Mississippi Department of Environmental Quality
Office of Pollution Control

I-sys 2000 Master Site Detail Report

Site Name: Hercules Inc

PHYSICAL ADDRESS

LINE 1:	613 West 7th Street
LINE 2:	
LINE 3:	
MUNICIPALITY:	Hattiesburg
STATE CODE:	MS
ZIP CODE:	39401-

MAILING ADDRESS

LINE 1:	613 West 7th Street
LINE 2:	
LINE 3:	
MUNICIPALITY:	Hattiesburg
STATE CODE:	MS
ZIP CODE:	39401-

OTHER INFORMATION

MASTER ID:	002022
COUNTY:	Forrest
REGION	SRO
SIC 1:	2822
AIR TYPE:	TITLE V
HW TYPE:	LARGE QUANTITY
SOLID TYPE:	
WATER TYPE:	INDUSTRIAL
BRANCH:	Chemical

ECED CONTACT:
Yassin, Mohammad

BASIN:

AIR PROGRAMS ☑ SIP ☐ PSD ☐ NSPS ☐ NESHAPS ☑ MACT

Mississippi Department of Environmental Quality
Office of Pollution Control

Pemits

PROGRAM	PERMIT TYPE	PERMIT #	MDEQ PERMIT CONTACT	ACTIVE
HAZ. WASTE	EPA ID	MSD008182081		NO
AIR	TITLE V	080000001	Ketchum, Brian	YES
AIR	SOP	080000001	Ketchum, Brian	NO
WATER	NPDES - MAJOR	MS0001830	Cook, Charles	NO
WATER	NPDES - MAJOR	MS0001830	Cook, Charles	NO
WATER	NPDES - MAJOR	MS0001830	Beasley, Jerry	YES
WATER	PRE-TREATMENT	MSP091286	Tomkins, Tracy	YES
GENERAL	SARA TITLE III	MSR110153	Lavallee, Louis	YES
AIR	TITLE V	0800-00001	Glenn, Montie	NO

Compliance Actions

MEDIA	ACTIVITY TYPE	SCHEDULED	COMPLETED	INSPECTED B
WATER	CEI - NA	3/17/99	3/17/99	Yassin, Mohammad
WATER	CMI - PRETREATMENT	11/1/99		Sharp, Loyd
WATER	CMI - NPDES	4/1/00		Sharp, Loyd
WATER	CMI - NPDES	11/1/99		Sharp, Loyd
WATER	CEI - NA	9/30/00		Yassin, Mohammad
HAZ WASTE	Compliance Evaluation Inspection	9/30/00		Yassin, Mohammad
AIR	State Compliance Inspection	9/30/00		Yassin, Mohammad
HAZ WASTE	Compliance Evaluation Inspection	6/30/99	6/30/99	Yassin, Mohammad
AIR	State Compliance Inspection	6/29/99	6/29/99	Yassin, Mohammad
WATER	CEI - NA	6/30/99	6/30/99	Yassin, Mohammad

HERCULES

Hercules Incorporated
West 7th Street
P.O. Box 1937
Hattiesburg, MS 39401
(601) 545-3450

May 31, 1989

CERTIFIED MAIL - RETURN RECEIPT REQUESTED
#P-814-346-106

Don Watts
Bureau of Pollution Control
P.O. Box 10385
Jackson, MS 39209

Dear Mr. Watts:

Re your August 31, 1988 letter regarding the replacement of two dowtherm boilers at the Poly-Pale Plant (031 and 032). Please find the attached application information. Replacement is scheduled for September 1989, and we will provide subsequent notification of the installation.

Very truly yours,

Charles Jordan
Environmental Supervisor

CSJ/dc
CJ1:7

cc: P. W. Kirkendall

STATE OF MISSISSIPPI
DEPARTMENT OF NATURAL RESOURCES
BUREAU OF POLLUTION CONTROL
P.O. BOX 10385
JACKSON, MISSISSIPPI 39209

For Agency Use
FACILITY NUMBER

Date Received
6 - 5 - 89
Month Day Year

APPLICATION FOR PERMIT TO CONSTRUCT AND/OR
OPERATE AIR EMISSIONS EQUIPMENT - GENERAL FORM

APPLICATION FOR: _____CONSTRUCTION _____PERMIT RENEWAL - PLEASE CHECK APPROPRIATE BOX

1. Name, Address, Location, and Telephone Number
   A. Name HERCULES INCORPORATED
   B. Mailing Address of Applicant
      1. Street Address or P.O. Box 1937
      2. City HATTIESBURG 3. State Ms
      4. Zip Code 39401 5. Telephone No. 601 545 3450
   C. Location of Facility
      1. Street WEST 7th STREET
      2. City HATTIESBURG 3. State Ms
      4. Zip Code 39401 5. Telephone No. 601 545 3450
   D. If the facility is located outside the City limits, please provide a sketch or description showing the approximate location and attach to this application.
2. SIC Code 2821
3. Number of Employees 462
4. Principal Product POLYMERIZED RESIN
5. Principal Raw Materials ROSIN
6. Principal Process DOWTHERM BOILER FOR PROCESS HEAT
7. Maximum amount of principal product produced or raw material consumed per day SEE FUEL BURNING EQUIPMENT
8. (A) Check here if operation which generates air pollutant emissions occurs all year ____, or specify the months the operation occurs: INTERMITTENT ~6 MONTHS/YR
   (B) Specify how many days per week the operation occurs: 7
   (C) Specify how many hours per day the operation occurs: 24
9. If this application is for existing facility permit renewal only, has the facility been modified in any way (including production rate, fuel, and/or raw material changes) during period covered by the Operating Permit ____Yes ____No or since 1972? ____Yes ____No
   If Yes, give year(s) in which modification(s) occurred. _____
10. ALL APPLICATIONS MUST BE SIGNED BY THE APPLICANT.

I certify that I am familiar with the information contained in the application and that to the best of my knowledge and belief such information is true, complete, and accurate, and that I am the owner or chief corporate officer, or his designated representative, responsible for complying with air pollution control laws and regulations.

P W KIRKENDALL
Printed Name of Person Signing

PLANT MANAGER
Title

6-1-89
Date Application Signed

Preston Kirkendall
Signature of Applicant

PLEASE COMPLETE FOLLOWING PAGES WHERE APPLICABLE

FOR ALL APPLICANTS, WHETHER NEW CONSTRUCTION, EXISTING FACILITY, OR RENEWAL

CONTROL EQUIPMENT COVERED UNDER THIS APPLICATION - PLEASE CHECK ALL APPLICABLE AND INDICATE NUMBER OF UNITS.

PARTICULATE EMISSIONS CONTROL EQUIPMENT

1. Cyclone(s) _____
2. Water Scrubber _____
3. Baghouse _____
4. Electrostatic Precipitator _____
5. Venturi Scrubber _____
6. Cyclonic Baghouse _____
7. Cyclonic Scrubber _____
8. Other _____

GASEOUS EMISSIONS CONTROL EQUIPMENT

1. Water Scrubber _____
2. Activated Carbon Bed _____
3. Other _____

WASTE DISPOSAL SYSTEMS

1. Solid Waste Incinerator _____
2. Liquid Waste Incinerator _____
3. Wood or Other Waste Fuel Recovery Boiler _____
4. Gaseous Waste Flare _____
5. Liquid Waste Flare _____
6. Other _____

Pneumatic Conveying System _____

Other (please describe)

FOR ALL APPLICANTS

FUEL BURNING EQUIPMENT
(Except for Refuse Disposal)

This form has 3 pages; each is a continuation of the equipment information from the page before. Please fill in as completely as possible, listing all fuel burning equipment. Reasons should be given explaining any data not filled in.

PAGE 1

1. Fill in company name and address, plus year for which data is given (if existing facility) at top of page. Use data for most recent calendar year available.
2. Reference Number. Use an identifying number for each boiler, furnace, kiln, etc., and use the same reference number on each of the three pages to identify information for the same unit.
3. Manufacturer and Model Number. Nameplate data for boiler, furnace, kiln, etc. Waste gas flares and stationary internal combustion engines should also be included on this form.
4. Rated Capacity in Millions of BTU per hour.
5. Type of Burner Unit. Use Codes (1*) at bottom of form. If not listed put (11) and specify.
6. Usage. Type of fuel burning equipment. Use codes (2*) at bottom of form. If not listed put (5) and specify.
7. Heat Usage. Percent of heat used for process and percent for space heating.

FUEL BURNING EQUIPMENT

(FOR AGENCY USE ONLY)

Reference Number	Stack Parameters				Fuel Type	Fuel Data				
	Stack Height Feet	Inside Exit Dia. Feet	Exit Gas Velocity Feet/Sec.	Exit Gas Temperature Degree F.		Maximum Amount Per Hour (Specify Units)	Amount Per Year (Specify Units)	Heat Content BTU/Gal, etc. (Specify Units)	Percent Sulfur	Percent Ash
1	31	1.5	15.5	840	NATURAL GAS	3,190 CU FT	4,584 MCF	1000 BTU/CU FT	NIL	NIL
					#2 FUEL OIL (TO BE USED ONLY DURING NATURAL GAS CURTAILMENT BY THE GAS COMPANY)	22.2 GALS	622 GALS	139,000 BTU/GAL	0.4	NIL

FUEL SUPPLIERS:

Fuel Type	Supplier
NATURAL GAS	WILMUT GAS CO

FUEL BURNING EQUIPMENT
(Except for Refuse Disposal)

1 FACILITY NAME	Address	for Agency use Only
Hercules	HERCULES INCORPORATED PO Box 1937 HATTIESBURG MS 39401	
FACILITY NUMBER	Information for Calender Year	Date
Replacing Emission points 031 & 032	1989	6/89

2 Reference Number	3 Manufacturer and Model Number	4 Rated Capacity 10^6BTU/hr	5 Type of Burner Unit (use code 1*)	6 Usage (use code 2*)	7 Most Usage % Process	7 Most Usage % Space heat
1	FIRST THERMAL SYSTEMS, INC. MODEL 200-3-HTE-PF-G-FM	3.2	7	2 (DOWTHERM)	100	

1* BURNER CODES

1. Cyclone furnace
2. Pulverized coal
3. Spreader Stoker
4. Hand fired
5. Other stoker (specify)
6. Multiple port gas
7. Forced draft gas
8. Atomizing Oil (Stove of Air)
9. Atomizing Oil (Mechanical)
10. Rotary Cup Oil
11. Others (specify)

2* USAGE CODES

1. Boiler, Steam
2. Boiler, Other (specify)
3. Air Heating for Space Heating
4. Air Heating for Process Usage
5. Others (specify)

FUEL BURNING EQUIPMENT

(FOR AGENCY USE ONLY)

11	12				13			
Reference Number	Air Pollution Control Equipment				Emissions (Tons/Year)			Basis of Estimate
	Manufacturer and Model Number	Type* (Use Table 1)	Efficiency		Particulate	So_2	Other (specify)	
			Design	Actual				
1	none.							

*For Wet Scrubber give
Gallons per minute Water
Flow and Water Pressure if known.

MANUFACTURING PROCESS OPERATIONS

Company Name	Address	FOR AGENCY USE

FACILITY NUMBER	Information for Calendar Year	Date
	19____	

Reference Number	Process or Unit Operation Name	Rated Process Capacity Tons/Hour	Feed Input		Number of Emission Points To Air	Product Output*	
			Quantity Per Hour	Quantity Per Year		Quantity Per Hour	Quantity Per Year

*Specify Units of Measure Used

(FOR AGENCY USE ONLY)

MANUFACTURING PROCESS OPERATIONS

Reference Number	Stack Data				Air Pollution Control Equipment			
	Height Feet	Inside Unit Dia. Feet	Exit Gas Velocity Feet/Sec.	Exit Gas Temperature °F	Manufacturer and Model Number	Type* (use Table 1)	Collection Efficiency	
							Design	Actual

*For Wet Scrubbers Give Gallons per minute Water Flow and Water Pressure if known.

PAGE 3

MANUFACTURING PROCESS OPERATIONS

(FOR AGENCY USE ONLY)

11 12

Reference Number	Process Emissions*			Basis for Estimation	(Agency Comments Only)
	Particulates	Sulfur Oxides	Others (Specify by chemical composition)		
/					

*Please Express Emissions as Tons per Year and Pounds per Hour and Identify Units Being Used.

REFUSE DISPOSAL AND INCINERATION

A

Company Name	Information for Year	(Agency Use Only)
Address	**Date**	

B — Description of Waste Materials

Type (Describe)	C Maximum Amount Per Day (Pounds)	D Amount Per Year (Tons)	E Method of Disposal 1*

If Waste Disposal is by Incineration, Specify the Following:

1. Type of Incinerator:
   - single chamber ☐
   - multiple Chamber ☐
   - Modified (describe) ☐
   - Other (describe) ☐
   - Rotary ☐
   - Flue Fed ☐

_____

_____

_____

2. Manufacturer's Name: _____
   Model Number _____
   Rated Capacity _____ Pounds / Hour _____ Type Waste
3. Quantity Burned: _____ Pounds / Day
   _____ Tons / Year
4. Operating Schedule _____ Hours / Day
   _____ Days / Year

_____

_____

*1 Disposal Method Codes

1. Open Burning
2. Landfill (No Burning)
3. Incinerator (Complete rest of Form)
4. Conical Burner (Teepee)
5. Burned in Boiler or Furnance
6. Other (Specify)

(AGENCY USE ONLY)

5. Auxiliary Fuel:
   - Type _____
   - Amount/Year (Specify Units) _____
   - Heat Content _____
   - Percent Sulfur _____
   - Percent Ash _____
   - Supplier's Name _____

6. Pollution Control Equipment:
   - Manufacturer _____
   - Model Number _____
   - % Efficiency _____
   - Type _____
   - GPM Water Flow (If Wet Scrubber) _____

7. Stack Data:
   - Height _____ Feet
   - Inside Exit Diameter _____ Feet
   - Exit Gas Velocity _____ Feet/Sec.
   - Exit Gas Volume _____ SCFM
   - Exit Gas Temp. _____ $^{o}F.$

8. Estimated Emissions From Refuse Incineration:

Name:			Basis of Estimates:
Particulates	_____	Tons/Year	_____
Sulfur Oxides	_____	"	_____

ADDITIONAL INFORMATION

1. Two copies of construction site plot plan.
2. Two copies of detailed equipment drawings.
3. Two copies of a detailed explanation of the process and control equipment.
4. Two copies of a flow diagram of the of the process or operation showing control devices.

SIGNATURES: If for construction, the application must be submitted in duplicate and both copies should also be signed and stamped by an engineer registered in the State of Mississippi. If application is for Existing Facility or Renewal of Permit to Operate, registered engineer's signature not required. All signatures and stamps must be originals on all copies, not photocopies.

TYPED NAME & MISSISSIPPI REGISTRATION NUMBER

SIGNATURE OF ENGINEER REGISTERED IN MISSISSIPPI

Seal of Engineer
Registered in Mississippi

MISSION INVENTORY FORM

Page ___ of ___

NAME: Hercules Incorporated ADDRESS: West 7th Street Hattiesburg MS 39401

EMS NO. 1110-08010-0010011 PLANT TYPE:

MAJOR (X) MINOR ( )

	Source/ Reference
Emission Point Description: Poly-Pale Plant	
Emission Point No.: 037	
Emission Data:	
Stack Height: 31 Feet	June 5, 1989 application for replacement of two Dowtherm boilers by single boiler
Exit Gas Temperature: 840 °F	
Inside Exit Diameter: 1.5 Ft	
Exit Velocity: 15.5 Ft/sec	
Volumetric Flowrate: 53,167 cfm	

Emission Rates:		lb/hr	tons/yr	Date	
Current Allowable	PM				
	SO_2				
	NO_x				
	CO				
	HC				
	OTHER				
Current Actual (Natural Gas)	PM	.0159	.0696	June 1989	AP-42
	SO_2	.0019	.0083	"	"
	NO_x	.319	1.397	"	"
	CO	.064	.2803	"	"
	HC	.0255	.112	"	"
	OTHER				

Applicable Baseline Emission Rate		Act.	All.	Act.	All.		
	PM						
	SO_2						
	NO_x						
	CO						
	HC						
	OTHER						

UTM ZONE: 16 AQCR:

UTM NORTH: 3469.2 LATITUDE :

UTM EAST: 280.6 LONGITUDE:

OPERATING SCHEDULE: 24 Hours/Day 7 Days/Week 52 Weeks/Year 8760 Hours/Year

PSD Review Subject: NO NSPS: No NESHAPS: No

SCC CODE: SIC CODE: 2821

COMMENTS: Emission inventory form completed for natural gas and #2 fuel oil

MISSION INVENTORY FORM

Page ___ of ___

NAME: Hercules Inc. ADDRESS: West 7th Street Hattiesburg Ms 39401

EMS NO. 1/1/0-0/8/0/0-0/0/0/0/1 PLANT TYPE:

MAJOR (X) MINOR ( )

	Source/ Reference
Emission Point Description	
Emission Point No. 037	
Emission Data:	
Stack Height: 31 ft	June 5, 1989 application
Exit Gas Temperature: 840° F	For replacement of two
Exit Diameter: 1.5 ft (inside)	Dowtherm boilers by a
Exit Velocity: 15.5 Ft/sec	Siggle Dowtherm boiler
Volumetric Flowrate: .37 gpm	

Emission Rates:		lb/hr		tons/yr		Date	
Current Allowable	PM						
	SO_2						
	NO_x						
	CO						
	HC						
	OTHER						
Current Actual	PM	.0444		.1945		June 1989	AP-42
	SO_2	1.261		5.52		" "	"
#2 Fuel Oil	NO_x	.444		1.945		" "	"
	CO	.111		.4862		" "	"
	HC	.0123		.0539		" "	"
	OTHER SO_2	.0178		.078		" "	"
Applicable Baseline Emission Rate		Act.	All.	Act.	All.		
	PM						
	SO_2						
	NO_x						
	CO						
	HC						
	OTHER						

UTM ZONE: 16 AQCR:

UTM NORTH: 3469.2 LATITUDE :

UTM EAST: 280.6 LONGITUDE:

OPERATING SCHEDULE: 24 Hours/Day 7 Days/Week 52 Weeks/Year 8760 Hours/Year

PSD Review Subject: NO NSPS: NO NESHAPS: NO

SCC CODE: SIC CODE: 2821

COMMENTS: Emission inventory form completed for natural gas and #2 fuel oil

FILE COPY

Forest

June 16, 1989

Mr. Charles Jordan
Environmental Supervisor
Hercules Incorporated
P. O. Box 1937
Hattiesburg, Mississippi 39401

Dear Mr. Jordan:

Re: Facility No. 0800-00001
Hattiesburg, Mississippi

We have received your application regarding the new dowtherm boiler (new emission point no. 037) at the Poly-pale plant. We reviewed the application and no construction permit is needed. Please notify us when the new boiler is installed and the old boilers are removed.

If you have any questions, please contact us.

Very truly yours,

C. Adam Smith
South Air Emissions Section

CAS:eb

DATA CODED

Forest

INSPECTION REPORT FORM - GENERAL

Facility Name: Hercules Incorporated Date: May 22, 1986

Address: West 7th Street
Hattiesburg, Mississippi

Inspected By: Don Watts

Person Contacted: Charles Jordan

Facility Number: 110-0800-00001

Is Facility Major or Minor: Major

Purpose of Inspection:

(X) Compliance Verification
(X) Performance Evaluation
( ) Complaint Investigation
( ) Surveillance
( ) Other, Explain

( ) O&M
( ) VEE
( ) Annual
( ) Follow-Up

Current Permit Status: PTO expires October 1, 1986; PEP expires June 5, 1986 (Emission Point 037)

Source Description:

Applicable Regulations:

(X) SIP
( ) PSD
( ) NSPS
( ) NESHAPS

Cite regulation by description or regulatory section number: APC-S-1, Fuel Burning

State any permit conditions not being complied with and describe noncompliance:

None

Comments:

The PTO will be modified to include the new emission point and its associated additional conditions.

INSPECTION REPORT FORM - BOILERS

Facility Name: Hercules Incorporated Date: May 22, 1986

Emission Point No./Name: 011/#5 Boiler

Rated Boiler Size: 156 MMBTUH
OR
__ lbs steam/hr @ __ psig

Operating Rate @ Insp: __ MMBTUH
OR
43,600 lbs steam/hr @ __ psig

Fuel(s) Being Used:
(X) Natural Gas @ __ MCFH
() Fuel Oil, No. __ @ __ Gal/hr
() Coal @ __ tons/hr; __ type; __% ash; __% sulfur
() Woodwaste: () Sawdust @ __ tons/hr
() Shavings @ __ tons/hr
() Hogged Fuel @ __ tons/hr
() Bark @ __ tons/hr
() Other Fuels, Explain:

For Solid Fuels, Describe Fuel Stoking Method:

Soot Blowing: () Periodic () Manual
() Continuous () Automatic
Schedule:

Air Pollution Controls: (X) None
( ) Cyclone ( ) Baghouse
( ) Multiclone ( ) ESP
( ) Scrubber (For Particulate)
Complete Appropriate Control Device Sheets

Stack Emissions: Opacity 0 % By () VEE () CEM
Sulfur Dioxide __ lbs/MMBTU by CEM
Nitrogen Oxides __ lbs/MMBTU by CEM

INSPECTION REPORT FORM - BOILERS

Facility Name: Hercules Incorporated Date: May 22, 1986

Emission Point No./Name: 037/#6 Boiler

Rated Boiler Size: 65 MMBTUH
OR
__ lbs steam/hr @ __ psig

Operating Rate @ Insp: __ MMBTUH
OR
21,100 lbs steam/hr @ __ psig

Fuel(s) Being Used:
(X) Natural Gas @ __ MCFH
() Fuel Oil, No. __ @ __ Gal/hr
() Coal @ __ tons/hr; __ type; __% ash; __% sulfur
() Woodwaste: () Sawdust @ __ tons/hr
() Shavings @ __ tons/hr
() Hogged Fuel @ __ tons/hr
() Bark @ __ tons/hr

() Other Fuels, Explain:

For Solid Fuels, Describe Fuel Stoking Method:

Soot Blowing: () Periodic () Manual
() Continuous () Automatic

Schedule:

Air Pollution Controls: (X) None ( ) Baghouse
( ) Cyclone ( ) ESP
( ) Multiclone
( ) Scrubber (For Particulate)
Complete Appropriate Control Device Sheets

Stack Emissions: Opacity 0 % By (X) VEE () CEM
Sulfur Dioxide __ lbs/MMBTU by CEM
Nitrogen Oxides __ lbs/MMBTU by CEM

Mississippi Department of Natural Resources
Bureau of Pollution Control
Visible Emissions Evaluation Record

Plant Name: Hercules Inc.
Address: West 7th Street
City: Hattiesburg
Emission Point: 037 (New Gas Boiler)
Date: 5/22/86
Is emission point operation normal ? Yes

V. E. Observer: Don Watts
Certification Expiration: 10/86

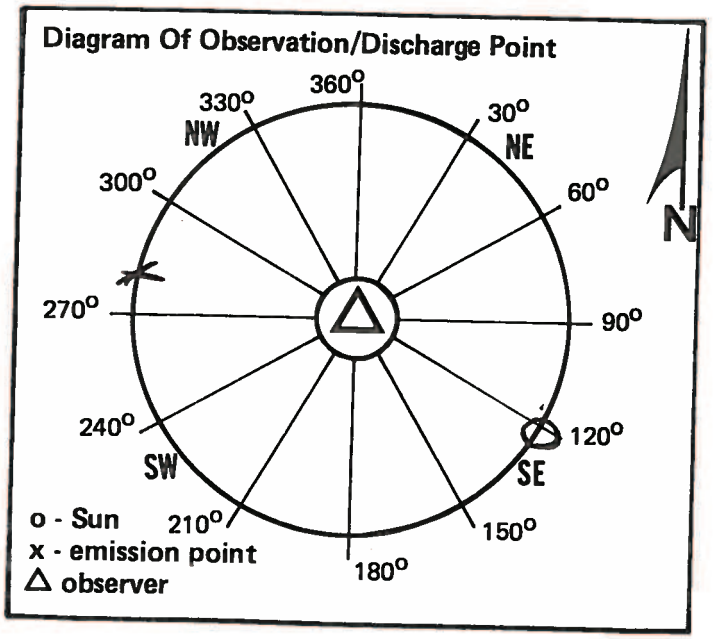
Set No.	Time		Opacity	
	Start	End	Sum	Average
1	9:52	9:58	0	0

Overall Average:

	Initial	Final
Distance to discharge	100 ft	
Direction to discharge	W	
Height of observation point	0 ft	
Height of discharge	65 ft	
Plume color	—	
Plume background	SKY	
Water vapor in plume ?	NO	
Wind direction (from)		
Wind speed	CALM	
Ambient temperature	70°F	
Discharge temperature		
Sky conditions	Clear	

Min.	Seconds 0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
0				
1				
2				
3				
4				
5				
0				
1				
2				
3				
4				
5				

Diagram Of Observation/Discharge Point



Remarks:

Received By: C S Jordan

FILE COPY

February 5, 1986

Mr. G. R. Yandle
Hercules, Incorporated
P.O. Box 1937
Hattiesburg, Ms. 39401

Dear Mr. Yandle:

Re: Performance Evaluation
Permit No. 0800-00001
Hattiesburg, Mississippi

Enclosed please find Performance Evaluation Permit No. 0800-00001 for the operation of the air emission equipment associated with the above referenced facility during startup of the facility. This permit expires on June 5, 1986.

If you desire that a Permit Board hearing be held regarding this permit, you should make written application to the Permit Board within thirty (30) days after receipt of this notice; otherwise, the terms, conditions and limitations in the permit shall become final.

If you have any questions or if we can be of service, please let me know.

Very truly yours,

Don Watts
South Air Emissions Section

DW:sr
Enclosure

State of Mississippi
Air Pollution Control
PERMIT

TO OPERATE AIR EMISSIONS EQUIPMENT
FOR THE PURPOSE OF PERFORMANCE EVALUATION

THIS CERTIFIES THAT

Hercules, Incorporated
West 7th Street
Hattiesburg, Mississippi

has been granted permission to operate air emissions equipment in accordance with emission limitations, monitoring requirements and other conditions set forth herein. This permit is issued in accordance with the provisions of the Mississippi Air and Water Pollution Control Law (Section 49-17-1 et. seq., Mississippi Code of 1972), and the regulations and standards adopted and promulgated thereunder.

Issued this 5th day of February, 19 86

MISSISSIPPI NATURAL RESOURCES PERMIT BOARD

_____

DIRECTOR, BUREAU OF POLLUTION CONTROL
MISSISSIPPI DEPARTMENT OF NATURAL RESOURCES

Expires 5th day of June, 19 86

Permit No. 0800-00001

Emission Point 037

PART I
GENERAL CONDITIONS

1. All emissions authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any air pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit. Any anticipated facility expansions or modifications which will result in new, different, or increased emission of air pollutants must be reported by submission of a new application.

2. The permittee shall at all times maintain in good working order and operate as efficiently as possible all air pollution control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit.

3. Solids removed in the course of control of air emissions shall be disposed of in a manner such as to prevent the solids from becoming windborne and to prevent the materials from entering state waters.

