



**CLASS II ADMINISTRATIVE UPDATE TO
REGULATION 13 PERMIT R13-1293E
FOR THE
MOOREFIELD RENDERING PLANT**

Prepared for:

Pilgrim's Pride Corporation

214 South Main Street
Moorefield, West Virginia 26836

Prepared by:

Potesta & Associates, Inc.

7012 MacCorkle Avenue, S.E.
Charleston, West Virginia 25304
Phone: (304) 342-1400 Fax: (304) 343-9031
Email: potesta@potesta.com

Project No. 0101-16-0249

August 2016



POTESTA

TABLE OF CONTENTS

General Information.....	SECTIONS I - III
Business Certificate	ATTACHMENT A
Area Map	ATTACHMENT B
Installation and Start Up Schedule.....	ATTACHMENT C
Regulatory Discussion	ATTACHMENT D
Plot Plan.....	ATTACHMENT E
Detailed Process Flow Diagram.....	ATTACHMENT F
Process Description.....	ATTACHMENT G
Emission Units Table.....	ATTACHMENT I
Emission Points Data Summary Sheet.....	ATTACHMENT J
Air Pollution Control Device Sheets.....	ATTACHMENT M
Supporting Emissions Calculations	ATTACHMENT N
Monitoring/Recordkeeping/Reporting/Testing Plans	ATTACHMENT O
Public Notice.....	ATTACHMENT P
Scrubber Manufacturer Specifications.....	APPENDIX

Attachments Not Applicable to this Application: H, K, L, Q, R and S.

SECTIONS I - III
GENERAL INFORMATION



WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY
 601 57th Street, SE
 Charleston, WV 25304
 (304) 926-0475
www.dep.wv.gov/daq

**APPLICATION FOR NSR PERMIT
 AND
 TITLE V PERMIT REVISION
 (OPTIONAL)**

PLEASE CHECK ALL THAT APPLY TO NSR (45CSR13) (IF KNOWN):

CONSTRUCTION MODIFICATION RELOCATION
 CLASS I ADMINISTRATIVE UPDATE TEMPORARY
 CLASS II ADMINISTRATIVE UPDATE AFTER-THE-FACT

PLEASE CHECK TYPE OF 45CSR30 (TITLE V) REVISION (IF ANY):

ADMINISTRATIVE AMENDMENT MINOR MODIFICATION
 SIGNIFICANT MODIFICATION

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS ATTACHMENT S TO THIS APPLICATION

FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

Section I. General

1. Name of applicant (as registered with the WV Secretary of State's Office):
 Pilgrim's Pride Corporation

2. Federal Employer ID No. (FEIN):
 123205162

3. Name of facility (if different from above):
 Moorefield Rendering Plant

4. The applicant is the:
 OWNER OPERATOR BOTH

5A. Applicant's mailing address:
 214 South Main Street
 Moorefield, West Virginia 26836

5B. Facility's present physical address:
 129 Potomac Avenue
 Moorefield, West Virginia 26836

6. **West Virginia Business Registration.** Is the applicant a resident of the State of West Virginia? YES NO

⇒ If YES, provide a copy of the **Certificate of Incorporation/Organization/Limited Partnership** (one page) including any name change amendments or other Business Registration Certificate as **Attachment A**.

⇒ If NO, provide a copy of the **Certificate of Authority/Authority of L.L.C./Registration** (one page) including any name change amendments or other Business Certificate as **Attachment A**.

7. If applicant is a subsidiary corporation, please provide the name of parent corporation: NA

8. Does the applicant own, lease, have an option to buy or otherwise have control of the *proposed site*? YES NO

⇒ If YES, please explain: Own

⇒ If NO, you are not eligible for a permit for this source.

9. Type of plant or facility (stationary source) to be **constructed, modified, relocated, administratively updated** or **temporarily permitted** (e.g., coal preparation plant, primary crusher, etc.): Rendering Plant

10. North American Industry Classification System (NAICS) code for the facility:
 311613

11A. DAQ Plant ID No. (for existing facilities only):
 031-00004

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):
 R13-1293E

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

12A.

- ⇒ For **Modifications, Administrative Updates** or **Temporary permits** at an existing facility, please provide directions to the *present location* of the facility from the nearest state road;
- ⇒ For **Construction** or **Relocation permits**, please provide directions to the *proposed new site location* from the nearest state road. Include a **MAP** as **Attachment B**.

Take the Moorefield exit off of US 48 (Corridor H) at Moorefield, West Virginia. Take a left turn onto US 220 (Main Street) headed south. The plant is located adjacent to US 220 (South Main Street) in Moorefield. Take a left onto Potomac Avenue and the facility is located at the end of the street on the right.

12.B. New site address (if applicable):
NA

12C. Nearest city or town:
Moorefield

12D. County:
Hardy

12.E. UTM Northing (KM): 4,325.38

12F. UTM Easting (KM): 675.24

12G. UTM Zone: 17

13. Briefly describe the proposed change(s) at the facility:

Replace four (4) existing scrubbers: 26,000 cfm Dual Venturi, 26,000 cfm Packed Tower, and two (2) 65,000 cfm Packed Tower scrubbers with a 25,000 cfm Venturi, a 25,000 cfm Packed Tower, and two (2) 85,000 cfm Packed Tower scrubbers.

14A. Provide the date of anticipated installation or change: 09/30/2016

- ⇒ If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen:

14B. Date of anticipated Start-Up if a permit is granted:
09/30/2016

14C. Provide a **Schedule** of the planned **Installation** of/**Change** to and **Start-Up** of each of the units proposed in this permit application as **Attachment C** (if more than one unit is involved).

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:
24 Hours Per Day 7 Days Per Week 52 Weeks Per Year

16. Is demolition or physical renovation at an existing facility involved? **YES** **NO**

17. **Risk Management Plans.** If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see www.epa.gov/ceppo), submit your **Risk Management Plan (RMP)** to U. S. EPA Region III.

