation Other (Describe)	
	Heat Exchanger Transmissomete	er	
7.	Baghouse Operation:		
	Continuous	Intermittent Page 1	1 of 3

8.	Baghouse Description:
	Baghouse Inlet (dirty gas):  Bottom Feed  Top Feed
	Exterior Filtration Tangential
	Other (Describe):
	Does the baghouse have a wear-resistant plate?
	Baghouse shape: Rectangular Cubical Cylindrical
	Other (Describe):
	Baghouse volume: Ft <sup>3</sup>
	Baghouse dimensions: Ft Ft Ft
	Length Width height Baghouse shell material:
8.	Bag Cleaning: (check one) Fabric Flexing Reverse Air Cleaning
	Mechanical Shaking & Rapping  Reverse Jet
	Sonic Cleaning Reverse Flow
	Collapse Cleaning Manual Cleaning
	Pulse (pressure) – Jet Cleaning
9.	Filter Configuration:  Panels  Multiple Tube Bag
	Circular Cross-Section Tube Other (Describe):
	Filter Fabric: Felted Woven Number of Compartments: 2
	Filter Area: 5,970 Ft <sup>2</sup> Number of Filters per Compartment: 8
	Than of There per compartment.
10.	Particle Size Distribution in Microns (μ):  Particle Type(s):  Moisture in gas stream:
	Size 0.5 5.10 1.10 1.10 1.10 1.10 1.10 1.10
	Size   0-5μ   5-10μ   10-20μ   20-44μ   Greater than 44μ
11.	Dust Disposal:
	Automatic (screw conveyor, etc.) Manual (Describe):
	How often are hoppers emptied? Every N/A hours Two (2) 55-gal drums every week
	Name of commercial disposal company (if applicable): N/A
	Is disposed material wetted for transport? Yes No
	Disposal Site: Gerdau
	Page 2 of 3

10	~									
12.	Control Efficiency: Manufacturer's S	tated Efficience	ey:	99.0			%			
	Required Efficier	ncy:		N/A	E		%			
	Operational Effic	iency (perforn	nance testing):	N/A			0/0			
	Size % by weight	0-5μ	5-10μ	10-20μ	20-44μ	Greater than	1 44μ			
13.	3. Fan Data: Fan Location: Clean air side (pull through)  Fan Design (check one – A, B, or C):									
	Fan Type:	,	Blade	Type:						
	A. Centrifu	gal (radial flo	2	ward Curve	Backward	Curve	Straight			
	B. Axial-flo	ow (propeller)	Pro	peller	Tube Axia	al 🔲	Vane Axial			
	B. Axial-flow (propeller) Propeller Tube Axial Vane Axial  Fan Properties:  Diameter: Inches Braking Horsepower: BHP Speed: RPM Inlet Area: Ft² Volume: Cfm @ STP Outlet Area: Ft² Static Pressure: Inches WC Motor Horsepower: HP  Standard Heavy Duty Submitted copy of Manufacturer's Yes No Multirating Tables  Special Construction Materials:  Bronze Alloys Aluminum Stainless Steel Bisonite  Zinc Chromate Primer Rubber, Phenolics, Vinyls, or Epoxy Covering  C. Compressor Positive Displacement Dynamic Reciprocating  This is to certify that I am familiar with the operations concerning this equipment and that the information provided on this application is true and complete to the best of my knowledge. This form must be completely filled out before it will be processed.									
	Mail to: CHATTANOOGA-HAMI COUNTY AIR POLLUTI CONTROL BUREAU 6125 Preservation Drive Chattanooga, TN 37416		Company Of	fficial:  Title:  Date:  te below this line.	GZAL		4A 023			
	Marineer Approv	al Permit Nu	in the second	LONG CO.	0198-05	I				
7	Special Notations:									