4. Any diversion from or bypass of collection and control facilities is prohibited except (i) where unavoidable to prevent loss of life or severe property damage or (ii) when approved by the Mississippi Natural Resources Permit Board.

5. Whenever any emergency, accidental or excessive discharge of air contaminants occurs, the office of the Mississippi Department of Natural Resources Bureau of Pollution Control shall be notified immediately of all information concerning cause of the discharge, point of discharge, volume and characteristics, and whether discharge is continuing or stopped.

6. Should the Executive Director of the Mississippi Department of Natural Resources declare an Air Pollution Emergency Episode, the permittee will be required to operate in accordance with the permittee's previously approved Emissions Reduction Schedule.

7. The permittee shall allow the Mississippi Department of Natural Resources Bureau of Pollution Control and the Mississippi Natural Resources Permit Board and/or their authorized representatives, upon presentation of credentials.

   a. To enter upon the permittee's premises where an air emission source is located or in which any records are required to be kept under the terms and conditions of this permit; and

   b. At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any monitoring equipment or monitoring method required in this permit; and to sample any air emission.

8. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to:

   a. Violation of any terms or conditions of this permit;

   b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or

   c. A change in any condition that required either a temporary or permanent reduction or elimination of authorized air emissions.

9. Except for data determined to be confidential under the Mississippi Air and Water Pollution Control Law, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Mississippi Department of Natural Resources Bureau of Pollution Control.

10. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

11. Nothing herein contained shall be construed as releasing the permittee from any liability for damage to persons or property by reason of the installation, maintenance, or operation of the air cleaning facility, or from compliance with the applicable statutes of the State, or with local laws, regulations, or ordinances.

12. This permit is non-transferable.

13. This permit is for air pollution control purposes only.

14. This permit is only for the purpose of initial start-up and determining compliance with the applicable terms and conditions of this permit.

PART II
EMISSION LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning February 5, 1986, and lasting until June 5, 1986, the permittee is authorized to operate air emissions equipment and emit air contaminants from the 65 MMBTU/hr Murray MCF 3 Series 59 boiler, Emission Point 037.

During this period the permittee shall demonstrate compliance with the emission limitations specified below by the testing methods specified below.

EMISSION CHARACTERISTIC	EMISSION LIMITATIONS		
	lb/hr	lbs/day	Other Units (specify)
Particulate Matter			0.44 lb/MMBTU
SO_2			59.3 TPY and 4.8 lb/MMBTU
Opacity			40%

EMISSION CHARACTERISTIC	TESTING METHODS		
	Measurement Frequency	Sample Type	Reporting Frequency
SO_2	See Part III, Item 2		

PART III
OTHER REQUIREMENTS

(1) Operation of Emission Point 037 is to replace the operation of Emission Points 009 and 010. Emission Points 009 and 010 may not be operated after Emission Point 037 is operational.

(2) The permittee is limited to a usage of 260,925 gallons/calender year of No. 6 fuel oil with sulfur content not to exceed 2.9%. A quarterly report shall be submitted detailing the amount of fuel oil used and the fuel oil characteristics. The report shall be postmarked by the 30th day of the month following the end of the calender quarter.

(3) Before the expiration of this permit, a representative of the Bureau of Pollution Control must observe the operation of this system. The company should contact the Bureau when the unit is operating properly under its normal conditions.

HERCULES

Hercules Incorporated
West 7th Street
P.O. Box 1937
Hattiesburg, MS 39401
(601) 545-3450

January 29, 1986

Mississippi Department of Natural Resources
Bureau of Pollution Control
P. O. Box 10385
Jackson, Mississippi 39209

Attention: Mr. Don Watts

Dear Mr. Watts:

Re: Construction Permit No. 0800-00001
Hattiesburg, Mississippi

The purpose of this letter is to (1) certify that construction was completed in accordance with the approved plans and specifications, and (2) request a performance evaluation permit.

If I can answer any questions, please call me.

Very truly yours,

Charles S. Jordan

Charles S. Jordan
Environmental Supervisor

CSJ/de
0529L

Lawrence C. Polk, Jr.
Signature of Engineer
registered in Mississippi

Lawrence C. Polk, Jr., Reg. No. 5047
Typed name and Mississippi
Registration No.

Seal of Engineer registered in Mississippi:

Hercules 5/22/86

All wood been burned
Wood Boiler Personnel gone

Em Pt 037 - New Gas Boiler (#6) Rated Steam Ra
Steam Prod. Rate = 20.1×10^3 lb/hr
Gas Feed Rate - 23% mmSCF/

#5
43.6×10^3 lb/hr
27%

Mississippi Department of Natural Resources
Bureau of Pollution Control
Visible Emissions Evaluation Record

Plant Name: Hercules Inc.

Address: West 7th Street

City: Hattiesburg

Emission Point: (37 (New Gas Boiler)

Date: 5/22/86

Is emission point operation normal ? Yes

V. E. Observer: Don Watts

Certification Expiration: 10/86

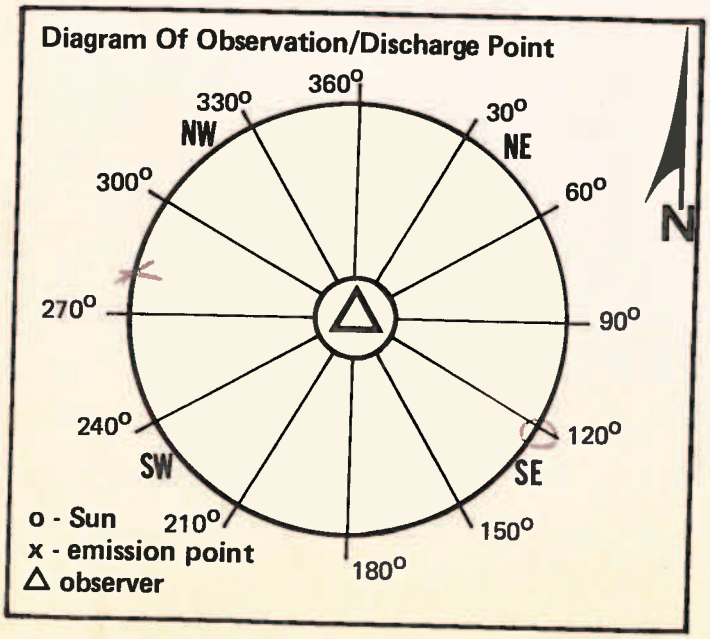
Set No.	Time		Opacity	
	Start	End	Sum	Average
1	9:52	9:58	0	0

Overall Average:

	Initial	Final
Distance to discharge	100 ft	
Direction to discharge	W	
Height of observation point	0 ft	
Height of discharge	65 ft	
Plume color	-	
Plume background	Sky	
Water vapor in plume ?	NO	
Wind direction (from)		
Wind speed	CALM	
Ambient temperature	70°F	
Discharge temperature		
Sky conditions	Clear	

Min.	Seconds 0	15	30	45
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
0				
1				
2				
3				
4				
5				
0				
1				
2				
3				
4				
5				

Diagram Of Observation/Discharge Point



Remarks:

Received By:

0800-00001-024

HERCULES

Hercules Incorporated
West 7th Street
P.O. Box 1937
Hattiesburg, MS 39401
(601) 545-3450

November 12, 1986

Mr. Don Watts
Bureau of Pollution Control
P. O. Box 10385
Jackson, MS 39209

Dear Mr. Watts:

The purpose of this letter is to advise the bureau of the following Kymene process improvements and subsequent capacity increase.

In order to minimize product quality problems due to inadequate and unreliable process instrumentation, we are replacing the existing viscometer with a more modern unit, installing a larger hot water tank for increased heating capacity, improving automatic temperature controls, and installing a larger product pump. These process improvements and debottlenecking will increase our Kymene production capacity to 60 MM lbs./yr.

If I can answer any additional questions, please call me.

Very truly yours,

C S Jordan

C. S. Jordan
Environmental Supervisor

CSJ:sj
0736C

0800-00001-015

Hercules Incorporated
West 7th Street
P.O. Box 1937
Hattiesburg, MS 39401
(601) 545-3450

September 10, 1986

Mississippi Department of Natural Resources
Bureau of Pollution Control
P. O. Box 10385
Jackson, MS 39209

Attn: Don Watts

Dear Mr. Watts:

This letter follows our previous phone conversation addressing metal resinate production. As we discussed, because of safety considerations, we are going to add to the existing tank car loading vent as follows:

> The existing T/C vent is vented directly back into the system. In order to eliminate the possibility of air being vented back into the system, we are going to add into the vent line a total condenser equipped with a combination pressure/vacuum vent with flame arrester. Any condensed vapors will be pumped back into the system without the safety concern of air contamination. The shell and tube condenser is a Doyle and Roth equipped with a Groth combination pressure/vacuum vent with flame arrester Model 7614.

I trust this information satisfies your needs. If I can answer any additional questions please call me.

Very truly yours,

C. S. Jordan

C. S. Jordan
Environmental Supervisor

CSJ:sj
0719C

(FOR AGENCY USE ONLY)

MANUFACTURING PROCESS OPERATIONS

Reference Number	Stack Data				Air Pollution Control Equipment			
	Height Feet	Inside Unit Dia. Feet	Exit Gas Velocity Feet/Sec.	Exit Gas Temperature °F	Manufacturer and Model Number	Type* (use Table 1)	Collection Efficiency	
							Design	Actual
1	(See attached Engineering Flow Sheet showing conservation vents. The entire process is blanketed with inert gas.)				Total Reflux Condensers (two)	47	100	100

*For Wet Scrubbers Give Gallons per minute Water Flow and Water Pressure if known.

PAGE 3

MANUFACTURING PROCESS OPERATIONS

(FOR AGENCY USE ONLY)

11 12

Reference Number	Process Emissions*			Basis for Estimation	(Agency Comments Only)
	Particulates	Sulfur Oxides	Others (Specify by chemical composition)		
1	None Detected	None Detected		Stoichiometry	

*Please Express Emissions as Tons per Year and Pounds per Hour and Identify Units Being Used.

A

REFUSE DISPOSAL AND INCINERATION

Company Name	Information for Year	(Agency Use Only)
Hercules Incorporated	1988 est.	
Address	**Date**	
West 7th Street, Hattiesburg MS		

B

Description of Waste Materials

Type (Describe)	C Maximum Amount Per Day (Pounds)	D Amount Per Year (Tons)	E Method of Disposal 1*
Product filters used to remove small amounts of unreacted Zinc Oxide and Calcium Hydroxide.	15 lbs.	2.7	Landfill

If Waste Disposal is by Incineration, Specify the Following:

1. **Type of Incinerator:**
   - single chamber ☐
   - multiple Chamber ☐
   - Modified (describe) ☐
   - Other (describe) ☐
   - Rotary ☐
   - Flue Fed ☐

2. **Manufacturer's Name:** _____
   Model Number _____
   Rated Capacity _____
3. **Quantity Burned:**
   _____ Pounds / Hour _____ Type Waste
   _____ Pounds / Day
   _____ Tons / Year
4. **Operating Schedule**
   _____ Hours / Day
   _____ Days / Year

***1 Disposal Method Codes**

1. Open Burning
2. Landfill (No Burning)
3. Incinerator (Complete rest of Form)
4. Conical Burner (Type Burner)
5. Burned in Boiler or Furnance
6. Other (Specify)

(AGENCY USE ONLY)

5. Auxiliary Fuel:
   - Type _____
   - Amount/Year (Specify Units) _____
   - Heat Content _____
   - Percent Sulfur _____
   - Percent Ash _____
   - Supplier's Name _____

6. Pollution Control Equipment:
   - Manufacturer _____
   - Model Number _____
   - % Efficiency _____
   - Type _____
   - GPM Water Flow (If Wet Scrubber) _____

7. Stack Data:
   - Height _____ Feet
   - Inside Exit Diameter _____ Feet
   - Exit Gas Velocity _____ Feet/Sec.
   - Exit Gas Volume _____ SCFM
   - Exit Gas Temp. _____ $^{o}F.$

8. Estimated Emissions From Refuse Incineration:

Name:			Basis of Estimates:
Particulates	_____	Tons/Year	_____
Sulfur Oxides	_____	"	_____

ADDITIONAL INFORMATION

1. Two copies of construction site plot plan.
2. Two copies of detailed equipment drawings.
3. Two copies of a detailed explanation of the process and control equipment.
4. Two copies of a flow diagram of the of the process or operation showing control devices.

SIGNATURES: If for construction, the application must be submitted in duplicate and both copies should also be signed and stamped by an engineer registered in the State of Mississippi. If application is for Existing Facility or Renewal of Permit to Operate, registered engineer's signature not required. All signatures and stamps must be originals on all copies, not photocopies.

TYPED NAME & MISSISSIPPI REGISTRATION NUMBER

SIGNATURE OF ENGINEER REGISTERED IN MISSISSIPPI

Seal of Engineer
Registered in Mississippi

CONFIDENTIAL PROPRIETARY INFORMATION

MANUFACTURING PROCESS OPERATIONS PAGE 1

Company Name	Address	FOR AGENCY USE
Hercules Incorporated	West 7th Street, Hattiesburg MS	

FACILITY NUMBER	Information for Calendar Year	Date
Emission Point 015	19 88 (est.)	

Reference Number	Process or Unit Operation Name	Rated Process Capacity Tons/Hour	Feed Input Quantity Per Hour	Feed Input Quantity Per Year	Number of Emission Points To Air	Product Output* Quantity Per Hour	Product Output* Quantity Per Year
1	Metal Resinates (Resin D-267)	1.71	0.68	6000	0(A)	0.68	6000
	Basis: 30,060 lbs. Resin D-267 per Batch, 2.5 MM lbs 1985 est., 12.0 MM lbs. 1988 est.						
	15,752 lbs. Adduct Rosin						
	12,496 lbs. Toluene						
	237 lbs. Water						
	1,103 lbs. Calcium Hydroxide						
	472 lbs. Zinc Oxide						
	Additional Resin blends will be as follows:						
	Conto 9-85, 0.325 MM lbs. in 1985, 70% Resin, 20% Lactol Spirits, 10% Isopropyl Alcohol						
	Poly-pale 70-M66, 0.75 MM lbs. in 1985, 70% Resin, 30% Mineral Spirits						
	Polystix 85, 1.39 MM lbs. in 1985, 72% Resin, 28% Mineral Spirits						

(A) See conservation vents on Engineering Flow Sheet

*Specify Units of Measure Used (Tons)

110 Forest

November 27, 1985

Mr. G. R. Yandle
Hercules, Inc.
P. O. Box 1937
Hattiesburg, Mississippi 39401

Dear Mr. Yandle:

Re: Construction Permit No. 0800-00001
Hattiesburg, Mississippi

We have completed our review of the plans and specifications for the above referenced facility and approval is hereby indicated for air pollution control purposes only. Enclosed please find Construction Permit No. 0800-00001 for the construction of the air emissions equipment and air pollution control equipment associated with the referenced facility. This permit should be displayed prominently at the facility.

This permit expires on November 1, 1986. Should additional time be needed, it will be necessary to provide a written request to the Mississippi Pollution Control Permit Board prior to the expiration of the permit.

Prior to startup of the air emissions equipment at this facility, a performance evaluation permit must be obtained from the Permit Board. In order to obtain the performance evaluation permit, it will be necessary to submit certification by a professional engineer registered in the State of Mississippi that construction was completed in accordance with the approved plans and specifications and a written request for the permit.

If you desire that a Permit Board hearing be held regarding this permit, you should make written application to the Permit Board within thirty (30) days after receipt of this notice; otherwise, the terms, conditions and limitations in the permit shall become final.

If you have any questions or if we can be of any service, please let me know.

Very truly yours,

Don Watts
South Air Emissions Section

DW:els
Enclosure

State of Mississippi
Air Pollution Control

PERMIT

TO CONSTRUCT AIR EMISSIONS EQUIPMENT

THIS CERTIFIES THAT

Hercules, Inc.
West 7th Street
Hattiesburg, Mississippi

has been granted permission to construct air emissions equipment to comply with emission limitations, monitoring requirements and other conditions set forth herein. This permit is issued in accordance with the provisions of the Mississippi Air and Water Pollution Control Law (Section 49-17-1 et. seq., Mississippi Code of 1972), and the regulations and standards adopted and promulgated thereunder.

Issued this 26th day of November, 19 85

MISSISSIPPI NATURAL RESOURCES PERMIT BOARD

_____

DIRECTOR, BUREAU OF POLLUTION CONTROL
MISSISSIPPI DEPARTMENT OF NATURAL RESOURCES

Expires 1st day of November, 19 86.

Permit No. 0800-00001

Emission Point 037

PART I
GENERAL CONDITIONS

1. The plans, specifications, schedules, dates, and other data submitted to the Permit Board are filed with and considered as a part of this permit.

2. All air pollution control facilities shall be designed and constructed such as to allow proper operation and maintenance of the facilities.

3. The necessary facilities shall be constructed so that solids removed in the course of control of air emissions may be disposed of in a manner such as to prevent the solids from becoming windborne and to prevent the materials from entering State waters.

4. The air pollution control facilities shall be constructed such that diversion from or bypass of collection and control facilities is not needed except (i) where unavoidable to prevent loss of life or severe property damage or (ii) when approved by the Mississippi Department of Natural Resources Bureau of Pollution Control Permit Board.

5. The construction of the facilities shall be performed in such a manner as to reduce both point source and fugitive dust emissions to a minimum.

6. The permittee shall allow the Mississippi Department of Natural Resources Bureau of Pollution Control and the Mississippi Department of Natural Resources Bureau of Pollution Control Permit Board and/or their authorized representatives, upon the presentation of credentials:

   a. To enter upon the permittee's premises where an air emission source is located or in which any records are required to be kept under the terms and conditions of this permit; and

   b. At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any monitoring equipment or monitoring method required in this permit; and to sample any air emission.

7. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to:

   a. Violation of any terms or conditions of this permit;

   b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts, or

   c. A change in any condition that required either a temporary or permanent reduction or elimination of authorized air emissions.

8. Except for data determined to be confidential under the Mississippi Air and Water Pollution Control Law, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of Mississippi Department of Natural Resources Bureau of Pollution Control.

9. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

10. Nothing herein contained shall be construed as releasing the permittee from any liability for damage to persons or property by reason of the installation, maintenance, or operation of the air cleaning facility, or from compliance with the applicable statutes of the State, or with local laws, regulations, or ordinances.

11. This permit is non-transferable.

12. This permit is for air pollution control purposes.

13. This permit shall become void upon completion of construction.

PART II
EMISSION LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning November 26, 1985, and lasting until November 1, 1986, the permittee is authorized to construct air emissions equipment for the emission of air contaminants from the 65 MMBTU/hr Murry MCF 3 Series 59 boiler, Emission Point 037.

The air emissions equipment shall be constructed to comply with the emission limitations and monitoring requirements specified below:

EMISSION CHARACTERISTIC	EMISSION LIMITATIONS		
	lb/hr	lbs/day	Other units (specify)
Particulate Matter			0.44 lb/MMBTU
SO_2			59.3 TPY and 4.8 lb/MMBTU
Opacity			40%

EMISSION CHARACTERISTIC	MONITORING REQUIREMENTS		
	Measurement Frequency	Sample Type	Reporting Frequency
SO_2	See Part III, Item 2		

PART III
OTHER REQUIREMENTS

(1) Operation of Emission Point 037 is to replace the operation of Emission Points 009 and 010. Emission Points 009 and 010 may not be operated after Emission Point 037 is operational.

(2) The permittee is limited to a usage of 260,925 gallons/calender year of No. 6 fuel oil with sulfur content not to exceed 2.9%. A quarterly report shall be submitted detailing the amount of fuel oil used and the fuel oil characteristics. The report shall be postmarked by the 30th day of the month following the end of the calender quarter.

FILE COPY

MEMORANDUM

TO: Wayne Anderson

FROM: Don Watts

SUBJECT: Hercules, Inc. New Source/Construction
Facility No: 110-0800-00001-037
Major/South
For November 26, 1985, Permit Board

DATE: November 20, 1985

Hercules has applied for a Permit to Construct a new package boiler to replace their four woodwaste boilers. Normal operation will be on natural gas (fuel oil stand-by), so an emissions reduction will occur. I recommend issuance of a Permit to Construct with a limitation on the amount of fuel oil to be used per year to prevent any significant emissions increase if the stand-by fuel oil is used.

HERCULES

Hercules Incorporated
West 7th Street
P.O. Box 1937
Hattiesburg, MS 39401
(601) 545-3450

November 4, 1985

Mr. Don Watts
Bureau of Pollution Control
P. O. Box 10385
Jackson, MS 39209

Dear Mr. Watts:

Regarding your October 23 letter, please find our comments addressing the items you requested:

1. Hercules is committing to removing the woodwaste boilers from service. Although we do not intend to physically remove any boilers or equipment, we do not intend to keep the boilers operational in terms of a permit to operate. Our future work force in this area will not be adequate to operate and maintain these boilers. The only scenario we can imagine where we would expect an emergency permit or permission to fire these boilers would be the unexpected long-term loss of a package boiler. If such an event ever occurred, we would contact the Bureau prior to any changes. Therefore, we do not wish the proposed boiler to be treated as a new source and emissions evaluated as an emissions increase for the facility. We would like to bank the emission reductions as the result of this change.

2. The by-products are the same as those listed in previous permits. These by-products are mainly rosin oils and residues which do not exhibit any hazardous waste characteristics and are essentially zero sulfur content. Also included are small amounts of non-halogenated spent solvents. Although these by-products have a high BTU value of approximately 18,000 BTU/lb., our preference is to sell the by-products. They will be used as fuel only when sales are unavailable and would be introduced into the boiler the same as fuel oil.

3. We do not anticipate burning fuel oil except in the event of natural gas curtailment. We estimate the possibility of burning fuel oil three or four weeks during cold weather months. We would agree to a permit condition addressing fuel oil identical to the current permit fuel oil condition for the woodwaste boilers.

4. The sulfur content of No. 2 fuel oil is 0.5% maximum and for No. 6 fuel oil is 2.9% maximum.

Very truly yours,

Charles Jordan

Charles Jordan
Environmental Supervisor

CJ/klm
2108

FORREST

October 23, 1985

Mr. Charles Jordan
Hercules Incorporated
P. O. Box 1937
Hattiesburg, Mississippi 39401

Dear Mr. Jordan:

Re: Facility No. 0800-00001
Hattiesburg, Mississippi

We have received your application for permission to construct a boiler at your facility. Before we can act on your request, the following items must be addressed:

1. Are you committing to remove the woodwaste boilers from service? If so, what steps will be taken to ensure that they are not operated in the future? If the woodwaste boilers are to remain operational, the proposed boiler must be treated as a new source, and emissions evaluated as an emissions increase for the facility.

2. Please explain the nature of the "by-products" listed as a fuel. How will it be introduced into the boiler?

3. Are you willing to accept a restriction on the amount of fuel oil that can be burned in a year? If so, how much will you commit to use?

4. Please provide the sulfur content for both the No. 2 and No. 6 fuel oil you plan to use.

If you have any questions, please contact us.

Very truly yours,

Don Watts
South Air Emissions Section

DW:cl

HERCULES

Hercules Incorporated
West 7th Street
P.O. Box 1937
Hattiesburg, MS 39401
(601) 545-3450

October 15, 1985

Department of Natural Resources
Bureau of Pollution Control
P. O. Box 10385
Jackson, MS 39209

Attention: Don Watts

Dear Mr. Watts:

Please find the enclosed permit application and support documents for a gas fired package boiler to be used as a replacement for our four wood burning boilers.

If I can answer any questions, please let me know.

Very truly yours,

Charles Jordan

Charles Jordan
Environmental Supervisor

CJ:nb

1125E

STATE OF MISSISSIPPI
DEPARTMENT OF NATURAL RESOURCES
BUREAU OF POLLUTION CONTROL
P.O. BOX 10385
JACKSON, MISSISSIPPI 39209

For Agency Use
FACILITY NUMBER
110-0800-00001
Date Received 037
11-5-85
Month Day Year

APPLICATION FOR PERMIT TO CONSTRUCT AND/OR
OPERATE AIR EMISSIONS EQUIPMENT - GENERAL FORM

APPLICATION FOR: X CONSTRUCTION ____ PERMIT RENEWAL - PLEASE CHECK APPROPRIATE BOX

1. Name, Address, Location, and Telephone Number
   A. Name Hercules Inc.
   B. Mailing Address of Applicant
      1. Street Address or P.O. Box 1937
      2. City Hattiesburg 3. State MS
      4. Zip Code 39401 5. Telephone No. 601-545-3450
   C. Location of Facility
      1. Street West 7th Street
      2. City 3. State
      4. Zip Code 5. Telephone No.
   D. If the facility is located outside the City limits, please provide a sketch or description showing the approximate location and attach to this application.
2. SIC Code 2861
3. Number of Employees 750
4. Principal Product Wood and Gum Naval Stores Operation
5. Principal Raw Materials Stumps
6. Principal Process Distilled Oils and Rosin
7. Maximum amount of principal product produced or raw material consumed per day
8. (A) Check here if operation which generates air pollutant emissions occurs all year X, or specify the months the operation occurs:
   (B) Specify how many days per week the operation occurs: 7
   (C) Specify how many hours per day the operation occurs: 24
9. If this application is for existing facility permit renewal only, has the facility been modified in any way (including production rate, fuel, and/or raw material changes) during period covered by the Operating Permit ____ Yes ____ No or since 1972? ____ Yes ____ No
   If Yes, give year(s) in which modification(s) occurred.
10. ALL APPLICATIONS MUST BE SIGNED BY THE APPLICANT.

I certify that I am familiar with the information contained in the application and that to the best of my knowledge and belief such information is true, complete, and accurate, and that I am the owner or chief corporate officer, or his designated representative, responsible for complying with air pollution control laws and regulations.

G. R. Yandle
Printed Name of Person Signing

Plant Manager
Title

G R Yandle
Date Application Signed
10/16/85

G R Yandle
Signature of Applicant

FOR ALL APPLICANTS, WHETHER NEW CONSTRUCTION, EXISTING FACILITY, OR RENEWAL

CONTROL EQUIPMENT COVERED UNDER THIS APPLICATION - PLEASE CHECK ALL APPLICABLE AND INDICATE NUMBER OF UNITS.

PARTICULATE EMISSIONS CONTROL EQUIPMENT

1. Cyclone(s) _____
2. Water Scrubber _____
3. Baghouse _____
4. Electrostatic Precipitator _____
5. Venturi Scrubber _____
6. Cyclonic Baghouse _____
7. Cyclonic Scrubber _____
8. Other _____

GASEOUS EMISSIONS CONTROL EQUIPMENT

1. Water Scrubber _____
2. Activated Carbon Bed _____
3. Other _____

WASTE DISPOSAL SYSTEMS

1. Solid Waste Incinerator _____
2. Liquid Waste Incinerator _____
3. Wood or Other Waste Fuel Recovery Boiler _____
4. Gaseous Waste Flare _____
5. Liquid Waste Flare _____
6. Other _____

Pneumatic Conveying System _____

Other (please describe)

FOR ALL APPLICANTS

FUEL BURNING EQUIPMENT
(Except for Refuse Disposal)

This form has 3 pages; each is a continuation of the equipment information from the page before. Please fill in as completely as possible, listing all fuel burning equipment. Reasons should be given explaining any data not filled in.