18. **Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process (*if known*). A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance (*if known*). Provide this information as **Attachment D**.

Section II. Additional attachments and supporting documents.

19. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

20. Include a **Table of Contents** as the first page of your application package.

21. Provide a **Plot Plan**, e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as **Attachment E** (Refer to **Plot Plan Guidance**).
Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).

22. Provide a **Detailed Process Flow Diagram(s)** showing each proposed or modified emissions unit, emission point and control device as **Attachment F**.

23. Provide a **Process Description** as **Attachment G**.

Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H**.
 For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I**.

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J**.

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K**.

28. Check all applicable **Emissions Unit Data Sheets** listed below:

<input type="checkbox"/> Bulk Liquid Transfer Operations	<input type="checkbox"/> Haul Road Emissions	<input type="checkbox"/> Quarry
<input type="checkbox"/> Chemical Processes	<input type="checkbox"/> Hot Mix Asphalt Plant	<input type="checkbox"/> Solid Materials Sizing, Handling and Storage Facilities
<input type="checkbox"/> Concrete Batch Plant	<input type="checkbox"/> Incinerator	<input type="checkbox"/> Storage Tanks
<input type="checkbox"/> Grey Iron and Steel Foundry	<input type="checkbox"/> Indirect Heat Exchanger	
<input type="checkbox"/> General Emission Unit, specify		

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L**.

29. Check all applicable **Air Pollution Control Device Sheets** listed below: NA

<input type="checkbox"/> Absorption Systems	<input type="checkbox"/> Baghouse	<input type="checkbox"/> Flare
<input type="checkbox"/> Adsorption Systems	<input type="checkbox"/> Condenser	<input type="checkbox"/> Mechanical Collector
<input type="checkbox"/> Afterburner	<input type="checkbox"/> Electrostatic Precipitator	<input checked="" type="checkbox"/> Wet Collecting System
<input type="checkbox"/> Other Collectors, specify		

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M**.

30. Provide all **Supporting Emissions Calculations** as **Attachment N**, or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O**.
 ➤ Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and *Example Legal Advertisement* for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33. **Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?
 YES NO
 ➤ If YES, identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's "*Precautionary Notice – Claims of Confidentiality*" guidance found in the *General Instructions* as **Attachment Q**.

Section III. Certification of Information

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below: NA

<input type="checkbox"/> Authority of Corporation or Other Business Entity	<input type="checkbox"/> Authority of Partnership
<input type="checkbox"/> Authority of Governmental Agency	<input type="checkbox"/> Authority of Limited Partnership

Submit completed and signed **Authority Form** as **Attachment R**.

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

Certification of Truth, Accuracy, and Completeness

I, the undersigned **Responsible Official** / **Authorized Representative**, hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

Compliance Certification

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE

Dave Townsend
(Please use blue ink)

DATE:

8-22-16
(Please use blue ink)

35B. Printed name of signee: Dave Townsend

35C. Title: Vice President

35D. E-mail: dave.townsend@pilgrims.com

36E. Phone: (970) 347-5730

36F. FAX: Use Email

36A. Printed name of contact person (if different from above): Barry Griffith

36B. Title: Senior Project Manager

36C. E-mail: Barry.Griffith@jbossa.com

36D. Phone: (304) 538-1432

36E. FAX: Use Email

PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Attachment A: Business Certificate | <input type="checkbox"/> Attachment K: Fugitive Emissions Data Summary Sheet |
| <input checked="" type="checkbox"/> Attachment B: Map(s) | <input type="checkbox"/> Attachment L: Emissions Unit Data Sheet(s) |
| <input checked="" type="checkbox"/> Attachment C: Installation and Start Up Schedule | <input checked="" type="checkbox"/> Attachment M: Air Pollution Control Device Sheet(s) |
| <input checked="" type="checkbox"/> Attachment D: Regulatory Discussion | <input checked="" type="checkbox"/> Attachment N: Supporting Emissions Calculations |
| <input checked="" type="checkbox"/> Attachment E: Plot Plan | <input checked="" type="checkbox"/> Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans |
| <input checked="" type="checkbox"/> Attachment F: Detailed Process Flow Diagram(s) | <input checked="" type="checkbox"/> Attachment P: Public Notice |
| <input checked="" type="checkbox"/> Attachment G: Process Description | <input type="checkbox"/> Attachment Q: Business Confidential Claims |
| <input type="checkbox"/> Attachment H: Material Safety Data Sheets (MSDS) | <input type="checkbox"/> Attachment R: Authority Forms |
| <input checked="" type="checkbox"/> Attachment I: Emission Units Table | <input type="checkbox"/> Attachment S: Title V Permit Revision Information |
| <input checked="" type="checkbox"/> Attachment J: Emission Points Data Summary Sheet | <input checked="" type="checkbox"/> Application Fee |

Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.

FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:

- Forward 1 copy of the application to the Title V Permitting Group and:
- For Title V Administrative Amendments:
 - NSR permit writer should notify Title V permit writer of draft permit,
- For Title V Minor Modifications:
 - Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,
 - NSR permit writer should notify Title V permit writer of draft permit.
- For Title V Significant Modifications processed in parallel with NSR Permit revision:
 - NSR permit writer should notify a Title V permit writer of draft permit,
 - Public notice should reference both 45CSR13 and Title V permits,
 - EPA has 45 day review period of a draft permit.