## **POLLUTION ESTIMATION FORM**

FORM E106 01/2001

1.	Name of Company:	Roadtec, Inc. (Riverside	:)								
	, , , , , , , , , , , , , , , , , , ,	As shown on Line 1 of Form									
2.	Equipment Name:	Messer 7224 (Messer Pl	asma-Dr	iii)							
	1 1	As shown on Line 9 of Forn		,							
3.	Type of pollutant for which estimate is made: Particulate (metal dust)										
	<b>71</b> P · · · · · · · · · · · · · · · · · ·										
4.											
	Pollution Emission I	Factor (PEF):		70.							
				(Give value & units in lbs/ton, lbs/l	b, lbs/gal, gr/ft³, etc.)						
	0 00 1	E 4									
	Source of Emission	Factor:									
2.3											
5.	Uncontrolled Polluti	ion Emission Date.									
	Oncontrolled Polluti	ion Emission Rate:			4)						
		X		S=0							
	(PEF	from Item 4)	(Give one	erating rate for this equipment	(Give value & uni	40)					
	(, 2,	*		ppropriate units in either	(Give value & uni	is)					
			lbs/hr, to	ns/hr, gal/hr, or cfm)							
. 1											
6.			Please s	ee attached calculation	. 9						
	Uncontrolled Emissi	ion Rate:		=	Pounds emitted pe	er hour					
Į				25							
	This is to coutify that I										
	correct to the hest of my k	m jamiliar wiin ine operatio knowledge <b>This form must i</b>	ons concer he comple	rning this equipment and that the informate tely filled out before it is processed,	tion provided on this application	is true and					
		and form man	e compile	city fined out octore is as processed.							
ſ			*								
	Mail to:			Company Official:	GASZIEL	ANAYA					
	CHATTANOOGA-I	HAMILTON COUNTY	Y			•					
	AIR POLLUTION O	CONTROL BUREAU									
	6125 Preservation D	rive									
	Chattanooga, TN 37	416		Title:	GIAL MO	>2					
Į					GRAL MG						
				Date:	506364502	023					
					CHATT / HAMILTON	CO.					
					MAY <b>3 1 2</b> 023	â					
			<u>00 NOT</u>	WRITE BELOW THIS LINE	WALOTEOF	<i>?</i>					
	M7 -				AIR POLLUTION						
-//	Engineer .	Approval			CONTROL BUREA						
<i>V</i>		11	120	TAGNAIGO ACT							
This	s form corresponds to	permit number: 00	11-	30900198-05-I							
0	.'-1NT-4-4'										
Spe	cial Notations:										

Roadtec, Inc. 2909 Riverside Drive Chattanooga, TN 37406

#### Messer 7224 Emissions

Operating Estimates <sup>(1)</sup>			Assumptions:	8760	
Thickness (Average)	1	in	Time Cutting <sup>(2)</sup>	8,760 <del>7,300</del>	hr g
Kerf Width	0.147	in	<b>Cutting Time</b>	<del>50</del>	min/hr
Cutting Speed	360	in/hr	200	60	
Cut Length	1,261,440	in	<b>Unit Conversions:</b>		
Volume	185,740	in <sup>3</sup>	lb/gram	0.002	
Mass	52,007	lbs	cm/in	2.54	
Control Efficiency	99.00%				

#### **Process Emissions**

Emission of Fumes <sup>(3)</sup> (lb particulate/lb mild steel removed)	Oxygen Plasma Reduction <sup>(4)</sup> (%)	Mild Steel Density (g/cm³)	Thickness (in)	Kerf Width (in)	Cutting Speed (in/min)	Cutting Time (min/hr)	Control Efficiency	
0.05	25%	7.85	1	0.147	6	-50-	99.0%	

#### **Example Calculations/Note:**

1. Operating estimates are from Kumar Vemuri.

0,563 lb/hr uncontrolled

- 2. 7,300 hours is based on 20 hours/day and 365 days/year.
- 3a. Emission of fumes was obtained from "Emission of Fume, Nitrogen Oxides, and Noise in Plasma Cutting of Stainless and Mild Steel" by Broman B. et al, M
- 3b. This particular number is for mild steel and is based on a thickness of 8mm and a cutting speed of 3.5 m/min.
- 4. Using oxygen as the plasma gas reduces emissions by 25%.
- 5. Uncontrolled Emission Rate = Emission of Fumes \* (1 % Reduction) \* Density \* Thickness \*Kerf Width \*Cutting Speed \* Cutting Time \* (1 lb / 453.59237 g
- 6. Estimated Emissions = (1 Control Efficiency) \* Uncontrolled Emission Rate
- 7. Annual Emissions (tpy) = Emissions (lb/hr) \* 7,300 (hr/yr) / 2,000 (lb/ton)

 $lin. '0.147in. '360 \frac{in.}{hr} \cdot 7.85 \frac{9}{cm^3} \cdot 0.05 \frac{lh}{lh} \cdot 0.75$   $\frac{1 lh}{453,54237g} \cdot (2.54 \frac{cm}{in.})^3 = 0.562803 \ lh/hr$ before control  $0.005628 \ lh/hr \ control/ed$ 

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MAY 3 1 2023

AIR POLLUTION CONTROL BUREAU