PAGE 1

1. Fill in company name and address, plus year for which data is given (if existing facility) at top of page. Use data for most recent calendar year available.
2. Reference Number. Use an identifying number for each boiler, furnace, kiln, etc., and use the same reference number on each of the three pages to identify information for the same unit.
3. Manufacturer and Model Number. Nameplate data for boiler, furnace, kiln, etc. Waste gas flares and stationary internal combustion engines should also be included on this form.
4. Rated Capacity in Millions of BTU per hour.
5. Type of Burner Unit. Use Codes (1*) at bottom of form. If not listed put (11) and specify.
6. Usage. Type of fuel burning equipment. Use codes (2*) at bottom of form. If not listed put (5) and specify.
7. Heat Usage. Percent of heat used for process and percent for space heating.

PAGE 2

8. Reference Number. Continue reference numbers from Page 1, using same number to identify information for same unit.

9. Stack Parameters.
Stack Height in feet from ground.
Stack Inside Exit Diameter in feet.
Exit Gas Velocity in feet per second. (SCFM may be used if velocity is not known; specify units as SCFM if used.)
Exit Gas Temperature in degrees F.

10. Fuel Data
Fuel Type. Coal, Gas, #2 Oil, #6 Oil, etc.
Maximum Capacity burned per hour. Gallons, pounds, cubic feet, etc.
Specify. Average amount burned per year. Gallons, tons, million cubic feet, etc.
Specify. Heat Content of Fuel. BTU per gallon, pound, cubic foot, etc., Specify.
Average Percent Sulfur Content.
Average Percent Ash Content.
(If percent sulfur and percent ash are not known, list fuel type and supplier's name at bottom of page in spaces provided so that information may be obtained.)

PAGE 3

11. Reference Number. Use same numbers as on Pages 1 and 2 to identify information for same unit.

12. Air Pollution Control Equipment.
Manufacturer and Model Number. Information from nameplate. Type. Use Table 1, Page 16. If a wet scrubber, specify gallons per minute of water flow and water pressure if known. Efficiency. Percent design control on pollutants and actual percent control if known.

13. Emission Rates.
Specify tons per year of each of the listed pollutants emitted per year.
Give basis of estimates of pollutants emitted (Material Balance, Stack Tests, Emission Factors, etc.)
(If unit is a kiln or similar unit in which combustion products and process losses vent through a common stack, emissions may be totaled and listed under process losses).

FUEL BURNING EQUIPMENT
(Except for Refuse Disposal)

1 FACILITY NAME	Address	for Agency use Only
Package Boiler No. 6	West 7th Street, Hattiesburg, MS	

FACILITY NUMBER	Information for Calender Year	Date
Emission Point 037	19 85	10/15/85

2	3	4	5	6	7	
Reference Number	Manufacturer and Model Number	Rated Capacity 10^6BTU/hr	Type of Burner Unit (use code 1*)	Usage (use code 2*)	Most Usage	
					% Process	% Space heat
1	Murry MCF 3 Series 59	65	7	1	100	

1* BURNER CODES

1. Cyclone furnace
2. Pulverized coal
3. Spreader Stoker
4. Hand fired
5. Other stoker (specify)
6. Multiple port gas
7. Forced draft gas
8. Atomizing Oil (Stove of Air)
9. Atomizing Oil (Mechanical)
10. Rotary Cup Oil
11. Others (specify)

2* USAGE CODES

1. Boiler, Steam
2. Boiler, Other (specify)
3. Air Heating for Space Heating
4. Air Heating for Process Usage
5. Others (specify)

(FOR AGENCY USE ONLY)

FUEL BURNING EQUIPMENT

Reference Number	Stack Parameters				Fuel Type	Fuel Data				
	Stack Height Feet	Inside Exit Dia. Feet	Exit Gas Velocity Feet/Sec.	Exit Gas Temperature Degree F.		Maximum Amount Per Hour (Specify Units)	Amount Per Year (Specify Units)	Heat Content BTU/Gal, etc. (Specify Units)	Percent Sulfur	Percent Ash
1	64	4		250	Natural Gas	65 MCFH	400,000 MCF	$1x10^6$ BTU/MCF	Nil	Nil
					No. 2 Fuel Oil	468 GPH	0	141,000 BTU/Gal.		
					No. 6 Fuel Oil	438 GPH	0	150,000 BTU/Gal.		
					By-Products	48 GPH	311,707 Gals	154,000 BTU/Gal.	Nil.	Nil
					(Fuels other than Natural Gas will be burned only in an emergency situation. An example would be Natural Gas curtailment)					

FUEL SUPPLIERS: Fuel Type	Supplier
Natural Gas	Willmut Gas
No. 2 Fuel Oil	Hess Oil Co.
No. 6 Fuel Oil	Hess Oil Co.

(FOR AGENCY USE ONLY)

FUEL BURNING EQUIPMENT

11	12				13			
Reference Number	Air Pollution Control Equipment				Emissions (Tons/Year)			Basis of Estimate
	Manufacturer and Model Number	Type* (Use Table 1)	Efficiency		Particulate	So_2	Other (specify)	
			Design	Actual				
1	None				Nil	Nil		

*For Wet Scrubber give
Gallons per minute Water
Flow and Water Pressure if known.

FOR ALL APPLICANTS

MANUFACTURING PROCESS OPERATIONS

Page 1

1. Company Name and Address, plus year for which information is given (if existing facility) at top of page. Use data for must recent calendar year available.
2. Reference Number. Use an identifying number for each manufacturing process which emits matter to the air and use the same number on all three pages of this form to identify information for the same operation.
3. Process or Unit Operation Name. Identify the unit or process section for which information is given by name.
4. Rated Process Capacity. Give in tons per hour the maximum rated capacity of the process or unit identified, wet weight.
5. Feed Input. Process rate in wet tons per hour and wet tons per year of materials fed to the operation.
6. Number of Emission Points to Air. Number of stacks, vents, etc., which emit materials to air.
7. Product Output. Product rate in wet tons per hour and wet tons per year from the operation.

Page 2

8. Reference Number. Use same number as on Page 1 of form to identify information for same process or operation.
9. Stack Data (or outlet of air cleaning device).
   Stack Height in feet above ground.
   Stack Inside Diameter in Feet.
   Exit Gas Velocity in feet per second. (SCFM may be used if velocity is not known; specify units as SCFM if used).
   Exit Gas Temperature in degrees F.
10. Air Pollution Control Equipment.
    Manufacturer and Model Number. Nameplate Data.
    Type. Use Table 1, Page 16. If a wet scrubber, give water flow in GPM and water pressure.
    Collection efficiency. Design and actual collection efficiency if known.

Page 3

11. Reference Number. Use same number as on Pages 1 & 2 of form to identify information for same process or operation.
12. Process Emissions. Give in pounds per hour and tons per year the amount of emissions from the process or operation of each of the two pollutant categories so that process rates versus emission rates may be compared with Regulations. Identify the units of measure used.
    Give the basis of the estimates of pollutants emitted (stack tests, material balance, emission factors, etc.)

MANUFACTURING PROCESS OPERATIONS

Company Name	Address	FOR AGENCY USE
Hercules	West 7th Street, Hattiesburg, MS	

FACILITY NUMBER	Information for Calendar Year	Date
Emission Point 037	19 85	10/15/85

Reference Number	Process or Unit Operation Name	Rated Process Capacity Tons/Hour	Feed Input		Number of Emission Points To Air	Product Output*	
			Quantity Per Hour	Quantity Per Year		Quantity Per Hour	Quantity Per Year
	None						

*Specify Units of Measure Used

(FOR AGENCY USE ONLY)

MANUFACTURING PROCESS OPERATIONS

Reference Number	Stack Data				Air Pollution Control Equipment			
	Height Feet	Inside Unit Dia. Feet	Exit Gas Velocity Feet/Sec.	Exit Gas Temperature °F	Manufacturer and Model Number	Type* (use Table 1)	Collection Efficiency	
							Design	Actual

*For Wet Scrubbers Give Gallons per minute Water Flow and Water Pressure if known.

PAGE 3

(FOR AGENCY USE ONLY)

MANUFACTURING PROCESS OPERATIONS

11 12

Reference Number	Process Emissions*			Basis for Estimation	(Agency Comments Only)
	Particulates	Sulfur Oxides	Others (Specify by chemical composition)		

*Please Express Emissions as Tons per Year and Pounds per Hour and Identify Units Being Used.

FOR ALL APPLICANTS

REFUSE DISPOSAL AND INCINERATION

A. Company Name & Address plus year for which information is given if for renewal of permit, at top of page.

B. Type Waste. Describe type of waste materials (paper, garbage, wood crates, sawdust, coal refuse, etc.)

C. Maximum amount per day in pounds.

D. Average amount per year in tons.

E. Method of Disposal. Use codes at bottom of Form (1*).

Page 2

1. Type of Incinerator. Check which applies.

2. Manufacturer, Model Number, Capacity in pounds per hour and type waste on which capacity is based (Nameplate Data).

3. Average Quantity Burned in pounds per year.

4. Operating Schedule for Incinerator. Hours per day and days per year incinerator is in operation.

5. Auxiliary Fuel Data.
   Type. (Natural Gas, #2 Oil, etc.)
   Amount per year. Specify gallons, cubic feet, etc.
   Heat Content of Fuel. BTU per gallon, cubic feet, etc.
   Percent Sulfur. Average sulfur content of auxiliary fuel.
   Percent Ash. Average ash content of auxiliary fuel.
   Fuel supplier's name if ash and sulfur content are not known.

6. Pollution Control Equipment on Incinerator.
   Manufacturer of Control Device.
   Model Number of Control Device.
   Percent efficiency of control if known.
   Type. Venturi Scrubber, Baghouse, etc., as outlined on other forms.
   GPM water flow if control device is a wet scrubber.

7. Stack Data.
   Height in Feet above Ground.
   Inside Exit Diameter in Feet.
   Exit Gas Velocity in Feet per Second.
   Exit Gas Volume if Velocity not known.
   Exit Gas Temperature in Degrees F if known.

8. Estimated Emission from Refuse Incineration. Give amounts in tons per year and basis of estimates for each of the five listed pollutants.

A

REFUSE DISPOSAL AND INCINERATION

Company Name	Information for Year	(Agency Use Only)
Hercules	1985	
Address	Date	
West 7th Street	10/15/85	

B

Description of Waste Materials

Type (Describe)	C Maximum Amount Per Day (Pounds)	D Amount Per Year (Tons)	E 1* Method of Disposal
None			

If Waste Disposal is by Incineration, Specify the Following:

1. Type of Incinerator:
   - single chamber ☐
   - multiple Chamber ☐
   - Modified (describe) ☐
   - Other (describe) ☐
   - Rotary ☐
   - Flue Fed ☐

2. Manufacturer's Name: _____
   Model Number _____
   Rated Capacity _____ Pounds / Hour _____ Type Waste
3. Quantity Burned: _____ Pounds / Day
   _____ Tons / Year
4. Operating Schedule _____ Hours / Day
   _____ Days / Year

*1 Disposal Method Codes

1. Open Burning
2. Landfill (No Burning)
3. Incinerator (Complete rest of Form)
4. Conical Burner (TeePee)
5. Burned in Boiler or Furnance
6. Other (Specify)

(AGENCY USE ONLY)

5. Auxiliary Fuel:
   - Type _____
   - Amount/Year (Specify Units) _____
   - Heat Content _____
   - Percent Sulfur _____
   - Percent Ash _____
   - Supplier's Name _____

6. Pollution Control Equipment:
   - Manufacturer _____
   - Model Number _____
   - % Efficiency _____
   - Type _____
   - GPM Water Flow (If Wet Scrubber) _____

7. Stack Data:
   - Height _____ Feet
   - Inside Exit Diameter _____ Feet
   - Exit Gas Velocity _____ Feet/Sec.
   - Exit Gas Volume _____ SCFM
   - Exit Gas Temp. _____ $^{o}F.$

8. Estimated Emissions From Refuse Incineration:

Name:		Basis of Estimates:
Particulates	_____ Tons/Year	_____
Sulfur Oxides	_____ "	_____

ADDITIONAL INFORMATION REQUIRED FOR APPROVAL TO CONSTRUCT

The following additional information must be submitted. Failure to submit any of the additional information or to conform to the instructions will result in initial denial of the application.

1. Site Plan - The drawing or sketch submitted must be to scale and show at least the following:

   A. The property involved and outlines and heights of all buildings. Identify property lines plainly.

   B. Location and identification of all existing or proposed points of discharge of air contaminants to the atmosphere.

   C. Location of streets and all adjacent properties. Show location of all buildings outside the property that are within 150 feet of the equipment involved in the application. Identify all such buildings (as a residence, apartment, warehouse, etc.), specifying number of stories. Indicate north, and prevailing wind direction.

2. Drawings of Equipment (See Note Below) - Supply an assembly drawing, dimensioned and to scale, and plan elevation in as many sections as are needed to show clearly the design and operation of the equipment and the means by which air contaminants are controlled. The following must be shown:

   A. Size and shape of equipment. Show exterior and interior dimensions and features.

   B. Locations, sizes, and shape details of all features which may affect the production, collection, conveying or control of air contaminants of any kind; location, size and shape details concerning all materials handling equipment.

   C. All data and calculations used in selecting or designing the equipment.

   D. Horsepower rating of all motors driving the equipment.

   NOTE: Structural design calculations and details are not required.

ADDITIONAL INFORMATION MAY BE REQUIRED.

3. Description of Process and Control equipment - The application must be accompanied by two copies of a written description of each process to be carried out in the facility and the function of the equipment used in the process. The descriptions must be complete and particular attention must be given to explaining all stages in the process where the discharge of any materials might contribute in any way to air pollution. Control procedures must be described in sufficient detail to show the extent of control of air contaminants anticipated in the design, specifying the expected efficiency of the control devices. All obtainable data must be supplied concerning the nature, volumes, particle size, weights, chemical composition and concentrations of all types of air contaminants.

4. Two copies of a block flow diagram showing the steps of the process and the flow of materials through the process and any control devices must be supplied.

NOTE: THE APPLICATION FORM, SITE PLAN, AND EQUIPMENT MUST BE SIGNED AND STAMPED BY AN ENGINEER REGISTERED IN THE STATE OF MISSISSIPPI.

ADDITIONAL INFORMATION

1. Two copies of construction site plot plan.
2. Two copies of detailed equipment drawings.
3. Two copies of a detailed explanation of the process and control equipment.
4. Two copies of a flow diagram of the of the process or operation showing control devices.

SIGNATURES: If for construction, the application must be submitted in duplicate and both copies should also be signed and stamped by an engineer registered in the State of Mississippi. If application is for Existing Facility or Renewal of Permit to Operate, registered engineer's signature not required. All signatures and stamps must be originals on all copies, not photocopies.

Lawrence C. Polk, Jr. - 5047
TYPED NAME & MISSISSIPPI REGISTRATION NUMBER

Lawrence C. Polk, Jr.
SIGNATURE OF ENGINEER REGISTERED IN MISSISSIPPI

Seal of Engineer
Registered in Mississippi

TABLE 1

CODE NUMBERS FOR CONTROL DEVICES

Vapor Control Equipment

00 Group – CONTROL BY COMBUSTION

01 catalytic combustion
02 furnace combustion
03 boiler firebox
04 steam injection flare
05 venturi flare
06 direct flame combustion (afterburner)

10 Group – ADSORBERS

10 activated carbon – nonregenerative
11 activated carbon – regenerative
12 silica gel – nonregenerative
13 silica gel – regenerative
14 lithium chloride
15 activated alumina
16 activated bauxite

20 Group – ABSORBERS

20 sieve plate tower
21 bubble-cap tower
22 packed tower

Particulate Matter – Liquid Mist Control Equipment

30 Group – DRY SEPARATORS AND FILTERS

30 simple cyclones
31 high efficiency cyclones
32 settling chamber
33 simple filters
34 baghouse (shaking)
35 baghouse (reverse jet)
36 dry collector (dynamic)

40 Group – WET COLLECTORS

40 spray chamber – no baffles
41 spray chamber – with baffles
42 wet cyclones – rotoclone
43 wet dynamic precipitator
44 venturi scrubber
45 spray tower (not absorption – scrubbers)
46 packed tower (not absorption – scrubbers)
47 condensors (tube and shell); air
48 barometric condensor with hot wells

50 Group – ELECTRICAL PRECIPITATORS

50 single stage
51 double stage
52 precipitron

60 Group

60 Counteractant

70 Group – SPECIAL

71 Jet exhausters (air dilution)
72 Mist eliminators

80 Group – Other
Specify

FILE COPY

Forest

February 7, 1985

Mr. Charles Jordan
Hercules Incorporated
P.O. Box 1937
Hattiesburg, Mississippi 39401

Dear Mr. Jordan:

Re: Facility No. 0800-00001
Hattiesburg, Mississippi

We have received the monthly compliance status report and the semi-annual pilot plant report (Emission Point 021) as required by your Permit to Operate. If any additional information is needed, we will contact you.

If you have any questions, please contact us.

Very truly yours,

Don Watts
South Air Emissions Section

DW:ps

HERCULES

Hercules Incorporated
West 7th Street
P.O. Box 1937
Hattiesburg, MS 39401
(601) 545-3450

January 15, 1985

Mr. Don Watts
Air Division
Bureau of Pollution Control
P. O. Box 10385
Jackson, Mississippi 39209

Dear Mr. Watts:

In reference to operating Permit No. 0800-0001, please find the attached semi-annual report detailing all work done for emission point 021.

We will continue to submit this report on a semi-annual basis.

Very truly yours,

Charles Jordan
Environmental Supervisor

CSJ:sw

Attachments

HERCULES

Interoffice Memo

cc: D. T. Smith, Jr.
E. C. Linsay

Hattiesburg, Mississippi
January 11, 1985

To: C. S. Jordan

From: T. L. Coughlin

Operating Permit No. 08000-0001 Hattiesburg, MS

Re the above permit, Part III, other requirements, 4, the attached semi-annual report is submitted. This report is for July 1, 1984 through December 31, 1984.

TLC:sj
0426C

Attachment

Terre Coughlin

Equipment	Days	Materials	Product	Assessment of Emissions: Potential Emissions	Assessment of Emissions: Control Equipment	Assessment of Emissions: Type Vent
POLYMERIZER						
A	30	Dicyclopentadiene	Polymer	NONE	-	-
REACTORS						
A	36	Hydrocarbon Resin p-menthane Hydrogen	Hydrogenated Hydrocarbon Resin	Hydrogen	NONE	Hydrogen Purge
B	13	Hydrocarbon Resin p-menthane Hydrogen	Hydrogenated Hydrocarbon Resin	Hydrogen	NONE	Hydrogen Purge
KETTLE						
A	3	Rosin Toluene Calcium Oxide Zinc Oxide	Resinate	Water of Reaction Toluene	Total Condenser	No Flow
B	4	Stearic Acid Ethylene Diamine Silicone Oil		Water of Reaction	Total Condenser	No Flow

HERCULES

Hercules Incorporated
West 7th Street
P.O. Box 1937
Hattiesburg, MS 39401
(601) 545-3450

April 16, 1985

Department of Natural Resources
Bureau of Pollution Control
P. O. Box 10385
Jackson, Mississippi 39209

ATTN: Don Watts

Dear Mr. Watts:

Please find the enclosed permit application and support documents for the production of Metal Resinates in Toluene Solution in our existing Hard Resin facilities, operating permit 0800-00001, emission point 015.

Hercules respectfully request this information be considered confidential proprietary information.

If I can answer any additional questions please let me know.

Very truly yours,

Charles S. Jordan

Charles S. Jordan
Environmental Coordinator

CSJ:ml
0297Y

Attachments

STATE OF MISSISSIPPI
DEPARTMENT OF NATURAL RESOURCES
BUREAU OF POLLUTION CONTROL
P.O. BOX 10385
JACKSON, MISSISSIPPI 39209

For Agency Use
FACILITY NUMBER
110-0800-00001
Date Received
Month Day Year

APPLICATION FOR PERMIT TO CONSTRUCT AND/OR
OPERATE AIR EMISSIONS EQUIPMENT - GENERAL FORM

APPLICATION FOR: ____ CONSTRUCTION X PERMIT MODIFICATION (EMISSION POINT 015)
____ PERMIT RENEWAL - PLEASE CHECK APPROPRIATE BOX

1. Name, Address, Location, and Telephone Number
   A. Name Hercules Incorporated
   B. Mailing Address of Applicant
      1. Street Address or P.O. Box 1937
      2. City Hattiesburg 3. State MS
      4. Zip Code 39401 5. Telephone No. 545-3450
   C. Location of Facility
      1. Street West 7th Street
      2. City ____ 3. State ____
      4. Zip Code ____ 5. Telephone No. ____
   D. If the facility is located outside the City limits, please provide a sketch or description showing the approximate location and attach to this application.
2. SIC Code 2861
3. Number of Employees 750
4. Principal Product Wood and Gum Naval Stores Operation
5. Principal Raw Materials Stumps
6. Principal Process Distilled Oils and Rosin
7. Maximum amount of principal product produced or raw material consumed per day ____
8. (A) Check here if operation which generates air pollutant emissions occurs all year X, or specify the months the operation occurs: ____
   (B) Specify how many days per week the operation occurs: 7
   (C) Specify how many hours per day the operation occurs: 24
9. If this application is for existing facility permit renewal only, has the facility been modified in any way (including production rate, fuel, and/or raw material changes) during period covered by the Operating Permit ____ Yes ____ No or since 1972? ____ Yes ____ No
   If Yes, give year(s) in which modification(s) occurred. ____
10. ALL APPLICATIONS MUST BE SIGNED BY THE APPLICANT.

I certify that I am familiar with the information contained in the application and that to the best of my knowledge and belief such information is true, complete, and accurate, and that I am the owner or chief corporate officer, or his designated representative, responsible for complying with air pollution control laws and regulations.

G. R. Yandle
Printed Name of Person Signing

Plant Manager
Title

4/18/85
Date Application Signed

G R Yandle
Signature of Applicant

PLEASE COMPLETE FOLLOWING PAGES WHERE APPLICABLE

FOR ALL APPLICANTS, WHETHER NEW CONSTRUCTION, EXISTING FACILITY, OR RENEWAL

CONTROL EQUIPMENT COVERED UNDER THIS APPLICATION - PLEASE CHECK ALL APPLICABLE AND INDICATE NUMBER OF UNITS.

PARTICULATE EMISSIONS CONTROL EQUIPMENT

1. Cyclone(s) _____
2. Water Scrubber _____
3. Baghouse _____
4. Electrostatic Precipitator _____
5. Venturi Scrubber _____
6. Cyclonic Baghouse _____
7. Cyclonic Scrubber _____
8. Other _____

GASEOUS EMISSIONS CONTROL EQUIPMENT

1. Water Scrubber _____
2. Activated Carbon Bed _____
3. Other __2__ (Total Condensers)

WASTE DISPOSAL SYSTEMS

1. Solid Waste Incinerator _____
2. Liquid Waste Incinerator _____
3. Wood or Other Waste Fuel Recovery Boiler _____
4. Gaseous Waste Flare _____
5. Liquid Waste Flare _____
6. Other _____

Pneumatic Conveying System _____

Other (please describe)

FOR ALL APPLICANTS

FUEL BURNING EQUIPMENT
(Except for Refuse Disposal)

This form has 3 pages; each is a continuation of the equipment information from the page before. Please fill in as completely as possible, listing all fuel burning equipment. Reasons should be given explaining any data not filled in.

PAGE 1

1. Fill in company name and address, plus year for which data is given (if existing facility) at top of page. Use data for most recent calendar year available.
2. Reference Number. Use an identifying number for each boiler, furnace, kiln, etc., and use the same reference number on each of the three pages to identify information for the same unit.
3. Manufacturer and Model Number. Nameplate data for boiler, furnace, kiln, etc. Waste gas flares and stationary internal combustion engines should also be included on this form.
4. Rated Capacity in Millions of BTU per hour.
5. Type of Burner Unit. Use Codes (1*) at bottom of form. If not listed put (11) and specify.
6. Usage. Type of fuel burning equipment. Use codes (2*) at bottom of form. If not listed put (5) and specify.
7. Heat Usage. Percent of heat used for process and percent for space heating.

FUEL BURNING EQUIPMENT
(Except for Refuse Disposal)

1 FACILITY NAME	Address	for Agency use Only
Hercules Incorporated	West 7th Street, Hattiesburg MS	
FACILITY NUMBER	Information for Calender Year	Date
Emission Point 015	19 85	

2	3	4	5	6	7	
Reference Number	Manufacturer and Model Number	Rated Capacity 10^6BTU/hr	Type of Burner Unit (use code 1*)	Usage (use code 2*)	Most Usage % Process	% Space heat
	None					

1* BURNER CODES

1. Cyclone furnace
2. Pulverized coal
3. Spreader Stoker
4. Hand fired
5. Other stoker (specify)
6. Multiple port gas
7. Forced draft gas
8. Atomizing Oil (Stove of Air)
9. Atomizing Oil (Mechanical)
10. Rotary Cup Oil
11. Others (specify)

2* USAGE CODES

1. Boiler, Steam
2. Boiler, Other (specify)
3. Air Heating for Space Heating
4. Air Heating for Process Usage
5. Others (specify)

(FOR AGENCY USE ONLY)

FUEL BURNING EQUIPMENT

Reference Number	Stack Parameters				Fuel Type	Fuel Data				
	Stack Height Feet	Inside Exit Dia. Feet	Exit Gas Velocity Feet/Sec.	Exit Gas Temperature Degree F.		Maximum Amount Per Hour (Specify Units)	Amount Per Year (Specify Units)	Heat Content BTU/Gal, etc, (Specify Units)	Percent Sulfur	Percent Ash

FUEL SUPPLIERS:

Fuel Type	Supplier

(FOR AGENCY USE ONLY)

FUEL BURNING EQUIPMENT

11	12				13			
Reference Number	Air Pollution Control Equipment				Emissions (Tons/Year)			Basis of Estimate
	Manufacturer and Model Number	Type* (Use Table 1)	Efficiency		Particulate	So_2	Other (specify)	
			Design	Actual				

*For Wet Scrubber give Gallons per minute Water Flow and Water Pressure if known.

HERCULES

TOLUENE STORAGE TANK

PROPOSED METAL RESINATES AREA

$$L_B = 2.26 \times 10^{-2}\ M \left(\frac{P}{14.7-P}\right)^{0.68} D^{1.73} H^{0.51} \Delta T^{0.5} F_P C K_C$$

$M = 92$

$P = 0.4$ psia @ 70°F

$D = 11.5$ ~~ft~~

$H = 10.5$ ~~ft~~

$\Delta T = 25$ °F

$F_P = 1.4$ (worst case)

$C = 0.6$

$K_C = 1.0$

$$L_B = (2.26 \times 10^{-2})(92)\left(\frac{0.4}{14.7-0.4}\right)^{0.68}(11.5)^{1.73}(10.5)^{0.51}(25)^{0.5}(1.4)(0.6)(1)$$

$= 174$ lb/yr

$$L_W = 2.40 \times 10^{-2}\ M\ P\ K_N\ K_C$$

$M = 92$ $K_N = 1.0$

$P = 0.4$ $K_C = 1.0$

$$L_W = (2.40 \times 10^{-2})(92)(0.4)(1.0)(1.0)$$

$= 0.88$ lb/yr

Total VOC Losses $= L_W + L_B$

$= 175$ lb/yr.