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

ATTACHMENT A
BUSINESS CERTIFICATE

**WEST VIRGINIA
STATE TAX DEPARTMENT
BUSINESS REGISTRATION
CERTIFICATE**

ISSUED TO:
**PILGRIM'S PRIDE CORPORATION
1770 PROMONTORY CIR
GREELEY, CO 80634-9039**

BUSINESS REGISTRATION ACCOUNT NUMBER: 2306-9994

This certificate is issued on: **02/10/2015**

*This certificate is issued by
the West Virginia State Tax Commissioner
in accordance with Chapter 11, Article 12, of the West Virginia Code*

*The person or organization identified on this certificate is registered
to conduct business in the State of West Virginia at the location above.*

This certificate is not transferrable and must be displayed at the location for which issued

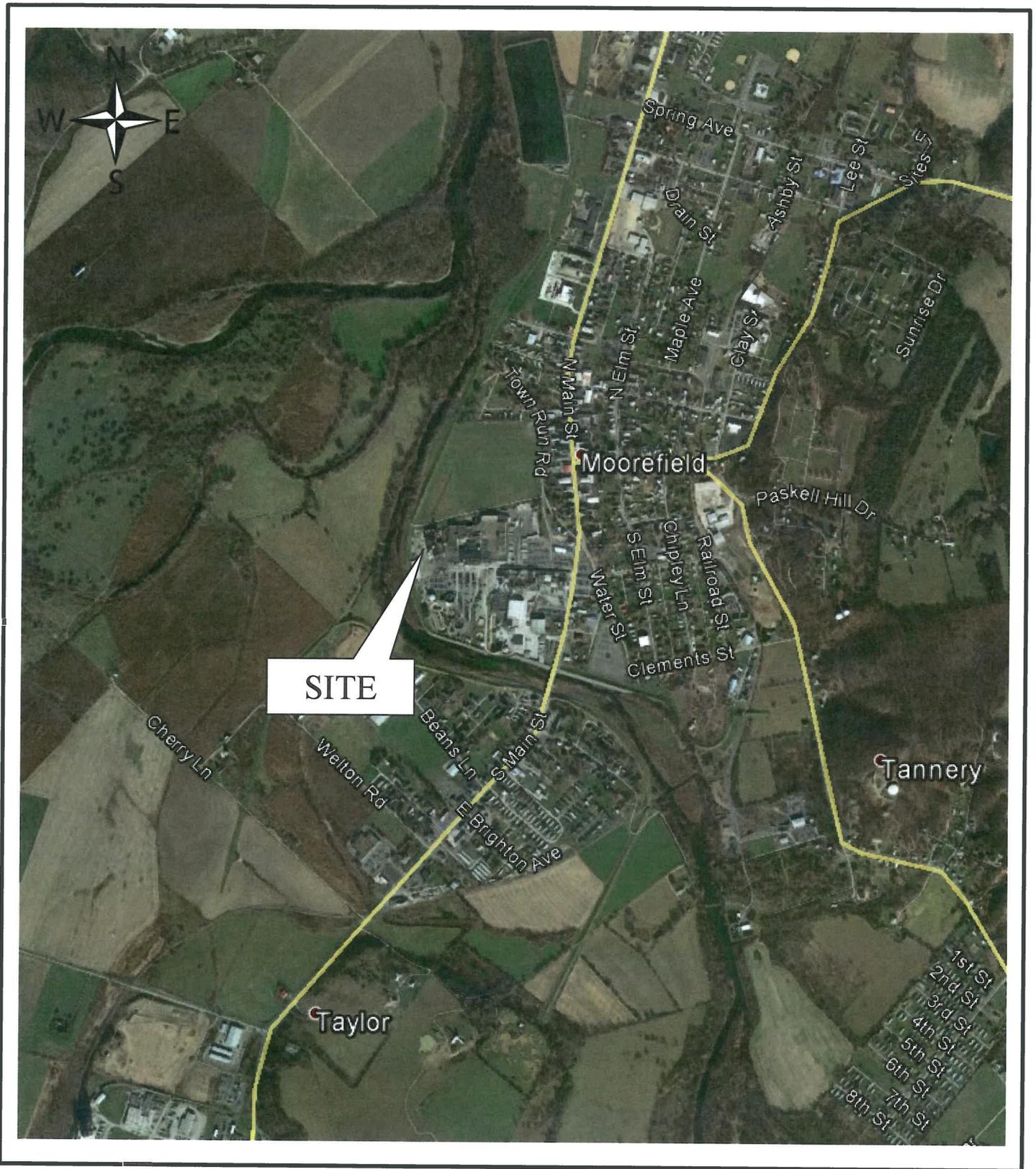
This certificate shall be permanent until cessation of the business for which the certificate of registration was granted or until it is suspended, revoked or cancelled by the Tax Commissioner.

Change in name or change of location shall be considered a cessation of the business and a new certificate shall be required.

TRAVELING/STREET VENDORS: Must carry a copy of this certificate in every vehicle operated by them.
CONTRACTORS, DRILLING OPERATORS, TIMBER/LOGGING OPERATIONS: Must have a copy of this certificate displayed at every job site within West Virginia.

ATTACHMENT B

AREA MAP



DATE: August 2016

PROJECT NO. 0101-16-0249

MAPPING FOR VISUAL REPRESENTATION ONLY

**SITE LOCATION MAP
MOOREFIELD RENDERING PLANT
MOOREFIELD, HARDY COUNTY, WV**

NOT TO SCALE

ATTACHMENT C
INSTALLATION AND START UP SCHEDULE

ATTACHMENT C

INSTALLATION AND STARTUP SCHEDULE

Installation and startup of the scrubbers is anticipated following issuance of the permit.

ATTACHMENT D
REGULATORY DISCUSSION

ATTACHMENT D

REGULATORY DISCUSSION

The revisions requested with this application (replacement of scrubbers) do not modify the regulatory basis of the permit.

ATTACHMENT E
PLOT PLAN

ATTACHMENT F

DETAILED PROCESS FLOW DIAGRAM

ATTACHMENT G
PROCESS DESCRIPTION

ATTACHMENT G

PROCESS DESCRIPTION

The proposed revisions in this application do not involve new emission sources. The proposed changes at the site are to replace the existing scrubbers with new scrubbers. Pilgrim's Pride Corporation (Pilgrim's) is also requesting the removal from the permit of the requirement to combust high intensity odors. The improvement in scrubber technology allows for the high intensity odors to be handled within the scrubbing system.

Replacement of Scrubbers

Pilgrim's proposes to replace the existing permitted 26,000 cfm Dual Venturi Scrubber (4C), 26,000 cfm Packed Tower Scrubber (3C), and two 65,000 cfm Packed Tower Scrubbers (1C/4E; 2C/5E) at their Moorefield Rendering Plant located in Moorefield, West Virginia.

The scrubber control system is not through final design. The following scrubbers or equivalent will be used: Scrubber 4C will be replaced with an AC Corporation VS-25T 25,000 cfm Venturi Scrubber (9C); Scrubber 3C will be replaced with an AC Corporation MEF-PT-25 25,000 cfm Packed Bed Scrubber (8C); and Scrubbers 1C and 2C will be replaced with AC Corporation MEF-PT-85 85,000 cfm Packed Bed Scrubbers (6C/6E,7C/7E).

The new 85,000 cfm Packed Bed Scrubbers will increase room air changes in the main processing area, raw bin area, and grinding room from 19.7 per hour to 28.6 per hour in the main processing area, 27.1 per hour in the raw bin area, and 21.1 per hour in the grinding room.

Request to Remove High Intensity Odor Combustion Air Requirement

Section 3(a) of the permit requires that high intensity odors shall be burned as boiler combustion air and identifies these odors from four (4) areas/processes: (1) offal cooker non-condensable gases following steam condensing, (2) non-condensable gases from all feather cookers (hydrolyzers), (3) off gases from all offal pressor choke ends, (4) and blood coagulation hopper off-gases.

The permit has an allowance for when the boilers are not operating for scrubbing to occur. Whenever the boiler(s) is not available for burning, these high intensity odors, such as when the boiler(s) goes down at the end of the day, shall be passed through one stage of water venturi scrubbing plus two stages of odor control chemical scrubbing in series. One (1) of these may be the building odor control scrubbing system.

Pilgrim's is requesting that all high intensity odors be controlled with high intensity odors passing into the Venturi Scrubber 9C, into the packed bed scrubber 8C, and then into the large packed bed scrubber 7C.

ATTACHMENT I
EMISSION UNITS TABLE

ATTACHMENT J

EMISSION POINTS DATA SUMMARY SHEET

ATTACHMENT M

AIR POLLUTION CONTROL DEVICE SHEETS

Attachment M
Air Pollution Control Device Sheet
(WET COLLECTING SYSTEM-SCRUBBER)

Control Device ID No. (must match Emission Units Table): 6C, 7C

Equipment Information

<p>1. Manufacturer: AC Corporation or Equivalent Model No. MEF-PT-85 or Equivalent</p>	<p>2. Method: <input checked="" type="checkbox"/> Packed Bed <input type="checkbox"/> Venturi <input type="checkbox"/> Spray Tower <input type="checkbox"/> Cyclone <input type="checkbox"/> Mechanical <input type="checkbox"/> Orifice <input type="checkbox"/> Other, specify</p>
<p>3. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency.</p>	
<p>4. Provide a scale diagram of the scrubber showing internal construction. Please include packing type and size, spray configurations, baffle plates, and mist eliminators.</p>	
<p>5. What type of liquid entrainment eliminators or system will be used? Submit a schematic diagram showing thickness, mesh, and material of construction.</p>	
<p>6. Describe the scrubber's construction material: T-316L Stainless Steel Construction</p>	
<p>7. What will be the power requirements of the collector?</p> <p style="text-align: center;">Fan 150 HP Inlet scrubbing liquid pump: 25 HP</p>	
<p>8. What type of fan(s) will be used?</p> <p>Type of fan blade: Backward Incline Number of blades: Diameter of blade: 66 in. Also supply a fan curve for each fan to be used.</p>	
<p>9. Estimated gas pressure drop at maximum flow rate: 3.0 inches H₂O</p>	

Scrubbing Liquor Characteristics

<p>10. Scrubbing Liquor</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Composition</th> <th style="width: 40%;">Weight %</th> </tr> </thead> <tbody> <tr> <td>1 Water</td> <td style="text-align: center;">100</td> </tr> <tr> <td>2</td> <td></td> </tr> <tr> <td>3</td> <td></td> </tr> <tr> <td>4</td> <td></td> </tr> </tbody> </table>	Composition	Weight %	1 Water	100	2		3		4		<p>11. Scrubbing liquor losses (evaporation, etc.): gal/1000 ACF gas</p> <p>12. Liquor pressure to scrubber: 7.0 PSIA</p> <p>13. Pressure drop through scrubber: 3.0 in. H₂O</p>
Composition	Weight %										
1 Water	100										
2											
3											
4											
<p>14. Source of liquor (explain): City Water</p>	<p>15. Liquor flow rates to scrubber:</p> <p style="text-align: right;">Design maximum: 1,200 gal/min Average expected: 1,000 gal/min</p>										
<p>16. Describe system to be used to supply liquor to collector: A single pump rated for 1,000 gpm will be used to supply 250 gpm to four 4" nozzles above the packing section.</p>											
<p>17. Give the expected solids content of the liquor: Approximately 1% or less.</p>											

Particulate Distribution

31. Complete the table:		
Particulate Size Range (microns)	Particle Size Distribution at Inlet to Collector	Fraction Efficiency of Collector
	Weight % for Size Range	Weight % for Size Range
0 – 2	NA	NA
2 – 4		
4 – 6		
6 – 8		
8 – 10		
10 – 12		
12 – 16		
16 – 20		
20 – 30		
30 – 40		
40 – 50		
50 – 60		
60 – 70		
70 – 80		
80 – 90		
90 – 100		
>100		

32. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):
None.