FILE COPY

MEMORANDUM

TO: Wayne B. Anderson

FROM: Don Watts

SUBJECT: Hercules, Incorporated — New Source/Construction
Forrest County
Source No: 110-800-00001-015
Major/South
For May 14, 1985, Permit Board

DATE: May 6, 1985

Hercules has applied for a permit to construct equipment to manufacture metal resinates within the existing Hard Resins Area. The major source of emissions is a 16,000 gallon Toluene storage tank; emissions are calculated to be 175 lb/yr. (See attached.)

I recommend that a Permit to Construct be issued.

FILE COPY

May 16, 1985

Mr. G. R. Yandle
Hercules Incorporated
P.O. Box 1937
Hattiesburg, Mississippi 39401

Dear Mr. Yandle:

Re: Construction Permit No. 0800-00001
Hattiesburg, MS

We have completed our review of the plans and specifications for the above referenced facility and approval is hereby indicated for air pollution control purposes only. Enclosed please find Construction Permit No. 0800-00001 for the construction of the air emissions equipment and air pollution control equipment associated with the referenced facility. This permit should be displayed prominently at the facility.

This permit expires on May 1, 1986. Should additional time be needed, it will be necessary to provide a written request to the Mississippi Pollution Control Permit Board prior to the expiration of the permit.

Prior to startup of the air emissions equipment at this facility, a performance evaluation permit must be obtained from the Permit Board. In order to obtain the performance evaluation permit, it will be necessary to submit certification by a professional engineer registered in the State of Mississippi that construction was completed in accordance with the approved plans and specifications and a written request for the permit.

If you desire that a Permit Board hearing be held regarding this permit, you should make written application to the Permit Board within thirty (30) days after receipt of this notice; otherwise, the terms, conditions and limitations in the permit shall become final.

If you have any questions or if we can be of any service, please let me know.

Very truly yours,

Don Watts
South Air Emissions Section

DW:ps
Enclosure

State of Mississippi
Air Pollution Control

PERMIT

TO CONSTRUCT AIR EMISSIONS EQUIPMENT

THIS CERTIFIES THAT

Hercules, Incorporated
West 7th Street
Hattiesburg, Mississippi

has been granted permission to construct air emissions equipment to comply with emission limitations, monitoring requirements and other conditions set forth herein. This permit is issued in accordance with the provisions of the Mississippi Air and Water Pollution Control Law (Section 49-17-1 et. seq., Mississippi Code of 1972), and the regulations and standards adopted and promulgated thereunder.

Issued this 14th day of May, 19 85

MISSISSIPPI DEPARTMENT OF NATURAL RESOURCES
BUREAU OF POLLUTION CONTROL PERMIT BOARD

_____
Director

Expires 1st day of May, 19 86.

Permit No. 0800-00001

Emission Point 015

APC 3-78

Hercules Incorporated
West 7th Street
P.O. Box 1937
Hattiesburg, MS 39401
(601) 545-3450

June 20, 1985

Mississippi Department of Natural Resources
Bureau of Pollution Control
P. O. Box 10385
Jackson, Mississippi 39209

Attention: Mr. Don Watts

Dear Mr. Watts:

Re: Construction Permit No. 0800-00001
Hattiesburg, Mississippi

The purpose of this letter is to (1) certify that construction was completed in accordance with the approved plans and specifications, and (2) request a performance evaluation permit.

If I can answer any questions, please call me.

Very truly yours,

Charles S. Jordan

Charles S. Jordan
Environmental Supervisor

CSJ/de
0453L

Lawrence C. Polk, Jr.

Signature of Engineer
registered in Mississippi

Lawrence C. Polk, Jr., Reg. No. 5047
Typed name and Mississippi
registation No.

Seal of Engineer registered in Mississippi:

June 28, 1985

Mr. G. R. Yandle
Hercules, Incorporated
P.O. Box 1937
Hattiesburg, Mississippi 39401

Dear Mr. Yandle:

Re: Performance Evaluation
Permit No. 0800-00001
Hattiesburg, Mississippi

Enclosed please find Performance Evaluation Permit No. 0800-00001 for the operation of the air emission equipment associated with the above referenced facility during startup of the facility. This permit expires on October 28, 1985.

If you desire that a Permit Board hearing be held regarding this permit, you should make written application to the Permit Board within thirty (30) days after receipt of this notice; otherwise, the terms, conditions and limitations in the permit shall become final.

If you have any questions or if we can be of service, please let me know.

Very truly yours,

Don Watts
South Air Emissions Section

DW:sr
Enclosure

State of Mississippi
Air Pollution Control
PERMIT

TO OPERATE AIR EMISSIONS EQUIPMENT
FOR THE PURPOSE OF PERFORMANCE EVALUATION

THIS CERTIFIES THAT

Hercules, Incorporated
West 7th Street
Hattiesburg, Mississippi

has been granted permission to operate air emissions equipment in accordance with emission limitations, monitoring requirements and other conditions set forth herein. This permit is issued in accordance with the provisions of the Mississippi Air and Water Pollution Control Law (Section 49-17-1 et. seq., Mississippi Code of 1972), and the regulations and standards adopted and promulgated thereunder.

Issued this 28th day of June, 19 85

MISSISSIPPI DEPARTMENT OF NATURAL RESOURCES
BUREAU OF POLLUTION CONTROL PERMIT BOARD

_____
Director

Expires 28th Day of October, 19 85.

APC 3-78

Permit No. 0800-00001

Emission Point 015

PART I
GENERAL CONDITIONS

1. All emissions authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any air pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit. Any anticipated facility expansions or modifications which will result in new, different, or increased emission of air pollutants must be reported by submission of a new application.

2. The permittee shall at all times maintain in good working order and operate as efficiently as possible all air pollution control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit.

3. Solids removed in the course of control of air emissions shall be disposed of in a manner such as to prevent the solids from becoming windborne and to prevent the materials from entering state waters.

4. Any diversion from or bypass of collection and control facilities is prohibited except (i) where unavoidable to prevent loss of life or severe property damage or (ii) when approved by the Mississippi Department of Natural Resources Bureau of Pollution Control Permit Board.

5. Whenever any emergency, accidental or excessive discharge of air contaminants occurs, the office of the Mississippi Department of Natural Resources Bureau of Pollution Control shall be notified immediately of all information concerning cause of the discharge, point of discharge, volume and characteristics, and whether discharge is continuing or stopped.

6. Should the Executive Director of the Mississippi Department of Natural Resources declare an Air Pollution Emergency Episode, the permittee will be required to operate in accordance with the permittee's previously approved Emissions Reduction Schedule.

7. The permittee shall allow the Mississippi Department of Natural Resources Bureau of Pollution Control and the Mississippi Department of Natural Resources Bureau of Pollution Control Permit Board and/or their authorized representatives, upon the presentation of credentials:

   a. To enter upon the permittee's premises where an air emission source is located or in which any records are required to be kept under the terms and conditions of this permit; and

   b. At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any monitoring equipment or monitoring method required in this permit; and to sample any air emission.

8. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to:

   a. Violation of any terms or conditions of this permit;

   b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or

   c. A change in any condition that required either a temporary or permanent reduction or elimination of authorized air emissions.

9. Except for data determined to be confidential under the Mississippi Air and Water Pollution Control Law, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Mississippi Department of Natural Resources Bureau of Pollution Control.

10. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

11. Nothing herein contained shall be construed as releasing the permittee from any liability for damage to persons or property by reason of the installation, maintenance, or operation of the air cleaning facility, or from compliance with the applicable statutes of the State, or with local laws, regulations, or ordinances.

12. This permit is non-transferable.

13. This permit is for air pollution control purposes only.

14. This permit is only for the purpose of initial start-up and determining compliance with the applicable terms and conditions of this permit.

PART II
EMISSION LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning June 28, 1985, and lasting until October 28, 1985, the permittee is authorized to operate air emissions equipment and emit air contaminants from production of metal resinates (within the Hard Resins Area), Emission Point 015.

During this period the permittee shall demonstrate that the constructed facilities operate in accordance with previously approved design criteria.

PART III
OTHER REQUIREMENTS

Before the expiration of this permit, a representative of the Bureau of Pollution Control must observe the operation of this system. The company should contact the Bureau when the unit is operating properly under its normal conditions.

FILE COP

985

ce Evaluation Permit No. 0800-00001 has been extended to expire on
28, 1986. This permit replaces the expired permit and should be
played prominently at your facility.

Very truly yours,

Don Watts
South Air Emissions Section

DW:sr
Enclosure

State of Mississippi
Air Pollution Control
PERMIT

TO OPERATE AIR EMISSIONS EQUIPMENT
FOR THE PURPOSE OF PERFORMANCE EVALUATION

THIS CERTIFIES THAT

Hercules, Incorporated
West 7th Street
Hattiesburg, Mississippi

has been granted permission to operate air emissions equipment in accordance with emission limitations, monitoring requirements and other conditions set forth herein. This permit is issued in accordance with the provisions of the Mississippi Air and Water Pollution Control Law (Section 49-17-1 et. seq., Mississippi Code of 1972), and the regulations and standards adopted and promulgated thereunder.

Issued this 28th day of June, 19 85

MISSISSIPPI NATURAL RESOURCES PERMIT BOARD

_____

DIRECTOR, BUREAU OF POLLUTION CONTROL
MISSISSIPPI DEPARTMENT OF NATURAL RESOURCES

Expires 28th day of January, 19 86

Permit No 0800-00001

Emission Point 015

Permit Extended: October 24, 1985

PART I
GENERAL CONDITIONS

1. All emissions authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any air pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit. Any anticipated facility expansions or modifications which will result in new, different, or increased emission of air pollutants must be reported by submission of a new application.

2. The permittee shall at all times maintain in good working order and operate as efficiently as possible all air pollution control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit.

3. Solids removed in the course of control of air emissions shall be disposed of in a manner such as to prevent the solids from becoming windborne and to prevent the materials from entering state waters.

4. Any diversion from or bypass of collection and control facilities is prohibited except (i) where unavoidable to prevent loss of life or severe property damage or (ii) when approved by the Mississippi Department of Natural Resources Bureau of Pollution Control Permit Board.

5. Whenever any emergency, accidental or excessive discharge of air contaminants occurs, the office of the Mississippi Department of Natural Resources Bureau of Pollution Control shall be notified immediately of all information concerning cause of the discharge, point of discharge, volume and characteristics, and whether discharge is continuing or stopped.

6. Should the Executive Director of the Mississippi Department of Natural Resources declare an Air Pollution Emergency Episode, the permittee will be required to operate in accordance with the permittee's previously approved Emissions Reduction Schedule.

7. The permittee shall allow the Mississippi Department of Natural Resources Bureau of Pollution Control and the Mississippi Department of Natural Resources Bureau of Pollution Control Permit Board and/or their authorized representatives, upon the presentation of credentials:

   a. To enter upon the permittee's premises where an air emission source is located or in which any records are required to be kept under the terms and conditions of this permit; and

   b. At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any monitoring equipment or monitoring method required in this permit; and to sample any air emission.

8. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to:

   a. Violation of any terms or conditions of this permit;

   b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or

   c. A change in any condition that required either a temporary or permanent reduction or elimination of authorized air emissions.

9. Except for data determined to be confidential under the Mississippi Air and Water Pollution Control Law, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Mississippi Department of Natural Resources Bureau of Pollution Control.

10. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

11. Nothing herein contained shall be construed as releasing the permittee from any liability for damage to persons or property by reason of the installation, maintenance, or operation of the air cleaning facility, or from compliance with the applicable statutes of the State, or with local laws, regulations, or ordinances.

12. This permit is non-transferable.

13. This permit is for air pollution control purposes only.

14. This permit is only for the purpose of initial start-up and determining compliance with the applicable terms and conditions of this permit.

PART II
EMISSION LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning June 28, 1985, and lasting until January 28, 1986, the permittee is authorized to operate air emissions equipment and emit air contaminants from production of metal resinates (within the Hard Resins Area), Emission Point 015.

During this period the permittee shall demonstrate that the constructed facilities operate in accordance with previously approved design criteria.

PART III
OTHER REQUIREMENTS

Before the expiration of this permit, a representative of the Bureau of Pollution Control must observe the operation of this system. The company should contact the Bureau when the unit is operating properly under its normal conditions.

HERCULES

Hercules Incorporated
West 7th Street
P.O. Box 1937
Hattiesburg, MS 39401
(601) 545-3450

October 21, 1985

Mr. Don Watts
Bureau of Pollution Control
P. O. Box 10385
Jackson, MS 39209

Dear Mr. Watts:

Re your October 18, 1985, letter addressing our performance evaluation permit for the production of Metal Resinates, please extend the expiration date of the permit from October 28, 1985, to January 28, 1986.

If I can answer any questions, please let me know.

Very truly yours,

Charles S. Jordan

Charles S. Jordan
Environmental Supervisor

CSJ/de
0529L

HERCULES

Hercules Incorporated
West 7th Street
P.O. Box 1937
Hattiesburg, MS 39401
(601) 545-3450

February 21, 1984

CONFIDENTIAL "PROPRIETARY INFORMATION"

Don Watts
Mississippi Bureau of Pollution Control
P. O. Box 10385
Jackson, Mississippi 39209

Dear Mr. Watts:

PRODUCTION OF METAL RESINATES IN TOLUENE SOLUTION

Re operating permit 0800-00001, we have a project underway in the existing Hard Resins area to annually produce 13.1 MM lbs. of Metal Resinates with a capacity of 19.6 MM lbs.

Facilities will be installed or modified to receive and store bulk quantities of molten tall oil rosin adduct and toluene. The process includes reacting rosin adduct with metal oxides of Zinc and Calcium in a solvent solution in the presence of catalytic amounts of Ethylene Glycol and water. Other equipment includes filtering, storing, and bulk loading of the product into tank cars. The entire process is essentially blanketed with inert gas.

The attached Table 1, Metal Resinates tanks, is a listing of tank identification, new or used, volume, contents, type vent, and remarks.

I trust this information satisfies your requests in our February 16th, 1984, phone conversation. If any additional information relating to this facility is needed or if I can answer any additional questions, please let me know.

Very truly yours,

Charles S. Jordan

Charles S. Jordan
Environmental Supervisor

CSJ:bs

Attachment

CONFIDENTIAL
"PROPRIETARY INFORMATION"

TANK NO.	TANK STATUS	VOLUME (GALLONS)	CONTENTS	TYPE VENT	REMARKS
S-92 (T-202)	Used	16,000	Tall Oil Rosin Adduct	(1)	Storage Tank (Ess. Mat'ls)
(T-201)	New	16,000	Toluene	(1)	Storage Tank (Esst. Mat'ls)
S-96 (T-203)	Used	1,100	Slurry Zinc Oxide Calcium Oxide W/Toluene	(1)	Metal Oxides "Make-up" Tank
(T-206)	Used	~ 100	Toluene & Water	(1)	Reflux Egg on North Blend Tank (Reactor)
(T-207)	New	50	Ethylene Glycol & Water	(2)	Reactor (NBT) Add'n (Head) Tank
S-90 (T-204)	Used	4,500	Adduct Tall Oil Rosin, Toluene, Water, Ethylene Glycol, Metal Resinates (Product), Zinc Oxide, Calcium Oxide	(1)	Reactor (North Blend Tank)
S-109 (T-205)	Used	9,300	Product (Metal Resinates)	(1)	Storage Tank (Product)
Tank Car (Loading)	Used	10,000	Product (Metal Resinates)	(1)	Vents to Storage (Toluene) Tank

Legend

(1) Conservation Vent (CV)
(2) Open vent to atmosphere w/manually operated valve

HERCULES

Forest

Hercules Incorporated
West 7th Street
P.O. Box 1937
Hattiesburg, MS 39401
(601) 545-3450

FEB 12 REC'D

February 9, 1982

DEPT OF NATURAL RESOURCE
BUREAU OF POLLUTION CONTROL

Mississippi Bureau of Pollution Control
P. O. Box 10385
Jackson, MS 39209

Attn: Mr. Donald Watts

Gentlemen:

FACILITY PERMIT NO. 08000-0001-021-PILOT PLANT

As required by Part III, Requirement No. 5, the attached table summarizes our Pilot Plant work through December, 1981. We will continue to submit the required documentation on a semi-annual basis.

Yours very truly,

HERCULES INCORPORATED

Charles S. Jordan
Environmental Coordinator

CSJ:p

Attachment

cc: G. Dunn - Brunswick
R. C. Schneider
D. T. Smith, Jr.
J. Gorday

Experimental Equipment Name	Duration of tests (Days)	Raw Materials Used	Type Products Produced	Assessment of Emission		
				Potential Emissions	Control Equipment	Type Vent
Kettle						
A	10	Dimethyl-tera-pholate Residue 2-ethyl hexanol Ethylene glycol Propylene glycol	Polyester resin	Methanol	Total Condenser	No flow
B	30	Hydrogenated resin Soda ash	Resin	Water of reaction	Total Condenser	No flow
C	45	Stearic acid Ethylene diamine Silicone oil	Amine	Water of Reaction	Total Condenser	No flow
Reactors						
A	57	Hydrocarbon resin Hydrogen Mineral spirits	Resin	Hydrogen	None	H_2 purge
Still						
A	81	Rosin	Distilled Rosin	Nil	Barometric Condensers	No flow

THE W. W. SLY MANUFACTURING CO.

P.O. Box 5939 • Cleveland, Ohio 44101 • (216) 238-2000

March 2, 1981

0-577

Hercules, Inc.
P. O. Box 1937
Hattiesburg, Mississippi 39401

Attention: Mr. Richard Van Beek

Sly IMPINJET Gas Scrubber
for Carbon Regeneration Furnace

Gentlemen:

We thank you for the opportunity to submit this proposal for the above project. The following confirms our telephone conversations on February 13th and 26th, 1981.

We understand that the proposed scrubber is to collect 26 lb/hr of carbon and 136 lb/hr organics from a maximum of 94,500 SCFH at 777°F. and will usually run at two-thirds of maximum. From the given inlet of 3710.4 lb/hr of combustion gases and 1983.6 lb/hr water vapor, we calculate an outlet of 2275 ACFM saturated at 184°F. including 2947 lb/hr water vapor. As requested, our calculations are attached.

We quote as follows, all in accordance with our attached terms and conditions:

1 - No. 325 Sly IMPINJET Gas Scrubber, to handle 3585 ACFM at 777°F., with a pressure drop of 7.25" w.g., at an outlet of 2275 ACFM at 184°F. saturated.

Three (3) stages will be provided, and the shell will be all welded 11 ga. stainless steel type 316-ELC. The unit will be 2' 6" diameter, 9' 9" straight side, with 30° top and bottom cones, giving an overall height of 11' 2", as shown in enclosed Catalog No. 151.

Bolted access doors will be provided above and below each plate stage for inspection and access to plates. The inlet and outlet will have 3/16" stainless steel flanges.

1 - Fixed blade mist eliminator, with blades of 16 ga. type 316-ELC stainless steel.

Three (3) sets of type 316 stainless steel impingement baffle plates.

1 - Set of internal spray nozzles of type 303 stainless steel, piping and fittings of 316-ELC stainless steel, with inlet and outlet water connections installed to receive plant service piping will be provided. Water requirements will be: Inlet to plates 7 GPM fresh or recirculated at free flow; inlet to sprays 5 GPM fresh or recirculated at 20 PSIG.

1 - Set of carbon steel support lugs or pads.

PRICE, F.O.B. CLEVELAND, OHIO ---------- $ 9,415.00

Shipping Weight: 1,100 lbs.

* *

ALTERNATE

1 - No. 325 Sly IMPINJET Gas Scrubber, identical to the above except constructed of 3/16" 316-ELC stainless steel.

PRICE, F.O.B. CLEVELAND, OHIO ---------- $11,690.00

Shipping Weight: 1,500 lbs.

* *

TERMS

Net 30 days. Prices are subject to adjustment at time of shipment per our attached Form 2000.

DELIVERY

10 to 12 weeks after drawing approval, subject to verification at time of order.

* *

Your questions and comments will be welcomed. For further assistance, please do not hesitate to contact us. We thank you for past orders and look forward to again putting Sly's equipment and experience to work for your company.

Very truly yours,
THE W. W. SLY MANUFACTURING COMPANY

Ralph H. Hosler

Ralph H. Hosler
Manager, Technical Sales

RHH:smg

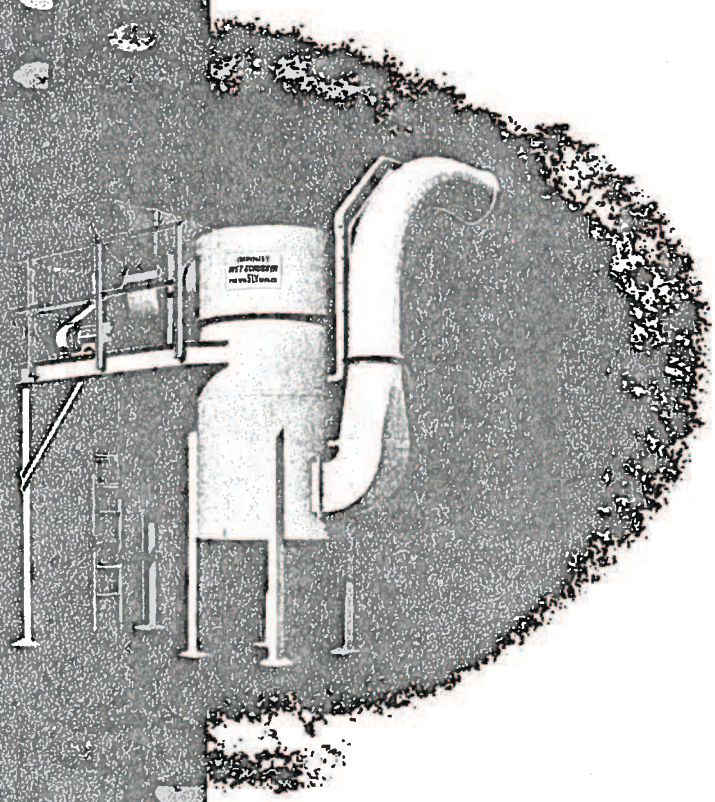
Enclosures: Terms & Conditions, Form 2000
Catalog No. 151
Carbon Regeneration list, Calculations

IN DUPLICATE

10M

SLY

100 YEARS OF SERVICE



IMPINJET®
GAS SCRUBBERS

HIGH EFFICIENCY CLEANING

LOW OPERATING COSTS

TROUBLE-FREE SERVICE

THE W. W.
SLY MANUFACTURING CO
CLEVELAND, OHIO 44101
Offices in Principal Cities

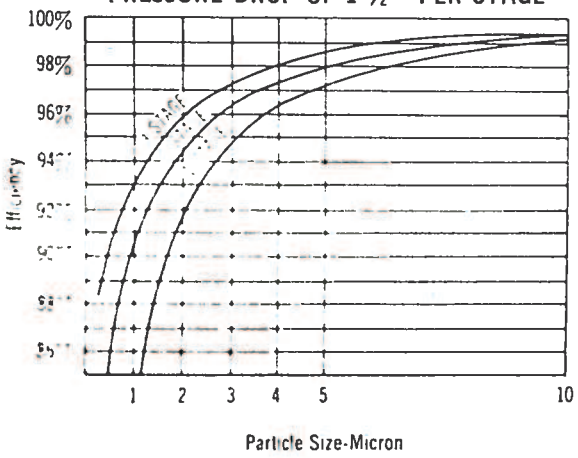
IMPINJET® OFFERS WIDE SELECTION FOR EFFICIENCY AND ECONOMY

Rugged and uncomplicated in design, IMPINJET Scrubbers offer the highest efficiency available in modern gas scrubbers. Engineered to provide *minimum pressure drop*, the scrubber operates with resultant lower power requirements. Attractive benefits follow— thoroughly efficient gas cleaning and cooling with reduced operating costs.

The IMPINJET Scrubber removes materials ranging from sub-micron fumes to larger micron sized dust particles suspended in gas streams. Efficiencies in excess of 99% can be realized on most types of dust or fumes. IMPINJET Scrubber capacities range from 1,000 to 500,000 CFM. Depending upon application, liquid consumption varies from less than ½ to slightly more than 3 GPM per 1,000 CFM at 20 PSIG.

Unique flexibility is furnished by IMPINJET Scrubbers. Made with the future in mind, additional stages can be added to existing installations to handle tomorrow's efficiency requirements—*without increasing liquid consumption*. No need to buy complete new units.

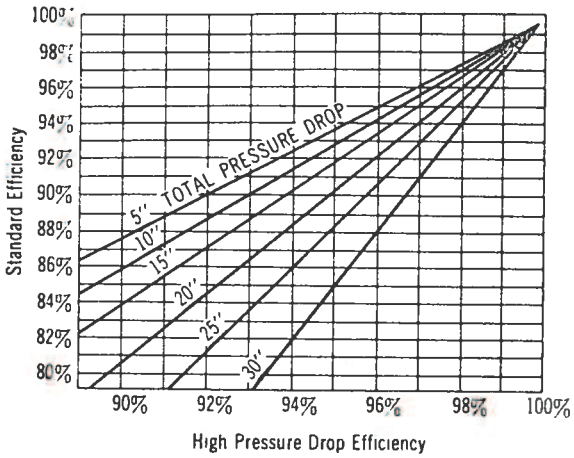
STANDARD IMPINJET EFFICIENCY@ PRESSURE DROP OF 1-½" PER STAGE



SINGLE STAGE UNITS can be used wherever high efficiency at moderate temperatures is required. One stage, or plate, will do a thorough cleaning and cooling job on most applications.

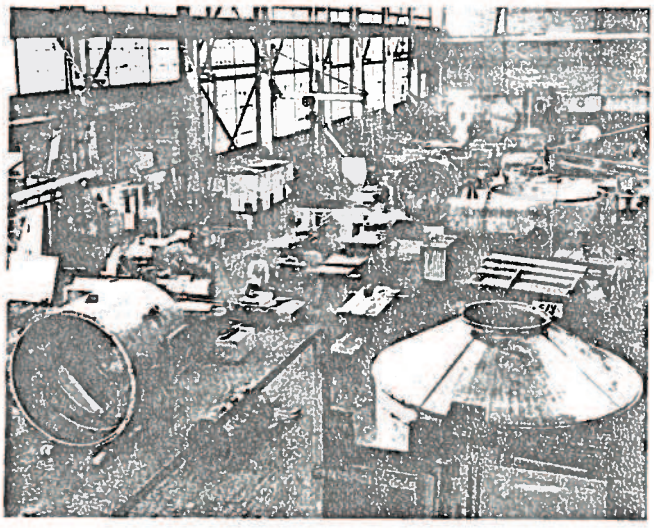
MULTI-STAGE UNITS give a wide range of usefulness on high temperature applications, chemical absorption and where extremely high efficiency is needed.