33. Describe the collection material disposal system:
Waste water will be sent to the waste water treatment plant.

34. Have you included **Wet Collecting (Scrubber) Control Device** in the Emissions Points Data Summary Sheet?

<p>35. Proposed Monitoring, Recordkeeping, Reporting, and Testing Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.</p>	
<p>MONITORING: Monitoring of pH once per day.</p>	<p>RECORDKEEPING: Record pH values.</p>
<p>REPORTING: Reporting is not proposed.</p>	<p>TESTING: Testing is not proposed.</p>
<p>MONITORING: RECORDKEEPING: REPORTING: TESTING:</p>	<p>Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device. Please describe the proposed recordkeeping that will accompany the monitoring. Please describe any proposed emissions testing for this process equipment on air pollution control device. Please describe any proposed emissions testing for this process equipment on air pollution control device.</p>
<p>36. Manufacturer's Guaranteed Capture Efficiency for each air pollutant. 100%</p>	
<p>37. Manufacturer's Guaranteed Control Efficiency for each air pollutant. The packed tower scrubber will be 95%+ efficient at capturing odor causing compounds. Two 85,000 CFM packed tower scrubbers will provide 28.6 air changes per hour in the main processing area.</p>	
<p>38. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty. The scrubbers are being specifically designed for this process. Pilgrim's will follow recommended maintenance procedures.</p>	

Attachment M
Air Pollution Control Device Sheet
(WET COLLECTING SYSTEM-SCRUBBER)

Control Device ID No. (must match Emission Units Table): 8C

Equipment Information

1. Manufacturer: AC Corporation or Equivalent Model No. MEF-PT-25 or Equivalent	2. Method: <table style="display: inline-table; vertical-align: top; margin-left: 10px;"> <tr> <td><input checked="" type="checkbox"/> Packed Bed</td> <td><input type="checkbox"/> Venturi</td> </tr> <tr> <td><input type="checkbox"/> Spray Tower</td> <td><input type="checkbox"/> Cyclone</td> </tr> <tr> <td><input type="checkbox"/> Mechanical</td> <td><input type="checkbox"/> Orifice</td> </tr> <tr> <td><input type="checkbox"/> Other, specify</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Packed Bed	<input type="checkbox"/> Venturi	<input type="checkbox"/> Spray Tower	<input type="checkbox"/> Cyclone	<input type="checkbox"/> Mechanical	<input type="checkbox"/> Orifice	<input type="checkbox"/> Other, specify	
<input checked="" type="checkbox"/> Packed Bed	<input type="checkbox"/> Venturi								
<input type="checkbox"/> Spray Tower	<input type="checkbox"/> Cyclone								
<input type="checkbox"/> Mechanical	<input type="checkbox"/> Orifice								
<input type="checkbox"/> Other, specify									
3. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency.									
4. Provide a scale diagram of the scrubber showing internal construction. Please include packing type and size, spray configurations, baffle plates, and mist eliminators.									
5. What type of liquid entrainment eliminators or system will be used? Submit a schematic diagram showing thickness, mesh, and material of construction.									
6. Describe the scrubber's construction material: T-316L Stainless Steel Construction									
7. What will be the power requirements of the collector? <table style="width:100%; border: none;"> <tr> <td style="text-align: center;">Fan</td> <td style="text-align: center;">100</td> <td style="text-align: center;">HP</td> <td style="text-align: center;">Inlet scrubbing liquid pump:</td> <td style="text-align: center;">15</td> <td style="text-align: center;">HP</td> </tr> </table>		Fan	100	HP	Inlet scrubbing liquid pump:	15	HP		
Fan	100	HP	Inlet scrubbing liquid pump:	15	HP				
8. What type of fan(s) will be used? Type of fan blade: Backward Incline Number of blades: Diameter of blade: 36.5 in. Also supply a fan curve for each fan to be used.									
9. Estimated gas pressure drop at maximum flow rate: 3.0 inches H ₂ O									

Scrubbing Liquor Characteristics

10. Scrubbing Liquor <table style="width:100%; border: none;"> <thead> <tr> <th style="width:50%; text-align: center;">Composition</th> <th style="width:50%; text-align: center;">Weight %</th> </tr> </thead> <tbody> <tr> <td>1 Water</td> <td style="text-align: center;">100</td> </tr> <tr> <td>2</td> <td></td> </tr> <tr> <td>3</td> <td></td> </tr> <tr> <td>4</td> <td></td> </tr> </tbody> </table>	Composition	Weight %	1 Water	100	2		3		4		11. Scrubbing liquor losses (evaporation, etc.): <div style="text-align: right;">gal/1000 ACF gas</div>
Composition	Weight %										
1 Water	100										
2											
3											
4											
12. Liquor pressure to scrubber: 7.0 PSIA											
13. Pressure drop through scrubber: 3.0 in. H ₂ O											
14. Source of liquor (explain): City Water	15. Liquor flow rates to scrubber: <table style="width:100%; border: none;"> <tr> <td style="text-align: right;">Design maximum:</td> <td style="text-align: center;">300</td> <td style="text-align: right;">gal/min</td> </tr> <tr> <td style="text-align: right;">Average expected:</td> <td style="text-align: center;">250</td> <td style="text-align: right;">gal/min</td> </tr> </table>	Design maximum:	300	gal/min	Average expected:	250	gal/min				
Design maximum:	300	gal/min									
Average expected:	250	gal/min									
16. Describe system to be used to supply liquor to collector: A single pump rated for 250 gpm will be used to supply 250 gpm to a single 4" nozzle above the packing section.											
17. Give the expected solids content of the liquor: Approximately 1% or less.											

18. If the liquor is to be recirculated, describe any treatment performed:
 Chemicals will be added to oxidize odor causing compounds. The scrubber will have a blow down rate of 2-5 gpm to keep the water clean over time.

19. Data for Venturi Scrubber:
 Throat Dimensions:
 (Specify Units)
 Throat Velocity: ft/sec

20. Data for Packed Towers:
 Type of Packing: 3.5" RVT 90-7 PP
 Superficial Gas Velocity through Bed:
 497 fpm

Gas Stream Characteristics

21. Gas flow into the collector:
 25,000 ACF @ 95 °F and 14.7 PSIA

22. Gas stream temperature:
 Inlet: 95 °F
 Outlet: 95 °F

23. Gas flow rate:
 Design Maximum: 27,500 ACFM
 Average Expected: 25,000 ACFM

24. Particulate Grain Loading in grains/scf:
 Inlet:
 Outlet:

25. Emission rate of each pollutant (specify) into and out of collector:

Pollutant	IN		OUT		Guaranteed Minimum Collection Efficiency
	lb/hr	grains/acf	lb/hr	grains/acf	
A	<div style="border: 1px solid black; padding: 5px;"> The venturi scrubber (9C), the small packed bed scrubber (8C), and one of the large packed bed scrubbers (7C) are in series in this order: 9C, 8C, 7C. See page M2 for total H2S and VOC emissions from the scrubbing and page M10 for the particulate matter emissions. </div>				
B					
C					
D					
E					

26. Type of pollutant(s) controlled: SO_x Odor
 Particulate (type): Other: VOC

27. By what method were the uncontrolled emissions calculated? Material Balance Stack Test
 Pilot Test Other:

28. Dimensions of stack: Height NA ft. Diameter NA ft.

29. Supply an equilibrium curve and/or solubility data (at various temperatures) for the proposed system.

30. Supply a curve showing proposed collection efficiency versus gas volume from 25 to 100 percent of design rating of collector.

Particulate Distribution

31. Complete the table:	Particle Size Distribution at Inlet to Collector	Fraction Efficiency of Collector
Particulate Size Range (microns)	Weight % for Size Range	Weight % for Size Range
0 – 2		
2 – 4		
4 – 6		
6 – 8		
8 – 10		
10 – 12		
12 – 16		
16 – 20		
20 – 30		
30 – 40		
40 – 50		
50 – 60		
60 – 70		
70 – 80		
80 – 90		
90 – 100		
>100		

32. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):
 None.

33. Describe the collection material disposal system:
 Waste water will be sent to the waste water treatment plant.

34. Have you included **Wet Collecting (Scrubber) Control Device** in the Emissions Points Data Summary Sheet?

35. Proposed Monitoring, Recordkeeping, Reporting, and Testing

Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING:

Monitoring of pH once per day.

RECORDKEEPING:

Record pH values.

REPORTING:

Reporting is not proposed

TESTING:

Testing is not proposed.

MONITORING:

Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.

RECORDKEEPING:

Please describe the proposed recordkeeping that will accompany the monitoring.

REPORTING:

Please describe any proposed emissions testing for this process equipment on air pollution control device.

TESTING:

Please describe any proposed emissions testing for this process equipment on air pollution control device.

36. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.
100%

37. Manufacturer's Guaranteed Control Efficiency for each air pollutant.

The packed tower scrubber will be 95%+ efficient at capturing odor causing compounds.

38. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.

The scrubbers are being specifically designed for this process. Pilgrim's will follow recommended maintenance procedures.

Attachment M
Air Pollution Control Device Sheet
(WET COLLECTING SYSTEM-SCRUBBER)

Control Device ID No. (must match Emission Units Table): 9C

Equipment Information

1. Manufacturer: AC Corporation or Equivalent Model No. VS-25T or Equivalent	2. Method: <table style="width:100%; border: none;"> <tr> <td><input type="checkbox"/> Packed Bed</td> <td><input checked="" type="checkbox"/> Venturi</td> </tr> <tr> <td><input type="checkbox"/> Spray Tower</td> <td><input type="checkbox"/> Cyclone</td> </tr> <tr> <td><input type="checkbox"/> Mechanical</td> <td><input type="checkbox"/> Orifice</td> </tr> <tr> <td><input type="checkbox"/> Other, specify</td> <td></td> </tr> </table>	<input type="checkbox"/> Packed Bed	<input checked="" type="checkbox"/> Venturi	<input type="checkbox"/> Spray Tower	<input type="checkbox"/> Cyclone	<input type="checkbox"/> Mechanical	<input type="checkbox"/> Orifice	<input type="checkbox"/> Other, specify	
<input type="checkbox"/> Packed Bed	<input checked="" type="checkbox"/> Venturi								
<input type="checkbox"/> Spray Tower	<input type="checkbox"/> Cyclone								
<input type="checkbox"/> Mechanical	<input type="checkbox"/> Orifice								
<input type="checkbox"/> Other, specify									
3. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency.									
4. Provide a scale diagram of the scrubber showing internal construction. Please include packing type and size, spray configurations, baffle plates, and mist eliminators.									
5. What type of liquid entrainment eliminators or system will be used? Submit a schematic diagram showing thickness, mesh, and material of construction.									
6. Describe the scrubber's construction material: T-304 Stainless Steel Construction									
7. What will be the power requirements of the collector? <table style="width:100%; border: none;"> <tr> <td style="text-align: center;">Fan</td> <td style="text-align: center;">100</td> <td style="text-align: center;">HP</td> <td style="text-align: center;">Inlet scrubbing liquid pump:</td> <td style="text-align: center;">15</td> <td style="text-align: center;">HP</td> </tr> </table>		Fan	100	HP	Inlet scrubbing liquid pump:	15	HP		
Fan	100	HP	Inlet scrubbing liquid pump:	15	HP				
8. What type of fan(s) will be used? Type of fan blade: Backward Incline Number of blades: Diameter of blade: 36.5 in. Also supply a fan curve for each fan to be used.									
9. Estimated gas pressure drop at maximum flow rate: 7.90 inches H ₂ O									