INCREASED EFFICIENCY DUE TO HIGH PRESSURE DROP



LOW PRESSURE DROP is characteristic of dust collection at moderate temperature or in normal cooling applications. Features maximum economy.

HIGH PRESSURE DROP is desirable for absorption or high performance applications where maximum efficiency is needed to contend with extremely small particle sizes. Combinations of high pressure drop and multiple stages achieve the best and most thorough scrubbing efficiency possible.



SHAPED TO FIT YOUR DUST OR FUME PROBLEMS

Sly makes the IMPINJET Scrubber in different shapes to meet different installation space problems. Each shape, however, contains the same high quality internal parts. Each type of scrubber employs the key to thorough, high efficiency cleaning—our singular impingement plate and baffle grid design.

These made-to-order shapes are:

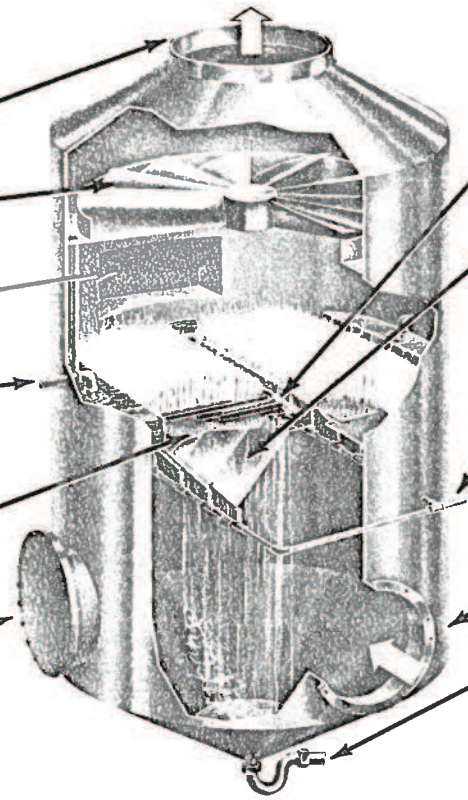
CYLINDRICAL-ROUND—capacities to 70,000 CFM. Shipped assembled—reduces installation time.

SQUARE-RECTANGULAR—40,000 to 500,000 CFM capacities. Shipped assembled to minimize field erection costs or shipped knocked down as required.

IMPINJET INTERNALS—components for use in silos, stacks or other receptacles are custom engineered to the container for the application. No field welding or cutting required.

SINCE 1874 SLY

PARTS DESCRIPTION AND HOW IMPINJET® OPERATES



1. **SCRUBBER OUTLET**—to fan, if suction system. To exhaust stack, if blow-in.

2. **FIXED BLADE MOISTURE ELIMINATOR**—assures droplet-free air to process or atmosphere.

3. **ACCESS DOOR**—permits inspection of plates. Peepholes and quick opening doors are provided at small additional cost.

4. **LIQUID SUPPLY AND WEIR (dam)** — adjustable weir provides uniform liquid flow to plates. Recirculated liquid may be used if concentration does not exceed 10% by weight. Average flow 1-2 GPM/ 1000 CFM.

5. **IMPINGEMENT BAFFLE PLATES**—create interaction of gas stream and liquid. Additional plates (stages) provide increased efficiency.

6. **ACCESS DOOR**—for spray inspection and maintenance.

7. **PLATE DISCHARGE AND SEAL DRAIN**—directs slurry to bottom of scrubber for removal. Non-clogging seal prevents short circuiting of gas.

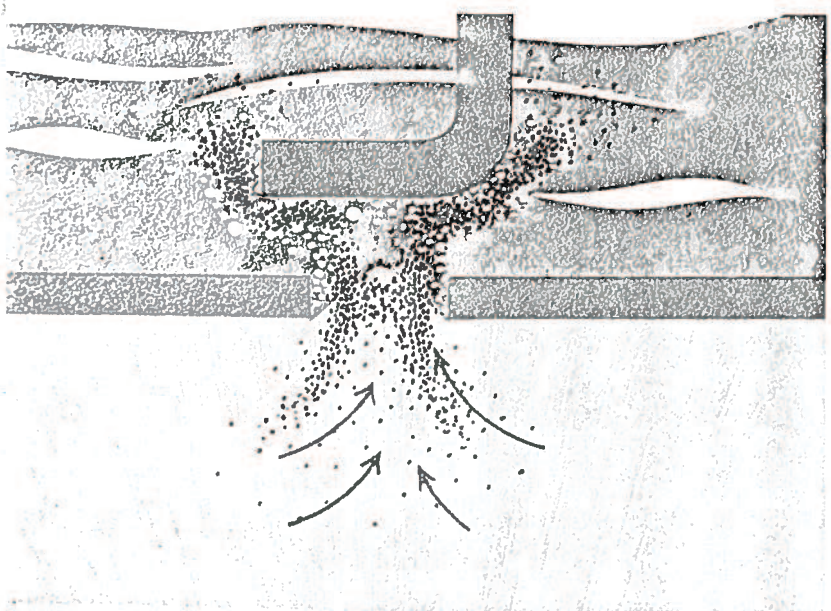
8. **SPRAY SECTION**—for cooling and entrapment of larger particles. Spray washes under side of plate and walls to prevent material build-up. Sprays are non-clogging. Recirculated liquid may be used if particle sizes contained are below 3/32 inches.

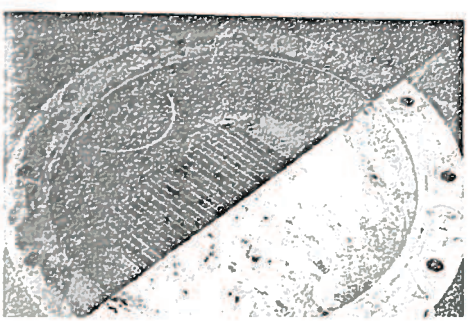
9. **LIQUID SPRAY INLET**—uses approximately 0.5 to 1 GPM/1,000 CFM at 20 PSIG. Liquid consumption is greater if cooling of gas is required. (Combining liquid utilized by liquid supply No. 4 and spray inlet No. 9 provides total liquid flow per 1,000 CFM.)

10. **GAS INLET**—if suction job, from process; if pressure, from blow-in fan.

11. **LOOP SEAL AND DRAIN**—for disposal of material laden liquid. Such liquid may be recirculated to sprays and plate if liquid is limited in supply and if entrapped particles are below 3/32 inches in size.

IMPINGEMENT BAFFLE PLATE ASSURES THOROUGH SCRUBBING





VENTURI EFFECT results in turbulent interaction of liquid and dirt laden gas flowing through perforated plate and striking wetted impingement baffle grid. (Each hole has an individual impingement surface). Minute liquid droplets are formed which entrap suspended matter in gas. Dirt carrying droplets mix with water flowing across baffles for ultimate disposal through loop seal and drain. Cleaned gas passes into mist eliminator for return to process

IMPINJET is actually two scrubbers in one. The spray section cools and humidifies entering gas while simultaneously removing larger particulate matter. In addition, the under-plate spray action keeps the plate and walls clean and prevents build-up.

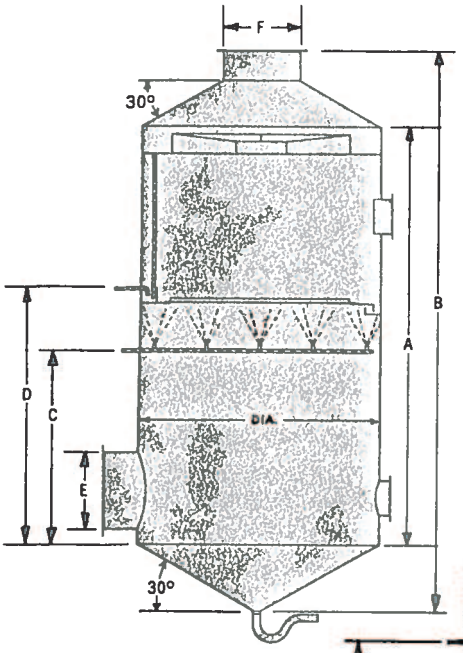
Actual scrubbing is accomplished by the jet-swirl interaction of gas and liquid, produced by the uniquely designed impingement baffle plate. This turbulent effect assures thorough wetting of particles, even those of sub-micron size. Impingement baffle plates are generally made of various stainless steels, but can also be fabricated from plastics and other materials.

Two factors create the high efficiency found in our impingement plate design:

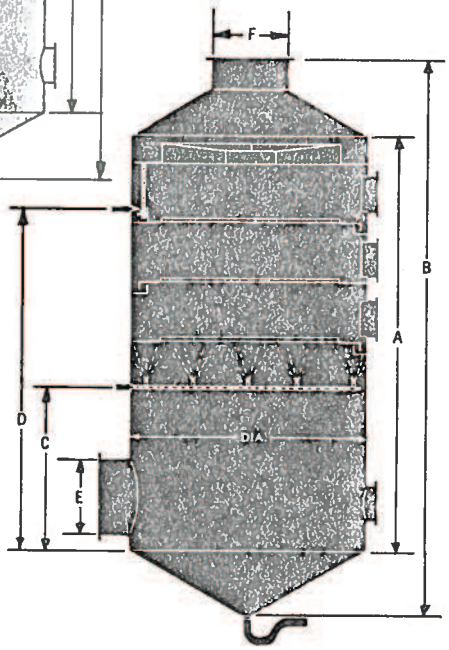
1. the formation of minute droplets of liquid at plate orifices, and
2. the high velocity, relative to the minute droplets, at which dust particles enter the orifices. (Many scrubbers have high relative-velocities but few form minute droplets which, in combination, give highest efficiency possible.)

Greater scrubber efficiency is attainable by increasing relative velocity (higher pressure drop). The net effect is an improvement in the relative velocity of dust and liquid droplets, intensifying the entrapment of dust particles by the liquid medium. This same principle is highly effective in gas cooling wherein high relative velocity and small droplet size assures intimate contact.

IMPINJET® SCRUBBER SELECTION



SINGLE STAGE



THREE STAGE

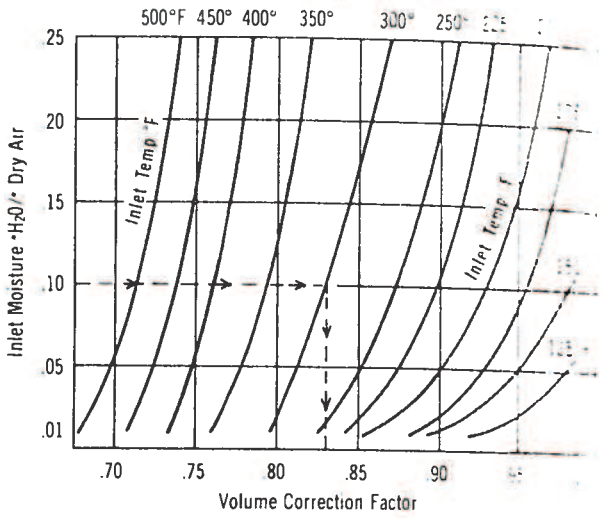
For standard applications IMPINJET Scrubbers, as shown in the chart below, are furnished with stainless steel type [illegible] baffle plates, 3/16 inch mild steel shell, all internals and piping, mist eliminator, inspection doors and outlet flanges.

Coated mild steel, stainless steel, rubber lined, fiberglas are all available for special chemical [illegible] (see chart on page 7)

Complete or partial alloy construction or capacities other than tabulated below are engineered to your specific requirements. Consult your Sly representative or direct to the factory.

VOLUME CORRECTION

(use to determine outlet volume)



VOLUME CORRECTION

(Use to Determine Outlet Volume)

Converting inlet volume to outlet volume is necessary in sizing scrubber capacities. Inlet volume and inlet moisture content are either known or must be assumed from the application. The chart reflects the Volume Correction Factor used to determine outlet volume by reading down from the inlet section of inlet moisture and its temperature in °F. Inlet Volume x Correction Factor = Outlet Volume.

Example: Given Inlet Volume at 6000 CFM and Inlet Moisture at 0.10 #H₂O/#Dry Air @ 300°F., chart shows Correction Factor of 0.83. Inlet Volume, 6000 CFM x Correction Factor = Outlet Volume of 4980 CFM.

Size IMPINJET SCRUBBER for 4980 CFM

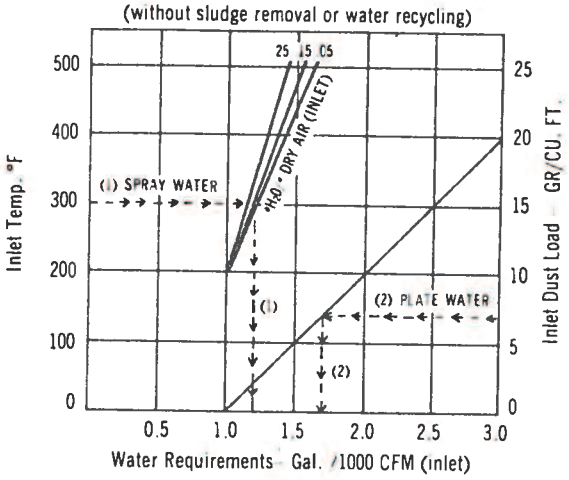
SINGLE STAGE DIMENSIONS

OUTLET VOLUME (CFM) Normal Capy 420 FPM	Max. Capy 500 FPM	Dia.	Plate Water Inlet I.P.S. Inches	Spray Water Inlet I.P.S. Inches	Bottom Drain I.P.S. Inches	Straight Side A	Over-All Height B	Spray Water Inlet C	Plate Water Inlet D	Inlet Flange Dia. E
1350	1550	2'0"	¾	½	1	5'6"	6' 9"	1' 5"	3' 5"	
2100	2450	2'6"	1	¾	1¼	5'9"	7' 2"	1' 7"	3' 7"	
3000	3500	3'0"	1	¾	1¼	6'0"	7' 8"	1' 9"	3' 9"	1'
4050	4800	3'6"	1¼	1	1½	6'3"	8' 2"	1'11"	3'11"	
5300	6250	4'0"	1¼	1	1½	6'6"	8' 7"	2' 1"	4' 1"	1' 4'
6700	7950	4'6"	1¼	1	1½	6'9"	9' 1"	2' 3"	4' 3"	1' 6
8250	9800	5'0"	1½	1¼	2	7'3"	9'10"	2' 3"	4' 3"	1' 7"
10000	11850	5'6"	1½	1¼	2	7'6"	10' 3"	2' 5"	4' 5"	1' 9
11900	14100	6'0"	1½	1¼	2	7'9"	10' 9"	2' 8"	4' 8"	2' 0
13950	16550	6'6"	2	1¼	2½	8'0"	11' 3"	2'10"	4'10'	2' 2
16200	19200	7'0"	2	1½	2½	8'3"	11'10"	3' 1"	5' 1"	2' 4
18600	22050	7'6"	2	1½	2½	8'6"	12' 3"	3' 3"	5' 3"	2' 6"
21150	25100	8'0"	2	1½	2½	9'3"	13' 3"	3' 6"	5' 6"	2' 8"
23850	28350	8'6"	2½	2	3	9'9"	13'11"	4' 0"	6' 0"	2'10'
26750	31800	9'0"	2½	2	3	10'0"	14' 5"	4' 3"	6' 3"	3' 0
29800	35400	9'6"	2½	2	3	10'6"	15' 2"	4' 8"	6' 8"	3' 2"
33000	39250	10'0"	2½	2	3	10'9"	15' 8"	4'11"	6'11"	3'0"x3' 1
36400	43250	10'6"	2½	2	3	11'0"	16' 1"	5' 2"	7' 2"	3'0"x3' 3
39950	47500	11'0"	3	2	4	11'6"	16'10"	5' 6"	7' 6"	3'0"x3'6
43650	51900	11'6"	3	2	4	13'0"	18' 7"	6' 0"	8' 0"	3'0"x4' 1
47550	56500	12'0"	3	2½	4	13'3"	19' 1"	6' 3"	8' 3"	3'0"x4' 6
51550	61350	12'6"	3	2½	4	13'6"	19' 7"	6' 6"	8' 6"	3'0"x5' 0
55750	66500	13'0"	3	2½	4	13'9"	20' 1"	6' 9"	8' 9"	3'0"x5' 4
60150	71550	13'6"	3	2½	4	14'0"	20' 6"	7' 0"	9' 0"	3'0"x5'10
64700	76950	14'0"	4	2½	4	14'3"	21' 0"	7' 3"	9' 3"	3'0"x6' 4

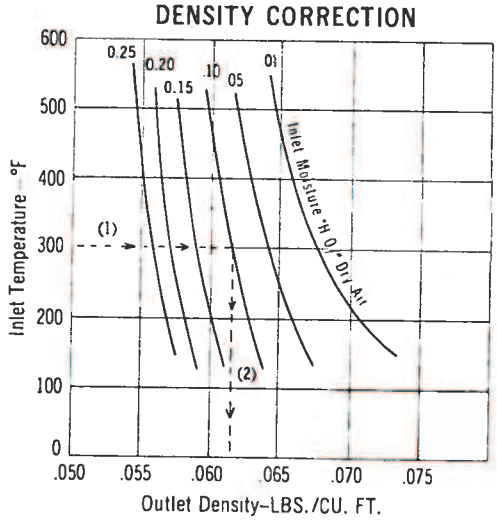
SINCE 1874 SLY

WATER CONSUMPTION

(without sludge removal or water recycling)



DENSITY CORRECTION



DENSITY CORRECTION

Outlet density is required in order to size exhaust equipment—ductwork and fans. At the intersection of inlet temperature and inlet moisture lines on chart, read down to find outlet density.

Example: Given (1) an inlet temperature of 300°F. and (2) inlet moisture content of 0.10 #H_2O/#, the chart reflects an outlet density of .0615 #/Cu. Ft.

WATER CONSUMPTION

(Without Sludge Removal or Water Recycling)

To use chart, the following *inlet* conditions must be known or assumed—temperature, moisture content, dust load and volume.

(1) *Spray Water Consumption* (at 20 psig)—apply inlet temperature and inlet moisture to chart; find intersection of the two values, read down to find Gals./1000 CFM.

(2) *Plate Water Consumption* (at free flow) is found by applying inlet dust load to average consumption curve; at intersection, read down to find Gals./1000 CFM.

Example: Given an inlet temperature of 300°F., inlet moisture content of 0.10 #H_2O/#Dry Air, 7 Grains/Cu. Ft. inlet dust load and inlet volume of 6000 CFM.:

Spray Water Consumption (1) =
1.20 Gals./1000 CFM x 6 = 7.20 GPM @ 20 psig

Plate Water Consumption (2) =
1.70 Gals./1000 CFM x 6 = 10.20 GPM @ Free Flow

Total Water Consumption = 17.40 GPM

PRESSURE DROP @ 70° F.

NUMBER ON STAGES	NORMAL CAPY. (INCHES, W.G.)	MAX. CAPY. (INCHES, W.G.)
ONE STAGE	3.0	4.25
TWO STAGE	4.5	6.4
THREE STAGE	6.0	8.5

PRESSURE DROP

Pressure drop is an important consideration in evaluating the efficiency expected of a scrubber in a given application. Low pressure drop is characteristic of dust collection at moderate temperature or in normal cooling operations. High pressure drop is desirable for absorption or high performance applications demanding maximum efficiency to contend with extremely small particle sizes.

When high efficiency is required, the use of additional stages provides a corresponding increase in pressure drop. Increasing the velocity through the impingement baffle plate affords a proportional increase in pressure drop.

The above chart shows standard pressure drop in inches, w.g., across scrubber for 1 stage, 2 stages and 3 stages.

To correct pressure drop to operating conditions, multiply standard pressure drop by the ratio of outlet density to standard density.

Example: Using .0615 #/Cu. Ft. Dry Air from Density Correction example and the 1 stage average capacity pressure drop of 3" at 70°F. (density .075) the operating pressure drop is: 3" H_2O x .0615/.075 = 2.46 inches, w.g.

Note: Higher pressure drops can be used for higher efficiency. See page 2.

TWO STAGE DIMENSIONS

Impeller Number	Straight Side A	Over-All Height B	Spray Water Inlet C	Plate Water Inlet D	Inlet Flange Dia. E	Outlet Flange Dia. F
[illegible]	7'6"	8' 9"	1' 5"	5' 5"	8"	8"
[illegible]	7'9"	9' 2"	1' 7"	5' 7"	10"	11"
[illegible]	8'0"	9' 8"	1' 9"	5' 9"	1' 0"	1' 1"
[illegible]	8'3"	10' 2"	1'11"	5'11"	1' 2"	1' 3"
[illegible]	8'6"	10' 7"	2' 1"	6' 1"	1' 4"	1' 5"
[illegible]	8'9"	11' 1"	2' 3"	6' 3"	1' 6"	1' 7"
[illegible]	9'3"	11'10"	2' 3"	6' 3"	1' 7"	1' 9"
[illegible]	9'6"	12' 3"	2' 5"	6' 5"	1' 9"	1'11"
[illegible]	9'9"	12' 9"	2' 8"	6' 8"	2' 0"	2' 2"
[illegible]	10'0"	13' 3"	2'10"	6'10"	2' 2"	2' 4"
[illegible]	10'3"	13'10"	3' 1"	7' 1"	2' 4"	2' 6"
[illegible]	10'6"	14' 3"	3' 3"	7' 3"	2' 6"	2' 8"
[illegible]	11'3"	15' 3"	3' 6"	7' 6"	2' 8"	2'10"
[illegible]	11'9"	15'11"	4' 0"	8' 0"	2'10"	3' 0"
[illegible]	12'0"	16' 5"	4' 3"	8' 3"	3' 0"	3' 2"
[illegible]	12'6"	17' 2"	4' 8"	8' 8"	3' 2"	3' 4"
[illegible]	12'9"	17' 8"	4'11"	8'11"	3'0"x3' 2"	3' 7"
[illegible]	13'0"	18' 1"	5' 2"	9' 2"	3'0"x3' 6"	3' 9"
[illegible]	13'6"	18'10"	5' 6"	9' 6"	3'0"x3'10"	3'11"
[illegible]	15'0"	20' 7"	6' 0"	10' 0"	3'0"x4' 2"	4' 1"
[illegible]	15'3"	21' 1"	6' 3"	10' 3"	3'0"x4' 6"	4' 4"
[illegible]	15'6"	21' 7"	6' 6"	10' 6"	3'0"x5' 0"	4' 6"
[illegible]	15'9"	22' 1"	6' 9"	10' 9"	3'0"x5' 4"	4' 8"
[illegible]	16'0"	22' 6"	7' 0"	11' 0"	3'0"x5'10"	4'10"
[illegible]	16'3"	23' 0"	7' 3"	11' 3"	3'0"x6' 4"	5' 0"

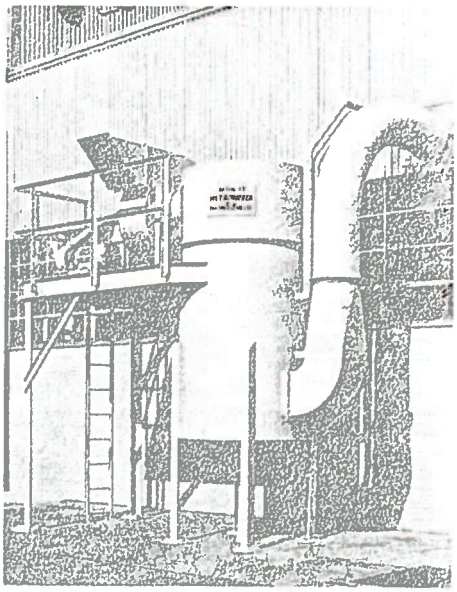
THREE STAGE DIMENSIONS

Impeller Number	Straight Side A	Over-All Height B	Spray Water Inlet C	Plate Water Inlet D	Inlet Flange Dia. E	Outlet Flange Dia. F
[illegible]	9'6"	10' 9"	1' 5"	7' 5"	8"	[illegible]
[illegible]	9'9"	11' 2"	1' 7"	7' 7"	10"	[illegible]
[illegible]	10'0"	11' 8"	1' 9"	7' 9"	1' 0"	1' [illegible]
[illegible]	10'3"	12' 2"	1'11"	7'11"	1' 2"	1' [illegible]
[illegible]	10'6"	12' 7"	2' 1"	8' 1"	1' 4"	1' [illegible]
[illegible]	10'9"	13' 1"	2' 3"	8' 3"	1' 6"	1' [illegible]
[illegible]	11'3"	13'10"	2' 3"	8' 3"	1' 7"	1' [illegible]
[illegible]	11'6"	14' 3"	2' 5"	8' 5"	1' 9"	1'11
[illegible]	11'9"	14' 9"	2' 8"	8' 8"	2' 0"	[illegible]
[illegible]	12'0"	15' 3"	2'10"	8'10"	2' 2"	[illegible]
[illegible]	12'3"	15'10"	3' 1"	9' 1"	2' 4"	[illegible]
[illegible]	12'6"	16' 3"	3' 3"	9' 3"	2' 6"	[illegible]
[illegible]	13'3"	17' 3"	3' 6"	9' 6"	2' 8"	[illegible]
[illegible]	13'9"	17'11"	4' 0"	10' 0"	2'10"	[illegible]
[illegible]	14'0"	18' 5"	4' 3"	10' 3"	3' 0"	[illegible]
[illegible]	14'6"	19' 2"	4' 8"	10' 8"	3' 2"	[illegible]
[illegible]	14'9"	19' 8"	4'11"	[illegible]	[illegible]	[illegible]
[illegible]	15'0"	20' 1"	5' 2"	[illegible]	[illegible]	[illegible]
[illegible]	15'6"	20'10"	5' 6"	[illegible]	[illegible]	[illegible]
[illegible]	17'0"	22' 7"	6' 0"	[illegible]	[illegible]	[illegible]
[illegible]	17'3"	23' 1"	6' 3"	[illegible]	[illegible]	[illegible]
[illegible]	17'6"	23' 7"	6' 6"	[illegible]	[illegible]	[illegible]
[illegible]	17'9"	24' 1"	6' 9"	[illegible]	[illegible]	[illegible]
[illegible]	18'0"	24' 6"	7' 0"	[illegible]	[illegible]	[illegible]
[illegible]	18'3"	25' 0"	7' 3"	13' 3"	[illegible]	[illegible]

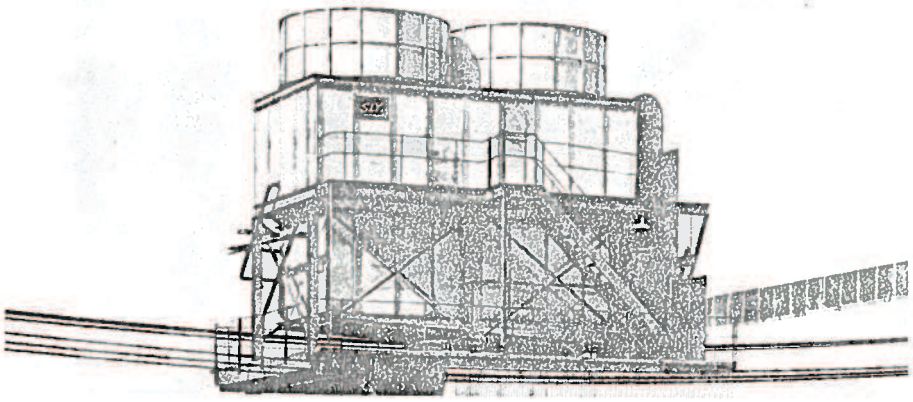
SINCE 1874 SLY

UNIQUE SHAPES MEET CUSTOMERS' NEEDS

IMPINJET® is made in 3 shapes to control dust and fumes



ROUND SCRUBBER—Sealed Power Corp. Vents spin molding machines. Built to operate at 5,000 CFM, 120°F, the scrubber has provisions for increasing capacity to 6,000 CFM.