Scrubbing Liquor Characteristics

10. Scrubbing Liquor <table style="width:100%; border: none;"> <thead> <tr> <th style="width:50%; text-align: center;">Composition</th> <th style="width:50%; text-align: center;">Weight %</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1 Water</td> <td style="text-align: center;">100</td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> </tr> <tr> <td style="text-align: center;">3</td> <td></td> </tr> <tr> <td style="text-align: center;">4</td> <td></td> </tr> </tbody> </table>	Composition	Weight %	1 Water	100	2		3		4		11. Scrubbing liquor losses (evaporation, etc.): <div style="text-align: right;">gal/1000 ACF gas</div>
Composition	Weight %										
1 Water	100										
2											
3											
4											
	12. Liquor pressure to scrubber: 3.0 PSIA										
	13. Pressure drop through scrubber: 7.90 in. H ₂ O										
14. Source of liquor (explain): City Water	15. Liquor flow rates to scrubber: <table style="width:100%; border: none;"> <tr> <td style="text-align: right;">Design maximum:</td> <td style="text-align: center;">300</td> <td style="text-align: right;">gal/min</td> </tr> <tr> <td style="text-align: right;">Average expected:</td> <td style="text-align: center;">250</td> <td style="text-align: right;">gal/min</td> </tr> </table>	Design maximum:	300	gal/min	Average expected:	250	gal/min				
Design maximum:	300	gal/min									
Average expected:	250	gal/min									
16. Describe system to be used to supply liquor to collector: A single pump rated for 250 gpm will be used to supply 125 gpm to the venturi nozzle and 125 gpm to the tank nozzle.											
17. Give the expected solids content of the liquor: Approximately 5% or less.											

18. If the liquor is to be recirculated, describe any treatment performed:
 No chemical treatment. The scrubber will have a blow down rate of 2-5 gpm to keep the water clean over time.

19. Data for Venturi Scrubber:
 Throat Dimensions: 20"
 (Specify Units)
 Throat Velocity: 11,459 ft/sec

20. Data for Packed Towers:
 Type of Packing:
 Superficial Gas Velocity through Bed:

Gas Stream Characteristics

21. Gas flow into the collector:
 25,000 ACF @ 125 °F and 14.7 PSIA

22. Gas stream temperature:
 Inlet: 125 °F
 Outlet: 95 °F

23. Gas flow rate:
 Design Maximum: 27,500 ACFM
 Average Expected: 25,000 ACFM

24. Particulate Grain Loading in grains/scf:
 Inlet:
 Outlet:

25. Emission rate of each pollutant (specify) into and out of collector:

Pollutant	IN		OUT		Guaranteed Minimum Collection Efficiency
	lb/hr	grains/acf	lb/hr	grains/acf	
A PM10	4.7		0.05		
B					
C	PM IN based on back calculating from lb/hr OUT based on 95% control.				
D					
E					

26. Type of pollutant(s) controlled: SO_x Odor
 Particulate (type): 10 microns & larger Other:

27. By what method were the uncontrolled emissions calculated? Material Balance Stack Test
 Pilot Test Other:

28. Dimensions of stack: Height NA ft. Diameter NA ft.

29. Supply an equilibrium curve and/or solubility data (at various temperatures) for the proposed system.

30. Supply a curve showing proposed collection efficiency versus gas volume from 25 to 100 percent of design rating of collector.

Particulate Distribution

31. Complete the table:		
Particulate Size Range (microns)	Particle Size Distribution at Inlet to Collector	Fraction Efficiency of Collector
	Weight % for Size Range	Weight % for Size Range
0 – 2		
2 – 4		
4 – 6		
6 – 8		
8 – 10		
10 – 12	NA	95
12 – 16		
16 – 20		
20 – 30		
30 – 40		
40 – 50		
50 – 60		
60 – 70		
70 – 80		
80 – 90		
90 – 100		
>100		
32. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification): None.		
33. Describe the collection material disposal system: Waste water will be sent to the waste water treatment plant.		
34. Have you included <i>Wet Collecting (Scrubber) Control Device</i> in the Emissions Points Data Summary Sheet?		

35. Proposed Monitoring, Recordkeeping, Reporting, and Testing

Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING:

Temperature will be monitored once per day.

RECORDKEEPING:

Record temperature.

REPORTING:

No reporting proposed.

TESTING:

No testing is proposed.

MONITORING:

Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device.

RECORDKEEPING:

Please describe the proposed recordkeeping that will accompany the monitoring.

REPORTING:

Please describe any proposed emissions testing for this process equipment on air pollution control device.

TESTING:

Please describe any proposed emissions testing for this process equipment on air pollution control device.

36. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.
100%

37. Manufacturer's Guaranteed Control Efficiency for each air pollutant.

The venturi scrubber will be 99% efficient of removal of 10 microns and larger particulate.

38. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.

The scrubbers are being specifically designed for this process. Pilgrim's will follow recommended maintenance procedures.

ATTACHMENT N
SUPPORTING EMISSIONS CALCULATIONS

By: JJD
 Date: 7/28/2016

Checked By: PEW
 Date: 07/29/2016

Change in Facility PTE

Existing PTE from Emission Points 4E and 5E

Emission Type	Uncontrolled ²		Controlled ¹	
	lb/hr	tpy	lb/hr	tpy
PM10*	5.2	22.9	1.2	5.3
VOC	40.0	175.2	2.0	8.8
H2S	80.0	315.2	4.0	15.8

Proposed PTE from Emission Points 6E and 7E

Emission Type	Uncontrolled ²		Controlled ¹	
	lb/hr	tpy	lb/hr	tpy
PM10*	5.2	22.9	0.5	2.4
VOC	40.0	175.2	2.0	8.8
H2S	80.0	315.2	4.0	15.8

Change in PTE

Emission Type	Uncontrolled ²		Controlled ¹	
	lb/hr	tpy	lb/hr	tpy
PM10*	0.0	0.0	-0.7	-2.9
VOC	0.0	0.0	0.0	0.0
H2S	0.0	0.0	0.0	0.0

*PM, PM10, and PM2.5 are assumed to be equal for these sources.