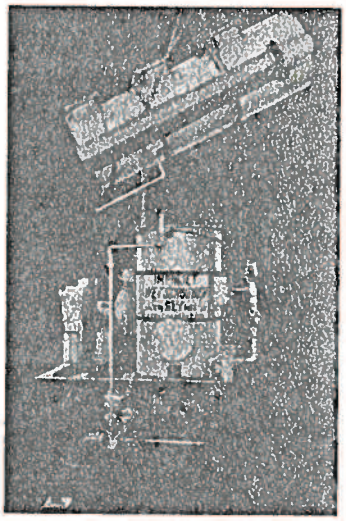


RECTANGULAR SCRUBBER—Republic Steel Corp. Unit is used in processing coal. Operating to 146,000 CFM at 200°F, the scrubber collects dust arising from coal drier.

Three unique shapes accommodate unusual space limitations. This is only one of the reasons why Round and Square-rectangular IMPINJET Scrubbers and IMPINJET Internals are progressive answers to many dust and fume control problems.

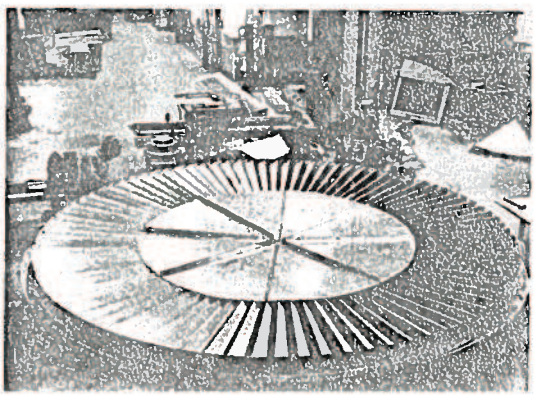
More important, each scrubber is engineered to economically meet capacity, temperature and liquid requirements for specific dust and fume applications.

Depth of know-how and quality construction assure highest cleaning efficiencies, from the smallest 1,000 CFM capacity units to the large 500,000 CFM capacity models.

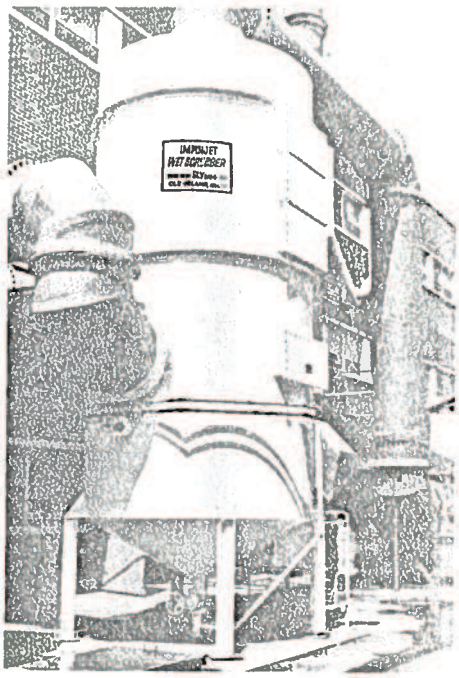


SCRUBBER TEST LABORATORY—Without obligation, our laboratory will evaluate samples as a step to recommending the proper equipment for your application. (See analysis sheet in back of catalog).

Or—for actual field testing—we will send an IMPINJET Scrubber to your job site. The cost is nominal.



IMPINJET MIST ELIMINATOR—20 feet in diameter in final stage of fabrication. Installation in customer's concrete stave silo.



ROUND SCRUBBER — Sylvania Electric Products, Inc. This three stage IMPINJET is used for dust control and fume absorption. The unit is designed to handle 30,000 CFM at 180°F. Polyvinyl dichloride (PVDC) impingement baffle plates and butyl lined shell are employed to resist corrosion.

SINCE 1874 SLY

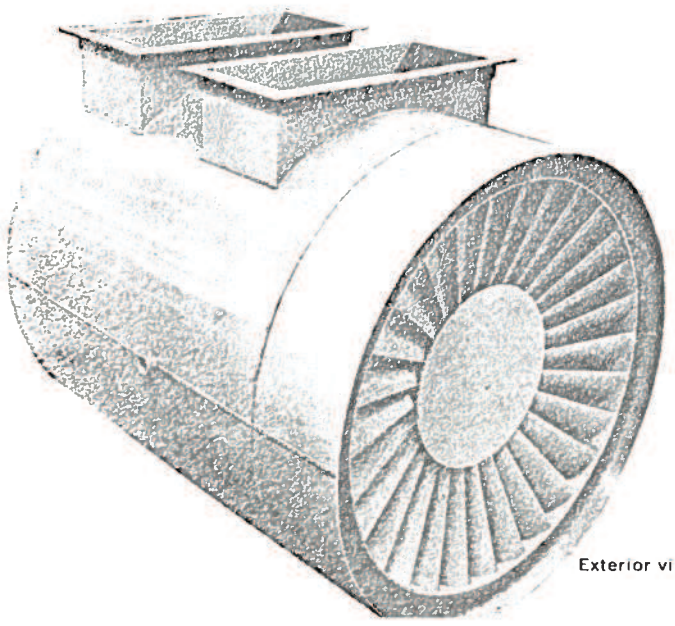
MATERIALS OF CONSTRUCTION

MAX USE TEMP-GAS STREAM °F MAX USE TEMP-SOLUTION °F		400 140	— 200	— 200	— 200	170 140	200 150	4 2
Material Collected (5% by Weight)	Mild Steel	Mild Steel Coated	304 S/S	316 S/S	316 L S/S	PVC	Rubber Lined M S	Ep Fil GI
Acetic Acid	N	G	E	E	E	E	E	E
Acetone	N	G	E	E	E	E	E	E
Aluminum Chloride	N	E	N	N	N	E	E	E
Aluminum Sulfate	N	E	E	E	E	E	E	E
Ammonia (Wet)	N	G	E	E	E	N	G	E
Ammonium Chloride	N	E	G	G	G	E	E	E
Ammonium Hydroxide	N	N	E	E	E	E	E	E
Ammonium Nitrate	N	E	E	E	E	E	E	E
Ammonium Phosphate	N	G	G	G	G	E1	E	E
Ammonium Sulfate	N	G	G_1	E	E	E	E	E
Black Liquor ($NaOH$, Na_2S, Na_2CO_3)	N	N	N	N	G	E	E	E
Borax	N	G	E	E	E	E	E	E
Boric Acid	N	G	E	E	E	E	E	E
Calcium Chloride	N	G	G	E	E	E	E	E
Calcium Hypochlorite	N	N	N	N	N	E	E	E
Carbonic Acid	N	G	E	E	E	E	E	E
Chlorine	N	N	N	N	N	E	E	E
Chlorine Dioxide	N	N	N	N	N	E2	G	E
Chromic Acid	N	N	G	G	G	E3	G	E
Citric Acid	N	G	E	E	E	E	E	E
Copper Chloride	N	N	N	N	N	E	E	E
Copper Sulfate	N	N	E	E	E	E	E	E
Coal Dust	E	E	E	E	E	E	E	E
Coal Dust (Dryers—SO_2)	N	G	E	E	E	N	N	N
Ferric Chloride	N	N	N	N	N	E	E	E
Ferric Sulfate	N	N	E	E	E	E	E	E
Ferrous Sulfate	N	N	E	E	E	E	E	E
Hydrochloric Acid	N	G	N	N	N	E	E	E
Hydrofluoric Acid	N	N	N	N	N	G	G	E
Hydrogen Sulfide	N	N	N	G	G	E	E	E
Hydrogen Peroxide	N	N	G	G	G	E	E	E
Magnesium Chloride	N	N	G	G	G	E	E	E
Magnesium Hydroxide	N	N	G	G	G	E	E	E
Magnesium Sulfate	N	N	G	G	G	E	E	E
Mixed Acid (15% Nitric & 4% HF)	N	N	N	N	N	G4	G	E7
Nitric Acid	N	N	E	E	E	E	G	E8
Oleic Acid	N	N	G4	G4	G4	N	G	E
Phosphoric Acid	N	N	G5	G5	G5	E	E	E
Sodium Carbonate	N	N	E	E	E	E	E	E7
Sodium Chloride	N	E	G5	E5	E5	E	E	E
Sodium Hydroxide	E6	E6	E	E	E	E	E	E
Sodium Hypochlorite	N	N	G4	G4	G4	E	E	E8
Sodium Nitrate	G	G	E	E	E	E	E	E
Sodium Sulfate	G	G	E	E	E	E	E	E
Sodium Sulfite	G	G	E5	E5	E5	E	E	E
Sulfur Dioxide	N	N	G	E	E	E	E	E
Sulfuric Acid	N	G	E	E	E	E	E	E
Sulfurous Acid	N	G	G5	G5	G5	E	E	E
Zinc Chloride	N	N	N	G	G	E	E	E
Zinc Sulfate	N	N	N	G	G	E	E	E

E = Excellent
G = Good
N = Not Suitable for Use

1 Under basic or neutral conditions only
2 At ambient temperature
3 Aqueous solution only

4 to 100° F
5 to 120° F
6 to 135° F
7 To 140° F
8 To 180° F



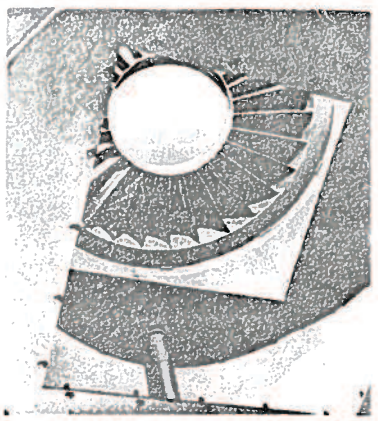
Exterior view of PVC Scrubber

Pictured are exterior and interior views of a PVC constructed IMPINJET Scrubber. The entire unit, including fasteners and piping, is made of Polyvinyl Chloride.

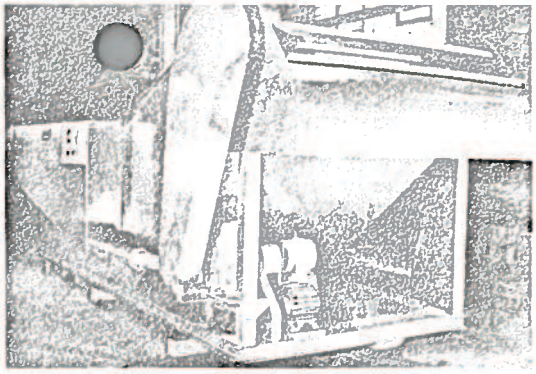
This two-stage unit has a capacity of 5,000 CFM with a liquid consumption rate of 15 GPM.

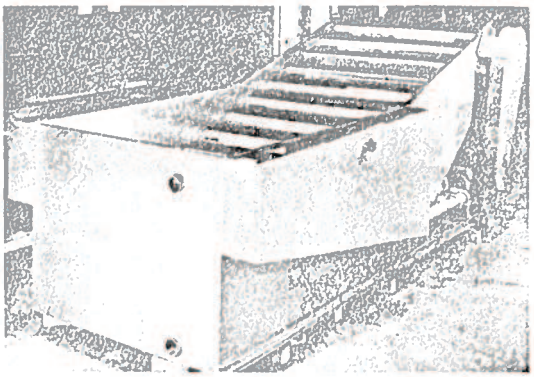
Used in a fume absorption application, the scrubber is employed to draw off chlorine fumes during a purification step in a molten aluminum lancing operation.

Interior view of PVC Scrubber



TYPICAL IMPINJET® SCRUBBER APPLICATIONS

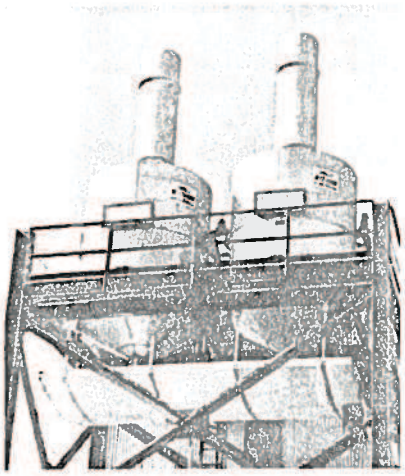




SLUDGE REMOVAL AND LIQUID RECIRCULATION

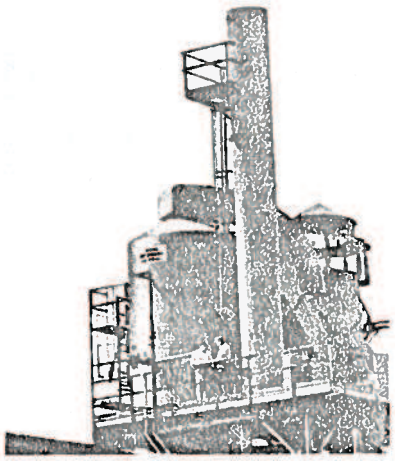
All IMPINJET Scrubbers used in dust collection applications can be equipped with a sludge removal and recirculation system. Engineered specifically to a given application, sludge removal and recirculation offers minimum liquid consumption. Removing sludge and reusing the liquid is particularly desirable when the supply is limited.

Dewatering tanks make a clean sweep of both air and water pollution. Tanks, shown at right, accept slurry from scrubbing systems and retain it long enough to allow solids to settle. Accumulations are periodically removed by sludge ejector. Processed liquid may be recirculated to the scrubbing system or released to sewers. Tank capacities range upward from 1500 gallons. Construction is normally mild steel. Tank retention times vary, depending upon the process.



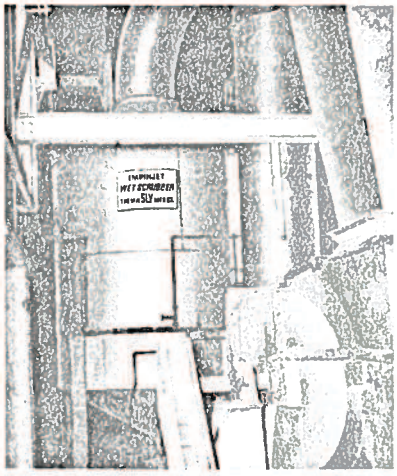
CO-OP FARM CHEMICALS LAWRENCE, KANSAS

Two single stage No. 175 IMPINJET Scrubbers, made of 304 stainless steel, collect ammonium nitrate dust from a fluid bed dryer and cooler. One unit handles 17,000 CFM @ 130°F.; the other, 17,000 CFM @ 100°F. Liquid circulation of each amounts to 34 GPM.



APEX FOUNDRY, INC. DETROIT, MICHIGAN

Three stage No. 3100 IMPINJET Scrubber, constructed of epoxy coated mild steel, collects extremely fine dust particles in a high dust loading cupola exhaust application. Operating at 32,000 CFM and temperatures ranging from 1,500 to 2,000°F., this turnkey engineered system includes liquid recirculation and automatic safety controls.



BUNKER HILL COMPANY KELLOGG, IDAHO

Single stage No. 180 IMPINJET Scrubber fabricated from 304 stainless steel, vents kiln handling lead and zinc ore. The unit operates at 20,000 CFM and a temperature of 200°F. Liquid consumption requirement is 60 GPM.

REPRESENTATIVE LIST OF IMPINJET USERS

Spencer Chemical Company
E. I. Du Pont de Nemours & Co., Inc.
Owens Illinois Glass Co.
Hammermill Paper Co.
Republic Steel Corp.
Armco Steel Corp.
Allied Chemical Co.
Consolidated Edison
Campbell Soup Co.
American Cyanamid Co.
Sealed Power Corp.
General Refractories Co.
Celanese Chemical Co.
Man-Gill Chemical Co.
Tennessee Valley Authority
Benguet Consolidated, Inc.
Lion Match Company
General Motors Corp.
Bunker Hill Company
General Foods, Inc.
W. R. Grace Co.
Firestone Tire & Rubber Co.
Armstrong Cork Co.
Rohm & Haas Co.
Rinshed-Mason Co.
Harshaw Chemical Co.
Olin Mathieson Chemical Corp.
North American Aviation, Inc.
Union Carbide Chemicals Co.
U. S. Army Chemical Center
Link-Belt Co.
Corning Glassworks
Kaiser Industries
Dow Chemical Corp.
Eastern Associated Coal
Ford Motor Co.
Geigy Chemical Corp.
B.F. Goodrich Chemical Co.
Hooker Chemical Co.
International Salt Co.
Monsanto Chemical Company
National Coal Co.
U.S. Steel Corp.
Jones & Laughlin Steel Corp.

Control Dust and Fumes ...Wet or Dry ...with Sly

THE W. W. SLY MANUFACTURING CO.
21945 Drake Rd. • Strongsville, Ohio • (216) 238-2000
Write: P.O. Box 5939 • Cleveland, Ohio 44101

7.5M-4-77 Litho in U.S.A.

HERCULES INCORPORATED

HATTIESBURG, MISSISSIPPI 39401

April 30, 1981

Department of Natural Resources
Bureau of Pollution Control
P. O. Box 10385
Jackson, MS 39209

Attn: Mr. Don Watts:

Dear Don:

RE: OPERATING PERMIT NO. 0800-00001

This letter is in reference to our recent phone conversation concerning our carbon regeneration furnace with scrubber, emission point 036.

Our present scrubber, W. W. Sly Company, Model 360, gas scrubber, is beyond repairs and is being replaced with a W. W. Sly Company, Model 325, gas scrubber.

The reason for the change to a Model 325 scrubber, which is the same type scrubber, is that the Model 360 scrubber (put in service with the multi-hearth regeneration furnace) is oversized for our present fluidized bed regeneration furnace. The Model 325 scrubber will allow more efficient operation of the gas scrubber.

If you have any questions, please contact me.

Yours very truly,

HERCULES INCORPORATED

Charles Jordan

Charles Jordan
Senior Chemical Engineer

CJ:p

HERCULES INCORPORATED
HATTIESBURG, MISSISSIPPI 39401

May 29, 1981

Department of Natural Resources
Bureau of Pollution Control
P. O. Box 10385
Jackson, MS 39209

Attn: Mr. Don Watts

Dear Don:

Re your 5/14/81 letter conerning the carbon regeneration furnace scrubber, please find the attached W. W. Sly Company proposal, calculations and scrubber information. They also recommended by phone that we do not use the Model 360 scrubber as described in my 4/30/81 letter.

If you have any additional questions, please let me know.

Very truly yours,

HERCULES INCORPORATED

Charles Jordan
Senior Chemical Engineer

CJ:p

Attachments

STATE OF MISSISSIPPI

AIR AND WATER POLLUTION CONTROL COMMISSION

AIR DIVISION

P.O. Box 827

JACKSON, MISSISSIPPI 39205

APPLICATION FOR PERMIT

THIS SPACE FOR OFFICE USE ONLY.

APPLICATION FOR:

EXISTING FACILITY

RENEWAL OF PERMIT TO OPERATE

APPROVAL TO CONSTRUCT

GENERAL INSTRUCTIONS FOR ALL APPLICANTS:

1. The majority of this form must be completed by all applicants; specific instructions regarding type of permit applied for are given where needed.

2. For applications on Permit to Operate renewals, separate forms must be completed for each defined process, emission point, etc., previously holding a distinct and separate Permit to Operate.

INSTRUCTIONS

NOTE: ALL THIS INFORMATION MUST BE PROVIDED.

1. Name of Facility - give the name of the plant, mill, factory or business for which this application is made.

2. Location of Facility - give street, road or highway, address and UTM or Lat-Long. of facility.

4. Name of Owner - give name of person(s) or corporation which has day-to-day responsibility for ownership of facility.

6. In-plant person to be contacted on pollution matters- give the name of an individual who is usually at the facility who is responsible for knowing about pollution matters.

7-8. Corporate Address - to be filled in for Mississippi facilities with main offices at locations other than that of facility listed in Nos. 1,2, & 3. If none, so indicate.

10. Major Activity - define type of operation and products, show Standard Industrial Classification Number.

11. Operating Schedule - must be provided as stated. If additional description of sporadic operation is needed, attach a sheet of explanation.

FOR ALL APPLICANTS:

This application is made under and in full accord with the provisions of Chapter 238, Mississippi Laws of 1966.

1. Name of Facility - factory, mill, plant, etc. -		Telephone
Kymene Plant - Kymene expansion project		545-3450
2. Location of Facility	**Town**	**County**
West 7th Street	Hattiesburg	Forrest
3. Mailing address of Facility	**City**	**Zip**
P. O. Box 1937	Hattiesburg	39401
4. Name of Owner		**Telephone**
Hercules Incorporated		
5. Mailing address of Owner	**City**	**Zip**
P. O. Box 1937	Hattiesburg	39401
6. In-plant person to be contacted on pollution matters		**Title**
H. R. Buckley		Plant Manager
7. Does facility have a corporate or main office elsewhere?		X Yes ___ No
8. If yes, complete corporate name and mailing address	**City**	**State** **Zip**
Hercules Incorporated, Wilmington DE 19899		
9. Correspondence to be sent to 1 4 (6) 8 above. (circle one)		
10. Major activity of facility: Polymerization		
Type of operation and products: Polyamide Resin		
S.I.C. Number: 2800		

11. Operating Schedule

	Hours per day	Days per week	Weeks per year
Normal	24	7	52
Seasonal or peak operation period	Hours per day	Days per week	Weeks per year

FOR EXISTING FACILITIES AND RENEWAL OF PERMIT TO OPERATE ONLY:

Facility Permit Status (permits regarding air emissions only)

What permits are presently held by facility: (list)

TYPE PERMIT	EXPIRATION DATE	FACILITY NO.	PROCESS OR EQUIPMENT PERMITTED
Operate	5/1/83	0800-0000-024	Existing Kymene Plant

FOR EXISING FACILITY PERMIT RENEWAL ONLY:

Please answer all the following:

1. Has the facility been modified in any way (including fuel and/or raw material changes) during period covered by the Operating Permit _____Yes ____No

2. If No. 1 is yes, was modification made in accordance with permit requirements specified in Regulation APC-S-2?
   ____Yes ____No ____If no, explain _____

   _____

   _____

   _____

3. Have the emission rates from the facility been tested within the last 6 months? _____Yes _____No

   If yes, please attach a copy of the stack test report(s).

   NOTE: If no stack emissions test has been made, you may be required to have one performed and submitted in order to prove compliance with emission regulations.

4. Is this facility still operating at the location given in previous applications? ____Yes ____No

5. If No. 4 is no, complete the following:

New location: _____

_____

New Mailing Address: _____

_____

Was a request for approval to move made for this new location? ____Yes ____No

Was approval granted? _____Yes ____No

FOR ALL APPLICANTS, WHETHER NEW CONSTRUCTION, EXISTING FACILITY, OR RENEWAL

Control Equipment covered under this application-Please check all applicable and indicate number of units

PARTICULATE EMISSIONS CONTROL EQUIPMENT

1. Cyclone(s)_____
2. Water Scrubber_____
3. Baghouse_____
4. Electrostatic Precipitator_____
5. Venturi Scrubber_____
6. Cyclonic Baghouse_____
7. Cyclonic Scrubber_____
8. Other _____

GASEOUS EMISSIONS CONTROL EQUIPMENT

1. Water Scrubber___X__
2. Activated Carbon Bed_____
3. Other __1__ (Water Aspirator)

WASTE DISPOSAL SYSTEMS

1. Solid Waste Incinerator_____
2. Liquid Waste Incinerator_____
3. Wood or other waste fuel recovery boiler _____
4. Gaseous Waste Flare_____
5. Liquid Waste Flare_____
6. Other _____

Pneumatic Conveying System _____

Other (please describe)

FOR ALL APPLICANTS

FUEL BURNING EQUIPMENT
(Except for Refuse Disposal)

This form has 3 pages; each is a continuation of the equipment information from the page before. Please fill in as completely as possible, listing all fuel burning equipment. Reasons should be given explaining any data not filled in.

Page 1

1. Fill in company name and address, plus year for which data is given (if existing facility) at top of page. Use data for most recent calendar year available.

2. Reference Number. Use an identifying number for each boiler, furnace, kiln, etc., and use the same reference number on each of the three pages to identify information for the same unit.

3. Manufacturer and Model Number. Nameplate date for boiler, furnace, kiln, etc. Waste gas flares should also be included on this form and stationary internal combustion engines over 3000 horsepower.

4. Rated Capacity in Millions of BTU per hour.

5. Type of Burner Unit. Use Codes (1*) at bottom of form. If not listed put (11) and specify.

6. Usage. Type of fuel burning equipment. Use codes (2*) at bottom of form. If not listed put (5) and specify.

7. Heat Usage. Percent of heat used for process and percent for space heating.

Page 2

8. Reference Number. Continue reference numbers from Page 1, using same number to identify information for same unit.

9. Stack Parameters.
   Stack Height in feet from ground.
   Stack Inside Exit Diameter in feet.
   Exit Gas Velocity in feet per second. (SCFM may be used if velocity is not known; specify units as SCFM if used.)
   Exit Gas Gemperature in degrees F.

10. Fuel Data
    Fuel Type. Coal, Gas, #2 Oil, #6 Oil, etc.
    Maximum Capacity burned per hour. Gallons, pounds, cubic feet, etc. Specify. Average amount burned per year. Gallons, Tons, Million cubic feet, etc. Specify. Heat Content of Fuel. BTU per Gallon, pound cubic foot, etc., Specify.
    Average Percent Sulfur Content.

Average Percent Ash Content.
(If percent sulfur and percent ash are not known, list fuel type and supplier's name at bottom of page in spaces provided so that information may be obtained.)

Page 3

11. Reference Number. Use same numbers as on Page 1 and 2 to identify information for same unit.

12. Air Pollution Control Equipment.
Manufacturer and Model Number. Information from nameplate. Type. Use Table 1, Page 16. If a wet scrubber, specify gallons per minute of water flow and water pressure if known. Efficiency. Percent design control on pollutants and actual percent control if known.

13. Emission Rates.
Specify tons per year of each of the listed pollutants emitted per year.
Give basis of estimates of pollutants emitted (Material Balance, Stack Tests, Emission Factors, etc.)
(If unit is a kiln or similar unit in which combustion products and process losses vent through a common stack, emissions may be totaled and listed under process losses).

FUEL BURNING EQUIPMENT
(Except for Refuse Disposal)

1 FACILITY NAME	Address	for Agency use Only

FACILITY NUMBER	Information for Calender Year	Date
/ / / / / / / / / /	19____	

2	3	4	5	6	7	
Reference Number	Manufacturer and Model Number	Rated Capacity 10^6BTU/hr	Type of Burner Unit (use code 1*)	Usage (use code 2*)	Most Usage	
					% Process	% Space heat
	NONE					

1* BURNER CODES

1. Cyclone furnace
2. Pulverized coal
3. Spreader Stoker
4. Hand fired
5. Other stoker (specify)
6. Multiple port gas
7. Forced draft gas
8. Atomizing Oil (Stove of Air)
9. Atomizing Oil (Mechanical)
10. Rotary Cup Oil
11. Others (specify)

2* USAGE CODES

1. Boiler, Steam
2. Boiler, Other (specify)
3. Air Heating for Space Heating
4. Air Heating for Process Usage
5. Others (specify)

FUEL BURNING EQUIPMENT

(FOR AGENCY USE ONLY)

Reference Number	Stack Parameters				Fuel Type	Fuel Data				
	Stack Height Feet	Inside Exit Dia. Feet	Exit Gas Velocity Feet/Sec.	Exit Gas Temperature Degree F.		Maximum Amount Per Hour (Specify Units)	Amount Per Year (Specify Units)	Heat Content BTU/Gal, etc. (Specify Units)	Percent Sulfur	Percent Ash

FUEL SUPPLIERS:

Fuel Type	Supplier

FOR ALL APPLICANTS

FUEL BURNING EQUIPMENT
(Except for Refuse Disposal)

This form has 3 pages; each is a continuation of the equipment information from the page before. Please fill in as completely as possible, listing all fuel burning equipment. Reasons should be given explaining any data not filled in.

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2. Reference Number. Use an identifying number for each boiler, furnace, kiln, etc., and use the same reference number on each of the three pages to identify information for the same unit.

3. Manufacturer and Model Number. Nameplate date for boiler, furnace, kiln, etc. Waste gas flares should also be included on this form and stationary internal combustion engines over 3000 horsepower.

4. Rated Capacity in Millions of BTU per hour.

5. Type of Burner Unit. Use Codes (1*) at bottom of form. If not listed put (11) and specify.

6. Usage. Type of fuel burning equipment. Use codes (2*) at bottom of form. If not listed put (5) and specify.

7. Heat Usage. Percent of heat used for process and percent for space heating.

Page 2

8. Reference Number. Continue reference numbers from Page 1, using same number to identify information for same unit.

9. Stack Parameters.
   Stack Height in feet from ground.
   Stack Inside Exit Diameter in feet.
   Exit Gas Velocity in feet per second. (SCFM may be used if velocity is not known; specify units as SCFM if used.)
   Exit Gas Gemperature in degrees F.

10. Fuel Data
    Fuel Type. Coal, Gas, #2 Oil, #6 Oil, etc.
    Maximum Capacity burned per hour. Gallons, pounds, cubic feet, etc. Specify. Average amount burned per year. Gallons, Tons, Million cubic feet, etc. Specify. Heat Content of Fuel. BTU per Gallon, pound cubic foot, etc., Specify.
    Average Percent Sulfur Content.

Average Percent Ash Content.
(If percent sulfur and percent ash are not known, list fuel type and supplier's name at bottom of page in spaces provided so that information may be obtained.)

11. Reference Number. Use same numbers as on Page 1 and 2 to identify information for same unit.

12. Air Pollution Control Equipment.
Manufacturer and Model Number. Information from nameplate. Type. Use Table 1, Page 16. If a wet scrubber, specify gallons per minute of water flow and water pressure if known. Efficiency. Percent design control on pollutants and actual percent control if known.

13. Emission Rates.
Specify tons per year of each of the listed pollutants emitted per year.
Give basis of estimates of pollutants emitted (Material Balance, Stack Tests, Emission Factors, etc.)
(If unit is a kiln or similar unit in which combustion products and process losses vent through a common stack, emissions may be totaled and listed under process losses).

FOR EXISTING FACILITIES AND RENEWAL OF PERMIT TO OPERATE ONLY:

Facility Permit Status (permits regarding air emissions only)

What permits are presently held by facility: (list)

TYPE PERMIT	EXPIRATION DATE	FACILITY NO.	PROCESS OR EQUIPMENT PERMITTED
Operate	5/1/83	0800-0000-024	Existing Kymene Plant

FOR EXISING FACILITY PERMIT RENEWAL ONLY:

Please answer all the following:

1. Has the facility been modified in any way (including fuel and/or raw material changes) during period covered by the Operating Permit _____Yes ____No

2. If No. 1 is yes, was modification made in accordance with permit requirements specified in Regulation APC-S-2?
   ____Yes ____No ____If no, explain _____

   _____

   _____

   _____

3. Have the emission rates from the facility been tested within the last 6 months? _____Yes _____No

   If yes, please attach a copy of the stack test report(s).

   NOTE: If no stack emissions test has been made, you may be required to have one performed and submitted in order to prove compliance with emission regulations.

4. Is this facility still operating at the location given in previous applications? ____Yes ____No

5. If No. 4 is no, complete the following:

New location: _____

_____

New Mailing Address: _____

_____

Was a request for approval to move made for this new location? ____Yes ____No

Was approval granted? _____Yes ____No

FOR ALL APPLICANTS, WHETHER NEW CONSTRUCTION, EXISTING FACILITY, OR RENEWAL

Control Equipment covered under this application-Please check all applicable and indicate number of units

PARTICULATE EMISSIONS CONTROL EQUIPMENT

1. Cyclone(s)_____
2. Water Scrubber_____
3. Baghouse_____
4. Electrostatic Precipitator_____
5. Venturi Scrubber_____
6. Cyclonic Baghouse_____
7. Cyclonic Scrubber_____
8. Other _____

GASEOUS EMISSIONS CONTROL EQUIPMENT

1. Water Scrubber___X__
2. Activated Carbon Bed_____
3. Other __1__ (Water Aspirator)

WASTE DISPOSAL SYSTEMS

1. Solid Waste Incinerator_____
2. Liquid Waste Incinerator_____
3. Wood or other waste fuel recovery boiler _____
4. Gaseous Waste Flare_____
5. Liquid Waste Flare_____
6. Other _____

Pneumatic Conveying System _____

Other (please describe)

FOR ALL APPLICANTS

FUEL BURNING EQUIPMENT
(Except for Refuse Disposal)

This form has 3 pages; each is a continuation of the equipment information from the page before. Please fill in as completely as possible, listing all fuel burning equipment. Reasons should be given explaining any data not filled in.

Page 1

1. Fill in company name and address, plus year for which data is given (if existing facility) at top of page. Use data for most recent calendar year available.

2. Reference Number. Use an identifying number for each boiler, furnace, kiln, etc., and use the same reference number on each of the three pages to identify information for the same unit.

3. Manufacturer and Model Number. Nameplate date for boiler, furnace, kiln, etc. Waste gas flares should also be included on this form and stationary internal combustion engines over 3000 horsepower.

4. Rated Capacity in Millions of BTU per hour.

5. Type of Burner Unit. Use Codes (1*) at bottom of form. If not listed put (11) and specify.

6. Usage. Type of fuel burning equipment. Use codes (2*) at bottom of form. If not listed put (5) and specify.

7. Heat Usage. Percent of heat used for process and percent for space heating.

Page 2

8. Reference Number. Continue reference numbers from Page 1, using same number to identify information for same unit.

9. Stack Parameters.
   Stack Height in feet from ground.
   Stack Inside Exit Diameter in feet.
   Exit Gas Velocity in feet per second. (SCFM may be used if velocity is not known; specify units as SCFM if used.)
   Exit Gas Gemperature in degrees F.

10. Fuel Data
    Fuel Type. Coal, Gas, #2 Oil, #6 Oil, etc.
    Maximum Capacity burned per hour. Gallons, pounds, cubic feet, etc. Specify. Average amount burned per year. Gallons, Tons, Million cubic feet, etc. Specify. Heat Content of Fuel. BTU per Gallon, pound cubic foot, etc., Specify.
    Average Percent Sulfur Content.

Average Percent Ash Content.
(If percent sulfur and percent ash are not known, list fuel type and supplier's name at bottom of page in spaces provided so that information may be obtained.)

11. Reference Number. Use same numbers as on Page 1 and 2 to identify information for same unit.

12. Air Pollution Control Equipment.
Manufacturer and Model Number. Information from nameplate. Type. Use Table 1, Page 16. If a wet scrubber, specify gallons per minute of water flow and water pressure if known. Efficiency. Percent design control on pollutants and actual percent control if known.

13. Emission Rates.
Specify tons per year of each of the listed pollutants emitted per year.
Give basis of estimates of pollutants emitted (Material Balance, Stack Tests, Emission Factors, etc.)
(If unit is a kiln or similar unit in which combustion products and process losses vent through a common stack, emissions may be totaled and listed under process losses).

FUEL BURNING EQUIPMENT
(Except for Refuse Disposal)

1 FACILITY NAME	Address	for Agency use Only

FACILITY NUMBER	Information for Calender Year	Date
/ / / / / / / / / /	19__	

2	3	4	5	6	7	
Reference Number	Manufacturer and Model Number	Rated Capacity 10^6BTU/hr	Type of Burner Unit (use code 1*)	Usage (use code 2*)	Most Usage	
					% Process	% Space heat
	NO .F					

1* BURNER CODES

1. Cyclone furnace
2. Pulverized coal
3. Spreader Stoker
4. Hand fired
5. Other stoker (specify)
6. Multiple port gas
7. Forced draft gas
8. Atomizing Oil (Stove of Air)
9. Atomizing Oil (Mechanical)
10. Rotary Cup Oil
11. Others (specify)

2* USAGE CODES

1. Boiler, Steam
2. Boiler, Other (specify)
3. Air Heating for Space Heating
4. Air Heating for Process Usage
5. Others (specify)

FUEL BURNING EQUIPMENT

(FOR AGENCY USE ONLY)

Reference Number	Stack Parameters				Fuel Type	Fuel Data				
	Stack Height Feet	Inside Exit Dia. Feet	Exit Gas Velocity Feet/Sec.	Exit Gas Temperature Degree F.		Maximum Amount Per Hour (Specify Units)	Amount Per Year (Specify Units)	Heat Content BTU/Gal, etc. (Specify Units)	Percent Sulfur	Percent Ash

FUEL SUPPLIERS:

Fuel Type	Supplier

(FOR AGENCY USE ONLY)

FUEL BURNING EQUIPMENT

11	12				13			
Reference Number	Air Pollution Control Equipment				Emissions (Tons/Year)			Basis of Estimate
	Manufacturer and Model Number	Type* (Use Table 1)	Efficiency		Particulate	So_2	Other (specify)	
			Design	Actual				

*For Wet Scrubber give
Gallons per minute Water
Flow and Water Pressure if known.

FOR ALL APPLICANTS

MANUFACTURING PROCESS OPERATIONS

Page 1

1. Company Name and Address, plus year for which information is given (if existing facility) at top of page. Use data for must recent calendar year available.

2. Reference Number. Use an identifying number for each manufacturing process which emits matter to the air and use the same number on all three pages of this form to identify information for the same operation.

3. Process or Unit Operation Name. Identify the unit or process section for which information is given by name.

4. Rates Process Capacity. Give in tons per hour the maximum rated capacity of the process or unit identified, wet weight.

5. Feed Input. Process rate in wet tons per hour and wet tons per year of materials fed to the operation.

6. Number of Emissions Points to Air. Number of stacks, vents, etc., which emit materials to air.

7. Product Output. Product rate in wet tons per hour and wet tons per year from the operation.

Page 2

8. Reference Number. Use same number as on Page 1 of form to identify information for same process or operation.

9. Stack Data (or outlet of air cleaning device)
   Stack Height in feet above groung.
   Stack Inside Diameter in Feet.
   Exit Gas Velocity in feet per second. (SCFM may be used if velocity is not known; specify units as SCFM if used)
   Exit Gas Temperature in degrees F.

10. Air Pollution Control Equipment.
    Manufacturer and Model Number. Nameplate Data.
    Type. Use Table 1, Page 16. If a wet scrubber, give water flow in GPM and water pressure.
    Collection efficiency. Design and actual collection efficiency if known.

11. Reference Number. Use same number as on Pages 1 & 2 of form to identify information for same process or operation.

12. Process Emissions. Give in pounds per hour and tons per year the amount of emissions from the process or operation of each of the two pollutant categories so that process rates versus emission rates may be compared with Regulations. Identify the units of measure used.
Give the basis of the estimates of pollutants emitted (stack tests, Material Balance, emission factors, ect.)

MANUFACTURING PROCESS OPERATIONS

Company Name	Address	FOR AGENCY USE
HERCULES INCORPORATED	P. O. Box 1937, Hattiesburg, MS 39401	

FACILITY NUMBER	Information for Calendar Year	Date
08 07 0 0 0 0 1 0 2 4	19 83	7/23/87

Reference Number	Process or Unit Operation Name	Rated Process Capacity Tons/Hour	Feed Input		Number of Emission Points To Air	Product Output*	
			Quantity Per Hour	Quantity Per Year		Quantity Per Hour	Quantity Per Year
1a	Kymene - Expansion Project	3.13	3.13	27,435	1	3.13	27,435
1b	Resin Prepolymer S2399	0.059	0.059	517	1	0.059	515
1c	Kymene 367	0.0375	0.009	78.6	1	0.009	78.6

*Specify Units of M

(FOR AGENCY USE ONLY)

MANUFACTURING PROCESS OPERATIONS

Reference Number	Stack Data				Air Pollution Control Equipment			
	Height Feet	Inside Unit Dia. Feet	Exit Gas Velocity Feet/Sec.	Exit Gas Temperature °F	Manufacturer and Model Number	Type* (use Table 1)	Collection Efficiency	
							Design	Actual
1a	40	0.67	Nil	70	Water Aspirator For kettle vent	40		
1b	34	0.33	3.6	70	Ammonia Water Scrubber	46		
1c	12	0.83	176	70	Water Spray	40		
*One hour per batch for 70 batches per year.								

*For Wet Scrubbers Give Gallons per minute Water Flow and Water Pressure if known.

(FOR AGENCY USE ONLY)

MANUFACTURING PROCESS OPERATIONS

11 12

Reference Number	Process Emissions*			Basis for Estimation	(Agency Comments Only)
	Particulates	Sulfur Oxides	Others (Specify by chemical composition)		
1a	Nil	Nil		Stoichiometry	
1b	Nil	Nil	50 lb./hr. Ammonia	Design	
1c	Nil	Nil		Stoichiometry	
*One hour per	batch for 70 batches per year				

*Please Express Emissions as Tons per Year and Pounds per Hour and Identify Units Being Used.

11. Reference Number. Use same number as on Pages 1 & 2 of form to identify information for same process or operation.

12. Process Emissions. Give in pounds per hour and tons per year the amount of emissions from the process or operation of each of the two pollutant categories so that process rates versus emission rates may be compared with Regulations. Identify the units of measure used.
Give the basis of the estimates of pollutants emitted (stack tests, Material Balance, emission factors, ect.)

MANUFACTURING PROCESS OPERATIONS

Company Name	Address	FOR AGENCY USE
HERCULES INCORPORATED	P. O. Box 1937, Hattiesburg, MS 39401	

FACILITY NUMBER	Information for Calendar Year	Date
08 28 00 0/0/0/0/1 0/2/4	19 83	7/23/87

Reference Number	Process or Unit Operation Name	Rated Process Capacity Tons/Hour	Feed Input		Number of Emission Points To Air	Product Output*	
			Quantity Per Hour	Quantity Per Year		Quantity Per Hour	Quantity Per Year
1a	Kymene - Expansion Project	3.13	3.13	27,435	1	3.13	27,435
1b	Resin Prepolymer S2399	0.059	0.059	517	1	0.059	515
1c	Kymene 367	0.0375	0.009	78.6	1	0.009	78.6

*Specify Units of Measure Used

(FOR AGENCY USE ONLY)

MANUFACTURING PROCESS OPERATIONS

Reference Number	Stack Data				Air Pollution Control Equipment			
	Height Feet	Inside Unit Dia. Feet	Exit Gas Velocity Feet/Séc.	Exit Gas Temperature °F	Manufacturer and Model Number	Type* (use Table 1)	Collection Efficiency	
							Design	Actual
1a	40	0.67	Nil	70	Water Aspirator For kettle vent	40		
1b	34	0.33	3.6	70	Ammonia Water Scrubber	46		
1c	12	0.83	176	70	Water Spray	40		

*One hour per batch for 70 batches per year.

*For Wet Scrubbers Give Gallons per minute Water Flow and Water Pressure if known.

MANUFACTURING PROCESS OPERATIONS

(FOR AGENCY USE ONLY)

11 12

Reference Number	Process Emissions*			Basis for Estimation	(Agency Comments Only)
	Particulates	Sulfur Oxides	Others (Specify by chemical composition)		
1a	Nil	Nil		Stoichiometry	
1b	Nil	Nil	50 lb./hr. Ammonia	Design	
1c	Nil	Nil		Stoichiometry	
*One hour per batch for 70 batches per year					

*Please Express Emissions as Tons per Year and Pounds per Hour and Identify Units Being Used.

FOR ALL APPLICANTS

REFUSE DISPOSAL AND INCINERATION

A. Company Name & Address plus year for which information is given if for renewal of permit, at top of page.

B. Type Waste. Describe type of waste materials (paper, garbage, wood crates, sawdust, coal refuse, etc.)

C. Maximum amount per day in pounds.

D. Average amount per year in tons.

D. Method of Disposal. Use codes at bottom of Form (1*).

INCINERATION

1. Type of Incinerator. Check which applies.

2. Manufacturer, Model Number, Capacity in Pounds per Hour and type waste on which Capacity is based (Nameplate Data).

3. Average Quantity Burned in Pounds per Year.

4. Operating Schedule for Incinerator. Hours per Day and Days per Year incinerator is in operation.

5. Auxiliary Fuel Date.
   Type. (Natural Gas, #2 Oil, etc.)
   Amount per year. Specify Gallons, Cubic Foot, etc.
   Heat Content of Fuel. BTU per Gallon, Cubic Foot, etc.
   Percent Sulfur. Average Sulfur Content of Auxiliary Fuel.
   Percent Ash. Average Ash Content of Auxiliary Fuel.
   Fuel Supplier's Name if Ash and Sulfur Content are not known.

6. Pollution Control Eqipment on Incinerator.
   Manufacturer of Control Device.
   Model Number of control Device.
   Percent efficiency of Control if known.
   Type. Venturi Scrubber, Baghouse, etc. as outlined on other forms.
   GPM Water Flow if Control Device is a Wet Scrubber.

7. Stack Data.
   Height in Feet above Ground.
   Inside Exit Diameter in Feet.
   Exit Gas Velocity in Feet per Second.
   Exit Gas Volume if Velocity not known.
   Exit Gas Temperature in Degrees F if known.

8. Estimated Emission from Refuse Incineration. Give amounts in tons per year and basis of estimates for each of the five listed pollutants.

A

Company Name	Information for Year	(Agency Use Only)
Address	**Date**	

B

Description of Waste Materials

Type (Describe)	C Maximum Amount Per Day (Pounds)	D Amount Per Year (Tons)	E Method of Disposal 1*
NONE			

If Waste Disposal is by Incineration, Specify the Following:

1. Type of Incinerator:
   - single chamber ☐
   - multiple Chamber ☐
   - Modified (describe) ☐
   - Other (describe) ☐
   - Rotary ☐
   - Flue Fed ☐

_____

_____

_____

2. Manufacturer's Name: _____
   Model Number _____
   Rated Capacity _____ Pounds / Hour _____ Type Waste
3. Quantity Burned: _____ Pounds / Day
   _____ Tons / Year
4. Operating Schedule _____ Hours / Day
   _____ Days / Year

_____

_____

***1 Disposal Method Codes**

1. Open Burning
2. Landfill (No Burning)
3. Incinerator (Complete rest of Form)
4. Conical Burner (TeePee)
5. Burned in Boiler or Furnance
6. Other (Specify)

(AGENCY USE ONLY)

5. Auxiliary Fuel:
   - Type _____
   - Amount/Year (Specify Units) _____
   - Heat Content _____
   - Percent Sulfur _____
   - Percent Ash _____
   - Supplier's Name _____

6. Pollution Control Equipment:
   - Manufacturer _____
   - Model Number _____
   - % Efficiency _____
   - Type _____
   - GPM Water Flow (If Wet Scrubber) _____

7. Stack Data:
   - Height _____ Feet
   - Inside Exit Diameter _____ Feet
   - Exit Gas Velocity _____ Feet/Sec.
   - Exit Gas Volume _____ SCFM
   - Exit Gas Temp. _____ $^{o}F.$

8. Estimated Emissions From Refuse Incineration:

Name:			Basis of Estimates:
Particulates	_____	Tons/Year	_____
Sulfur Oxides	_____	"	_____

ADDITIONAL INFORMATION REQUIRED FOR APPROVAL TO CONSTRUCT.

The following additional information must be submitted. Failure to submit any of the additional information or to conform to the instructions will result in initial denial of the application.

I. Site Plan – The drawing or sketch submitted must be to scale and show at least the following:

A. The property involved and outlines and heights of all buildings. Identify property lines plainly.

B. Location and identification of all existing or proposed points of discharge of air contaminant to the atmosphere.

C. Location of streets and all adjacent properties. Show location of all buildings outside the property that are within 150 feet of the equipment involved in the application. Identify all such buildings (as a residence, apartment, warehouse, etc.), specifying number of stories. Indicate north, and prevailing wind direction.

II. Drawings of Equipment (See Note Below) - Supply an assembly drawing, dimensioned and to scale, in plan, elevation and as many sections as are needed to show clearly the design and operation of the equipment and the means by which air contaminants are controlled. The following must be shown:

A. Size and shape of equipment. Show exterior and interior dimensions and features.

B. Locations, sizes, and shape details of all features which may affect the production, collection, conveying or control of air contaminants of any kind; location, size and shape details concerning all materials handling equipment.

C. All data and calculations used in selecting or designing the equipment.

D. Horsepower rating of all motors driving the equipment.

NOTE. Structural design calculations and details are not required.

ADDITIONAL INFORMATION MAY BE REQUIRED.

III. Description of Process and Control Equipment - The application must be accompanied by two copies of a written description of each process to be carried out in the facility and the function of the equipment used in the process. The descriptions must be complete and particular attention must be given to explaining all stages in the process where the discharge of any materials might contribute in any way to air pollution. Control procedures must be described insufficient detail to show the extent of control of air contaminants anticipated in the design, specifying the expected efficiency of the control devices. All obtainable data must be supplied concerning the nature, volumes, particle size, weights, chemical composition and concentrations of all types of air contaminants.

IV. Two copies of a block flow diagram showing the steps of the process and the flow of materials through the process and any control devices must be supplied.

NOTE: The application form, site plan, and equipment must be signed and stamped by an engineer registered in the State of Mississippi.

ADDITIONAL INFORMATION

I. Two copies of construction site plot plan.

II. Two copies of detailed equipment drawings.

III. Two copies of a detailed explanation of the process and control equipment.

IV. Two copies of a flow diagram of the process or operation showing control devices.

SIGNATURES: If for construction, the application must be submitted in duplicate and both copies signed and stamped by an engineer registered in the State of Mississippi, and signed by a duly authorized legal representative of the company who accepts the responsibility for the application. If for Existing Facility or Renewal of Permit to Operate, registered engineer's signature not required. All signatures and stamps must be originals on all copies, not photocopies.

L. L. Furr, Jr.

Signature of Engineer registered in Mississippi

H. R. Buckley

Signature of person accepting responsibility for this application.

I. L. Furr, Jr. 3091

Typed name and Mississippi Registration Number

H. R. Buckley

Typed Name

Seal of Engineer
Registered in Mississippi

Forest

FILE COPY

July 9, 1981

Mr. Charles Jordan
Hercules, Inc.
P. O. Box 1937
Hattiesburg, Mississippi 39401

Dear Mr. Jordan:

Re: Carbon Regeneration Furnace Scrubber
Facility No. 0800-00001-036
Hattiesburg, Mississippi

We have reviewed the information submitted on the referenced scrubber. Since the information indicates that this will be a virtually identical replacement, no permit is necessary.

Please inform us by letter when the replacement has been completed.

If you have any questions, please contact us.

Very truly yours,

Don Watts
South Air Emissions Section

DW:hdb

HERCULES INCORPORATED
HATTIESBURG, MISSISSIPPI 39401

December 4, 1981

Mississippi Departmental of Natural Resources
Bureau of Pollution Control
P. O. Box 10385
Jackson, Mississippi 39209

ATTN: Don Watts

Dear Don:

This letter is in reply to our recent phone conversation concerning our Defoamer silica dryer, emission point 025.

The present system has a simple bag filter. This filter is outside in the weather and any silica collected over a period of time is unusable due to moisture contamination.

We are replacing the simple bag filter with a more efficient weather proof pulse air type collector. This will allow reuse of any silica collected, improve housekeeping conditions, and result in a much more efficient operation of our collection system.

If you have any questions please call me.

Very truly yours,

Charles Jordan
Environmental Coordinator

CJ:ml

PRICE QUOTATION

R. V. GILDERSLEEVE COMPANY
P. O. BOX 66203 • BATON ROUGE, LOUISIANA 70896
TELEPHONE (504) 923-0710

A-2564-K

PLEASE INDICATE THIS NUMBER WHEN ORDERING

Hercules, Inc.
P. O. Box 1937
Hattiesburg, Mississippi 39401

ATTN: Mr. ~~B. P. Rodgers~~ R. B. Rogers

DATE	May 20, 1981
YOUR INQUIRY DATED	Verbal Request to Factory
PROPOSED SHIPPING DATE	SEE BELOW
TERMS	Net 30
F.O.B	Cornwells Hgts., Pa.
SALESMAN	Dallas Johnson
TO BE SHIPPED VIA	
PPD. OR COLL	

Here is our quotation on the goods named, subject to the conditions noted:

CONDITIONS: *The prices and terms on this quotation are not subject to verbal changes or other agreements unless approved in writing by the Home Office of the Seller. All quotations and agreements are contingent upon strikes, accidents, fires, availability of materials and all other causes beyond our control. Prices are based on costs and conditions existing on date of quotation and are subject to change by the Seller before final acceptance.*

Typographical and stenographic errors subject to correction. Purchaser agrees to accept either overage or shortage not in excess of ten percent to be charged for pro-rata. Purchaser assumes liability for patent and copyright infringement when goods are made to Purchaser's specifications. When quotation specifies material to be furnished by the purchaser, ample allowance must be made for reasonable spoilage and material must be of suitable quality to facilitate efficient production.

Conditions not specifically stated herein shall be governed by established trade customs. Terms inconsistent with those stated herein which may appear on Purchaser's formal order will not be binding on the Seller.

ITEM	QTY	DESCRIPTION	PRICE	AMOUNT
A	1	NH_3 RECOVERY SYSTEM - AMETEK/Schutte & Koerting as shown on Drawing No. 81-SK-074 consisting of:		
		1 - Ejector Venturi Scrubber, Type 7010, 12", steel. The scrubber will have a Spray Nozzle, Figure 622-K, Style 2, 3" (35 mm), cast iron, with cast iron Spiral.	2510	
		1 - Packed Tower, Type 7055, 12", steel. The tower will be complete with a 12" steel packing support plate, 4'3 of 316 S.S. pall ring packing, and one 316 S.S., 1" (12mm) Figure 627 Spray Nozzle Distributor.	1700	
		1 - Ejector Venturi Scrubber, Type 7010, 4", steel. The scrubber will have a Spray Nozzle, Figure 622-L, Style 2, 1", 316 S.S., with 316 S.S. Spiral.	600	
		1 - Gravity Separator, Type 7042, [redacted], steel. The separator will have a storage capacity of ~~740~~ 4500 gallons.	[redacted]	
		PRICE F.O.B. CORNWELLS HEIGHTS, PA.....		
		DELIVERY: 16-18 Weeks, ARO or Approval Drawings		
		PERFORMANCE:		
		The NH_3 Recovery System is designed to handle 84 lbs/min. of NH_3 gas at 140 degrees F, -12 1/2" W.C. pressure. The 12" Venturi Scrubber requires 300 GPM, the packed tower 30 GPM, and the 4" Venturi Scrubber 24 GPM of recirculated water (NH_3) at 92' head at the nozzles. The liquid must be cooled in a heat exchanger to a maximum of 115 degrees F at the scrubbers. The maximum instantaneous heat load will ~~be 4,200,000 BTU/hr.~~		

20403 REGENT FORMS, BELLMAWR, N J 08031

QUOTE VALID FOR 30 DAYS.

BY T Shatlan
Ted Shatlan

cc: Lauri Chapin/S&K/C.H., Pa.
Dallas Johnson/RVG/New Orleans Office

PRICE QUOTATION

A-2564-K

PLEASE INDICATE THIS NUMBER WHEN ORDERING

R. V. GILDERSLEEVE COMPANY

P. O. BOX 66203 • BATON ROUGE, LOUISIANA 70896
TELEPHONE (504) 923-0710

DATE: May 20, 1981

YOUR INQUIRY DATED: Verbal Request to Factory

PROPOSED SHIPPING DATE: SEE BELOW

TERMS: Net 30 FOB: Cornwells Hgts., Pa.

SALESMAN: Dallas Johnson

TO BE SHIPPED VIA: PPD. OR COLL.

Hercules, Inc.
P. O. Box 1937
Hattiesburg, Mississippi 39401

ATTN: Mr. ~~B. P. Rodgers~~ R.S. Rogers

Here is our quotation on the goods named, subject to the conditions noted:

CONDITIONS: *The prices and terms on this quotation are not subject to verbal changes or other agreements unless approved in writing by the Home Office of the Seller. All quotations and agreements are contingent upon strikes, accidents, fires, availability of materials and all other causes beyond our control. Prices are based on costs and conditions existing on date of quotation and are subject to change by the Seller before final acceptance.*

Typographical and stenographic errors subject to correction. Purchaser agrees to accept either overage or shortage not in excess of ten percent to be charged for pro-rata. Purchaser assumes liability for patent and copyright infringement when goods are made to Purchaser's specifications. When quotation specifies material to be furnished by the purchaser, ample allowance must be made for reasonable spoilage and material must be of suitable quality to facilitate efficient production.

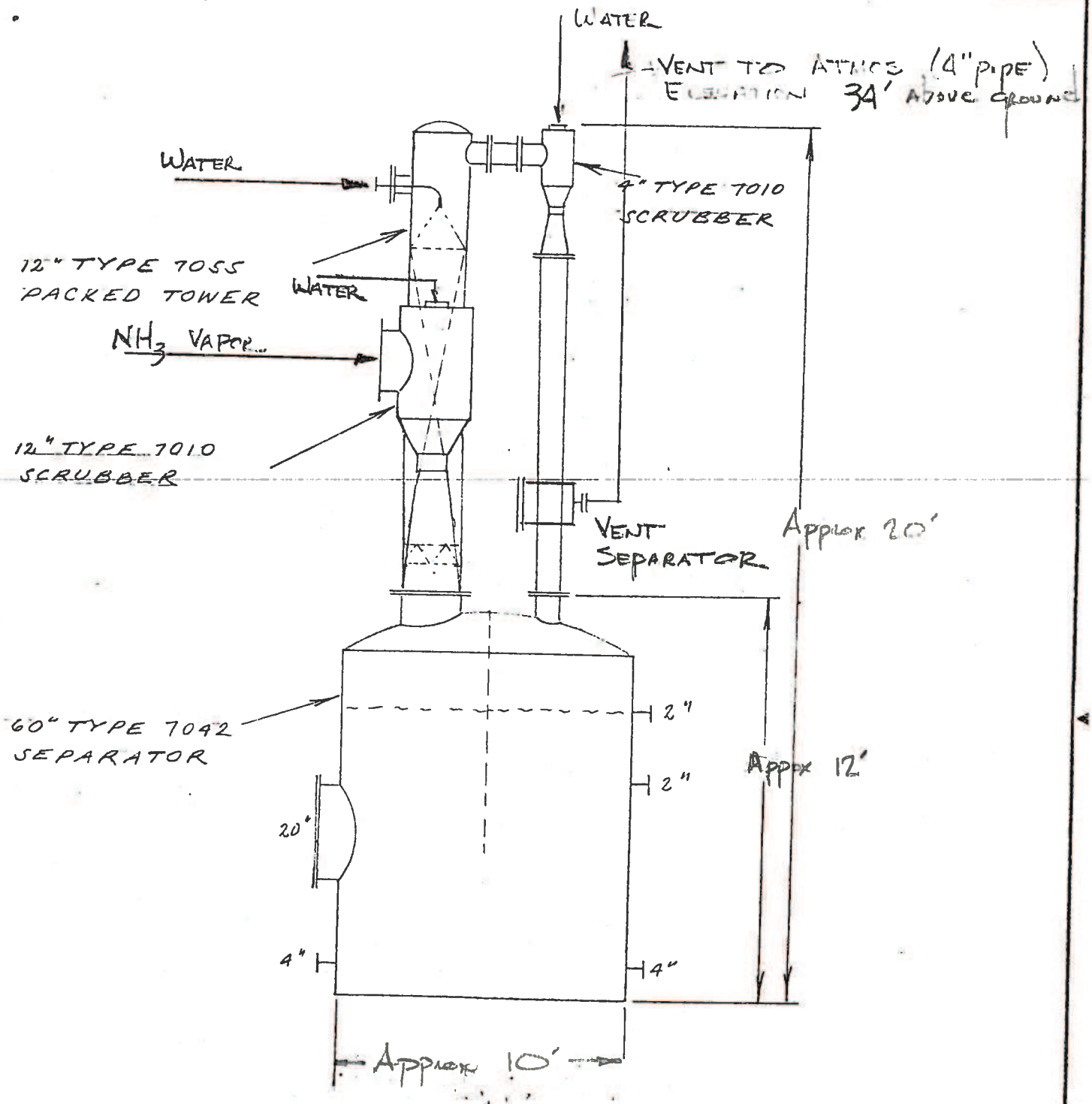
Conditions not specifically stated herein shall be governed by established trade customs. Terms inconsistent with those stated herein which may appear on Purchaser's formal order will not be binding on the Seller.

QUANTITY	DESCRIPTION	PRICE	AMOUNT
	PERFORMANCE (Cont'd.) At these conditions it is possible to produce an 11% NH_3 solution with a maximum ammonia loss from the system of 50#/hr. The system will also produce a 12 1/2" W.C. draft. ENCLOSURES: Bulletin No. 7 S & 7S Supplement Drawing No. 81-SK-074 cc: Lauri Chapin/S&K/C.H., Pa. Dallas Johnson/RVG/New Orleans Office		

AMETEK
SCHUTTE & KOERTING DIVISIO
R.V. GILDERSLEEVE COMPANY
DISTRICT REPRESENTATIVE

QUOTE VALID FOR 30 DAYS.

BY T Shatlan
Ted Shatlan



DR WM DATE 5/12/81	AMETEK SCHUTTE & KOERTING DIVISION
CHKD DATE	CORNWELLS HEIGHTS BUCKS COUNTY, PENNA.
APP'D DATE	NH_3 RECOVERY SYSTEM
APP'D DATE	

SIZE	CODE IDENT NO.	DRAWING NO.	REV
	A-2564-K	81-SK-074	
SCALE	WT	SH ___ OF ___	

FIG NO.
S. O.
B. M.
MADE FROM
FILMED

K&E MC507

HERCULES INCORPORATED
HATTIESBURG, MISSISSIPPI 39401

August 3, 1981

Mr. Don Watts
Bureau of Pollution Control
P. O. Box 10385
Jackson, MS 39209

KYMENE EXPANSION PROJECT

Please find the enclosed application for approval to construct air emissions equipment associated with the expansion of our existing Kymene plant.

We have a project in preparation to expand our existing Kymene plant capacity to meet sales demands. Our sales forecast will soon double our present capacity and we propose to install another Kymene reactor to essentially double our capacity. In addition, we will be producing two "intermediate" products which we presently do not produce.

Resin Prepolymer S-2399 production of 70 batches per year or 1.03 million pounds per year will evolve ammonia. We propose to install an ammonia water scrubber for pollution control purposes as shown in the attachments. The ammonia evolution of 2,485 pounds per batch over an approximate one hour period will be scrubbed and recovered with a maximum ammonia loss from the system of 50 pounds per hour.

We also plan to install a BMHT (bis-hexamethylenetriamine) melter associated with 1.17 million pounds of Kymene 367 production as shown in the melter pollution control scrubber attachment.

If you have any questions, please contact me.

Very truly yours,

HERCULES INCORPORATED

Charles S. Jordan
Development Engineer

CSJ:p

Attachments

HERCULES INCORPORATED

HATTIESBURG, MISSISSIPPI 39401

Form 021

July 29, 1981

Mississippi Bureau of Pollution Control
P. O. Box 10385
Jackson, Mississippi 39209

Attn: Mr. Donald Watts

Gentlemen:

FACILITY PERMIT NO. 08000-0001-021-PILOT PLANT

As required by Part III, Requirement No. 5, the attached table summarizes our Pilot Plant work from January 1, 1981 through June 30, 1981. We will continue to submit the required documentation on a semi-anual basis.

Yours very truly,

HERCULES INCORPORATED

Charles S. Jordan
Senior Chemical Engineer

CSJ:p

Attachment

Experimental Equipment Name	Duration of tests (Days)	Raw Materials Used	Type Products Produced	Assessment of Emissions: Potential Emissions	Assessment of Emissions: Control Equipment	Assessment of Emissions: Type Vent
Kettle						
(A)	60	Stearic Acid Ethylene Diamine Silicone	Amine	Water of Reaction	Total Condenser	No Flow
(B)	70	Hydrogenated Resin Soda Ash	Resin	Water of Reaction	Total Condenser	No Flow
Reactors						
(A)	50	Hydrocarbon Resin Hydrogen Mineral Spirits	Hydrogenated Resin Solution	Hydrogen	None	H_2 Purge
Still						
(A)	40	Rosin	Distilled Resin	Nil	Barometric Condenser	No Flow

HERCULES INCORPORATED
HATTIESBURG, MISSISSIPPI 39401

Forrest 021

January 26, 1981

Mississippi Bureau of Pollution Control
P. O. Box 10385
Jackson, Mississippi 39209

Attn: Mr. Donald Watts

Gentlemen:

FACILITY PERMIT NO. 08000-0001-021-PILOT PLANT

As required by Part III, Requirement No. 5, the attached table summarizes our Pilot Plant work through December 31, 1980. We will continue to submit the required documentation on a semi-annual basis.

Yours very truly,

HERCULES INCORPORATED

Charles S. Jordan

Charles S. Jordan
Senior Chemical Engineer

CSJ:p

Attachment

cc: H. R. Buckley
P. W. Kirkendall
D. T. Smith, Jr.
J. C. Funderburk
D. Flanner

Experimental Equipment Name	Duration of tests (Days)	Raw Materials Used	Type Products Produced	Assessment of Emissions		
				Potential Emissions	Control Equipment	Type Vent
Kettle						
(A)	78	Stearic Acid Ethylene Diamine Silicone	Amide	Water of Reaction	Total Condenser	No Flow
(B)	7	Hydrogenated Resin Soda Ash	Resin	Water of Reaction	Total Condenser	No Flow
Reactors						
(A)	17	Rosin Hydrogen	Hydrogenated Resin	None	None	None
(B)	14	Hydrocarbon Resin Hydrogen	Hydrogenated Resin	Hydrogen	None	H_2 Purge
(C)	33	Hydrocarbon Resin P-menthane Hydrogen	Hydrogenated Resin Solution	Hydrogen	None	H_2 Purge
Still						
(A)	20	Rosin	Distilled Resin	Nil	Barometric Condensers	No Flow

Hercules Incorporated
West 7th Street
P.O. Box 1937
Hattiesburg, MS 39401
(601) 545-3450

Hattiesburg, Mississippi
April 10, 1985

"CONFIDENTIAL PROPRIETARY INFORMATION"

PRODUCTION OF METAL RESINATES IN TOLUENE SOLUTION

Existing Hard Resin facilities, operating permit 0800-00001 emission point-015, will be modified as shown in the engineering flow sheet to produce Metal Resinates in toluene solution, Resin D-267. The process includes receiving and storing bulk quantities of molten tall oil rosin adduct and toluene, reacting the rosin adduct with metal oxides of zinc and calcium in a solvent solution in the presence of catalytic amounts of Ethylene Glycol and water. Other equipment includes filtering, storing and bulk loading of the product into tank cars. The attached table is a listing of tank identification, new or used, volume, contents, type vent, and remarks.

The equipment will also be used to make other resin blends as follows:

Resin D-267 (Resin, Toluene, 2.5 MM lbs. in 1985, 12 MM lbs. in 1988)

Conto 9-85 (Resin, Lactol Spirits, Isopropyl Alcohol, 0.325 MM lbs. in 1985)

Poly-pale 70-M66 (Resin, Mineral Spirits, 0.75 MM lbs. in 1985)

Polystix 85 (Resin, Mineral Spirits, 1.39 MM lbs. in 1985)

Hercules Incorporated
West 7th Street
P.O. Box 1937
Hattiesburg, MS 39401
(601) 545-3450

Hattiesburg, Mississippi
April 10, 1985

"CONFIDENTIAL PROPRIETARY INFORMATION"

PRODUCTION OF METAL RESINATES IN TOLUENE SOLUTION

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The equipment will also be used to make other resin blends as follows:

Resin D-267 (Resin, Toluene, 2.5 MM lbs. in 1985, 12 MM lbs. in 1988)

Conto 9-85 (Resin, Lactol Spirits, Isopropyl Alcohol, 0.325 MM lbs. in 1985)

Poly-pale 70-M66 (Resin, Mineral Spirits, 0.75 MM lbs. in 1985)

Polystix 85 (Resin, Mineral Spirits, 1.39 MM lbs. in 1985)

Hercules Incorporated
West 7th Street
P.O. Box 1937
Hattiesburg, MS 39401
(601) 545-3450

"CONFIDENTIAL PROPRIETARY INFORMATION"

TANK NO.	TANK STATUS	VOLUME (GALLONS)	CONTENTS	TYPE VENT	REMARKS
S-92 (T-202)	Used	16,000	Tall Oil Rosin Adduct	(1)	Storage Tank (Ess. Mat'ls)
(T-201)	New	16,000	Toluene	(1)	Storage Tank (Esst. Mat'ls)
S-96 (T-203)	Used	1,100	Slurry Zinc Oxide Calcium Oxide W/Toluene	(1)	Metal Oxides "Make-up" Tank
(T-206)	Used	100	Toluene & Water	(1)	Reflux Egg on North Blend Tank (Reactor)
(T-207)	New	50	Ethylene Glycol & Water	(2)	Reactor (NBT) Add'n (Head) Tank
S-90 (T-204)	Used	4,500	Adduct Tall Oil Rosin, Toluene, Water, Ethylene Glycol, Metal Resinates (Product), Zinc Oxide, Calcium Oxide	(1)	Reactor (North Blend Tank)
S-109 (T-205)	Used	9,300	Product (Metal Resinates)	(1)	Storage Tank (Product)
Tank Car (Loading) and (Unloading)	Used	10,000	Product (Metal Resinates)	(1)	Equalizing vent to Toluene Storage Tank, Reactor, or Product Storage Tank

Legend

(1) Conservation Vent (CV)
(2) Open vent to atmosphere w/manually operated valve

0297Y

Hercules Incorporated
West 7th Street
P.O. Box 1937
Hattiesburg, MS 39401
(601) 545-3450

"CONFIDENTIAL PROPRIETARY INFORMATION"

TANK NO.	TANK STATUS	VOLUME (GALLONS)	CONTENTS	TYPE VENT	REMARKS
S-92 (T-202)	Used	16,000	Tall Oil Rosin Adduct	(1)	Storage Tank (Ess. Mat'ls)
(T-201)	New	16,000	Toluene	(1)	Storage Tank (Esst. Mat'ls)
S-96 (T-203)	Used	1,100	Slurry Zinc Oxide Calcium Oxide W/Toluene	(1)	Metal Oxides "Make-up" Tank
(T-206)	Used	~100	Toluene & Water	(1)	Reflux Egg on North Blend Tank (Reactor)
(T-207)	New	50	Ethylene Glycol & Water	(2)	Reactor (NBT) Add'n (Head) Tank
S-90 (T-204)	Used	4,500	Adduct Tall Oil Rosin, Toluene, Water, Ethylene Glycol, Metal Resinates (Product), Zinc Oxide, Calcium Oxide	(1)	Reactor (North Blend Tank)
S-109 (T-205)	Used	9,300	Product (Metal Resinates)	(1)	Storage Tank (Product)
Tank Car (Loading) and (Unloading)	Used	10,000	Product (Metal Resinates)	(1)	Equalizing vent to Toluene Storage Tank, Reactor, or Product Storage Tank

Legend

(1) Conservation Vent (CV)
(2) Open vent to atmosphere w/manually operated valve

0297Y

HERCULES

Hercules Incorporated
West 7th Street
P.O. Box 1937
Hattiesburg, MS 39401
(601) 545-3450

February 1, 1985

Don Watts
Mississippi Bureau of Pollution Control
P. O. Box 10385
Jackson, MS 39209

Dear Mr. Watts:

In reference to my February 21, 1984, letter addressing Production of Metal Resinates in Toluene Solution, the information you requested in our 2/16/84 phone conversation was submitted. Please advise if this information satisfied your requests and the requirements for proceeding with Metal Resinates production in the existing Hard Resins Area.

If I can answer any additional questions please let me know.

Very truly yours,

C. S. Jordan
Environmental Coordinator

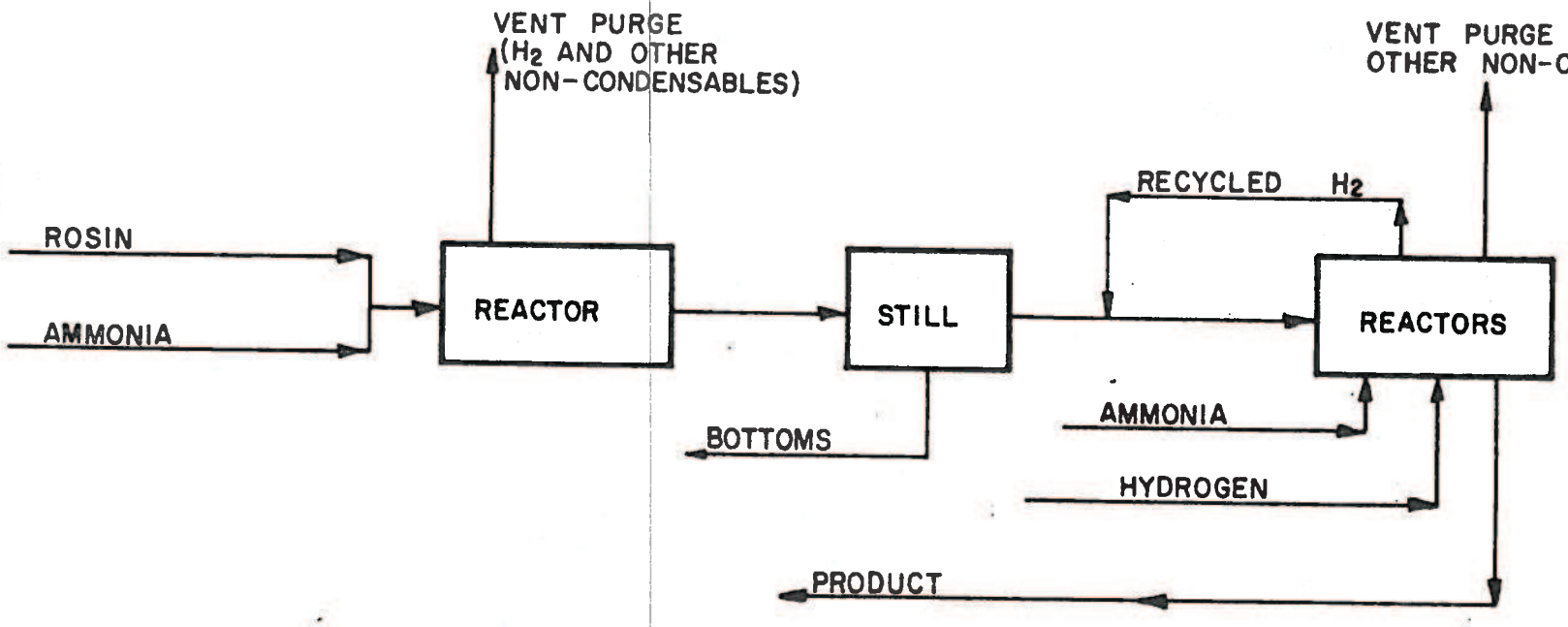
CSJ:sw

See Permit File

for COPY OF

PERMIT

5/80



HERCULES INCORPORATED
HATTIESBURG, MISSISSIPPI
R.A.D. PLANT

CLARK, DIETZ AND ASSOCIATES—ENGINEERS, INC.
JACKSON, MISSISSIPPI—URBANA, ILLINOIS

SEPTEMBER, 1973

DRAWING NO. 26

#26

MISSISSIPPI

AIR AND WATER POLLUTION CONTROL COMMISSION

P. O. Box 827

JACKSON, MISSISSIPPI 39205

APPLICATION FOR PERMIT

TO OPERATE

EXISTING FACILITY

DIVISION OF AIR POLLUTION

This Space For Use By Approving Agency

Date Received: _____

Facility No.: _____

AQCR: _____

FORM B FUEL BURNING EQUIPMENT
(Except for Refuse Disposal)

Page

1 Company Name	Address	for Agency use Only

Operating Schedule	Information for Calender Year	Date
24 Hours / Day 7 Days / Week 52 Weeks / Year	19 72	

2 Reference Number	3 Manufacturer and Mobel Number	4 Rated Capacity 10^6BTU/hr	5 Type of Burner Unit (use code 1*)	6 Usage (use code 2*)	7 Most Usage	
					% Process	% Space heat
1	STRUTHERS WELLS DAV. BOILER #5860	8.3	6	2 (DOWTHERM)	100	

1* BURNER CODES

1. Cyclone furnace
2. Pulverized coal
3. Spreader Stoker
4. Hand fired
5. Other stoker (specify)
6. Multiple port gas
7. Forced draft gas
8. Atomizing Oil (Stove of Air)
9. Atomizing Oil (Mechanical)
10. Rotary Cup Oil
11. Others (specify)

2* USAGE CODES

1. Boiler, Steam
2. Boiler, Other (specify)
3. Air Heating for Space Heating
4. Air Heating for Process Usage
5. Others (specify)

FORM B PAGE 2

(FOR AGENCY USE ONLY)

Reference Number	Stack Parameters				Fuel Data					
	Stack Height Feet	Inside Exit Dia. Feet	Exit Gas Velocity Feet/Sec.	Exit Gas Temperature Degree F.	Fuel Type	Maximum Amount Per Hour (Specify Units)	Amount Per Year (Specify Units)	Heat Content BTU/Gal, etc, (Specify Units)	Percent Sulfur	Percent Ash
1	55	1.5			NAT. GAS	8.1 MCF	57,300 MCF	1025 (SCF)	0.00016	0

FUEL SUPPLIERS:

Fuel Type	Supplier

(FOR AGENCY USE ONLY)

11	12				13			
Reference Number	Air Pollution Control Equipment				Emissions (Tons/Year)			Basis of Estimate
	Manufacturer and Model Number	Type* (Use Table 1)	Efficiency		Particulate	So_2	Other (specify)	
			Design	Actual				
1	NONE.				0	0.005		CALC.

*For Wet Scrubber give
Gallons per minute Water
Flow and Water Pressure if known.

FORM C MANUFACTURING PROCESS OPERATIONS PAGE 1

Company Name	Address	

Operating Schedule	Information for Calendar Year	Date
24 Hours / Days 365 Days / Year	19 72	

Reference Number	Process or Unit Operation Name	Rated Process Capacity Tons/Hour	Feed Input		Number of Emission Points To Air	Product Output	
			Quantity Per Hour	Quantity Per Year		Quantity Per Hour	Quantity Per Year
1	Rosin Amine Plant	0.40	0.32	2,819	2	0.32	2,819

FORM C PAGE 2

(FOR AGENCY USE ONLY)

Reference Number	Stack Data				Air Pollution Control Equipment			
	Height Feet	Inside Unit Dia. Feet	Exit Gas Velocity Feet/Sec.	Exit Gas Temperature °F	Manufacturer and Model Number	Type* (use Table 1)	Collection Efficiency Design	Collection Efficiency Actual
1A	1.0				Ammonitation Vent	22		
1B	1.0				Amine Reactor Vent	None		

*For Wet Scrubbers Give Gallons per minute Water Flow and Water Pressure if known.

FORM C PAGE 3

(FOR AGENCY USE ONLY)

11 12

Reference Number	Process Emissions*			Basis for Estimation	(Agency Comments Only)
	Particulates	Sulfur Oxides	Others (Specify by chemical composition)		
1A	None Detected	N.D.		MEASURED IN AREA	
1B	"	"	20 CFM HYDROGEN	MEASURED	

*Please Express Emissions as Tons per Year and Pounds per Hour and Identify Units Being Used.

A

FORM D REFUSE DISPOSAL AND INCINERATION

Company Name	Information for Year	(Agency Use Only)
Address	Date	

B

Description of Waste Materials

C D E

Type (Describe)	Maximum Amount Per Day (Pounds)	Amount Per Year (Tons)	Method of Disposal *1*
None			

If Waste Disposal is by Incineration, Specify the Following:

1. Type of Incinerator:
   - single chamber ☐
   - multiple Chamber ☐
   - Modified (describe) ☐
   - Other (describe) ☐
   - Rotary ☐
   - Flue Fed ☐

2. Manufacturer's Name: _____
   Model Number _____
   Rated Capacity _____

3. Quantity Burned: _____ Pounds / Hour _____ Type Waste
   _____ Pounds / Day
   _____ Tons / Year

4. Operating Schedule _____ Hours / Day
   _____ Days / Year

*1 Disposal Method Codes

1. Open Burning
2. Landfill (No Burning)
3. Incinerator (Complete rest of Form)
5. Burned in Boiler or Furnance
6. Other (Specify)