By: JJD
 Date: 7/28/2016

Checked By: PEW
 Date: 07/29/2016

Existing Control Methods and Emissions

4S - Room Air of Raw Material Receiving	Controlled by 1C	Vented through Emission Point 4E
5S - Room Air of Waste Water	Controlled by 1C	
8S - Process Gas of Rendering Process	Controlled by 5C or 4C, 3C, 1C	
9S - Air Cooled Condensers (2)	Controlled by 5C or 4C, 3C, 1C	
10S - Ring Dryer	Controlled by 4C, 3C, 1C	

Existing Emissions from 4E

Emission Type	Uncontrolled ²		Controlled ¹	
	lb/hr	tpy	lb/hr	tpy
PM10	4.7	20.7	0.7	3.1
VOC	20.0	87.6	1.0	4.38
H2S	40.0	157.6	2.0	7.88

6S - Room Air of Raw Material Receiving	Controlled by 2C	Vented through Emission Point 5E
7S - Room Air of Feather Process	Controlled by 2C	

Existing Emissions from 5E

Emission Type	Uncontrolled ²		Controlled ¹	
	lb/hr	tpy	lb/hr	tpy
PM10 ³	0.5	2.2	0.5	2.2
VOC	20.0	87.6	1.0	4.38
H2S	40.0	157.6	2.0	7.88

1. Controlled emission from R13-1293E
2. Uncontrolled emissions back-calculated from controlled values based on a 95% control efficiency for VOC and H2S, and 85% for PM.
3. No control value claimed for PM vented through 5E because no particulate control is claimed on Scrubber 2C.

By: JJD

Checked By: PEW

Date: 7/28/2016

Date: 07/29/2016

Proposed Control Methods and Emissions

4S - Room Air of Raw Material Receiving	Controlled by 6C	Vented through Emission Point 6E
6S - Room Air of Rendering Process	Controlled by 6C	

Proposed Emissions from 6E

Emission Type	Control Efficiency (%)	Uncontrolled		Controlled	
		lb/hr	tpy	lb/hr	tpy
PM10	0	0.5	2.2	0.50	2.2
VOC	95	20.0	87.6	1.0	4.38
H2S	95	40.0	157.6	2.0	7.88

5S - Room Air of Waste Water	Controlled by 7C	Vented through Emission Point 7E
7S - Room Air of Feather Process	Controlled by 7C	
8S - Process Gas of Rendering Process	Controlled by 9C/8C/7C	
9S - Air Cooled Condensers (2)	Controlled by 9C/8C/7C	
10S - Ring Dryer	Controlled by 9C/8C/7C	

Proposed Emissions from 7E

Emission Type	Control Efficiency (%)	Uncontrolled		Controlled	
		lb/hr	tpy	lb/hr	tpy
PM10	99	4.7	20.7	0.05	0.2
VOC	95	20.0	87.6	1.0	4.38
H2S	95	40.0	157.6	2.0	7.88

ATTACHMENT O

**MONITORING/RECORDKEEPING/REPORTING/TESTING
PLANS**

ATTACHMENT O

MONITORING/RECORDKEEPING/REPORTING/TESTING PLANS

Pilgrim's requests monitoring, recordkeeping, reporting and testing as stated in the existing permit.

ATTACHMENT P

PUBLIC NOTICE

LEGAL ADVERTISEMENT

AIR QUALITY PERMIT NOTICE Notice of Application

Notice is given that Pilgrim's Pride Corporation has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Class II Administrative Update of Permit R13-1293E at the Moorefield Rendering Plant located on Potomac Avenue in Moorefield, Hardy County, West Virginia. The latitude and longitude coordinates are: 39.059945 and -78.974597.

The applicant estimates the potential decrease to discharge the following Regulated Air Pollutants will be: PM, PM10 and PM2.5 of 2.9 tons per year (tpy). There is no change in emissions of VOC and H2S.

Startup of operation is planned to begin on or about the 30th day of September. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, Extension 1250, during normal business hours.

Dated this the **(PLEASE INSERT DATE)** day of August, 2016.

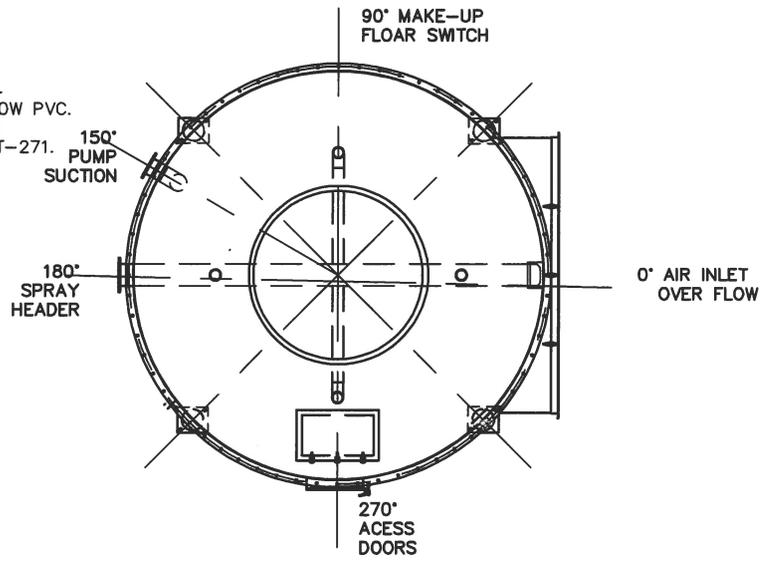
By: Pilgrim's Pride Corporation of West Virginia, Inc.
Dave Townsend
Vice President
214 South Main Street
Moorefield, West Virginia 26836

APPENDIX

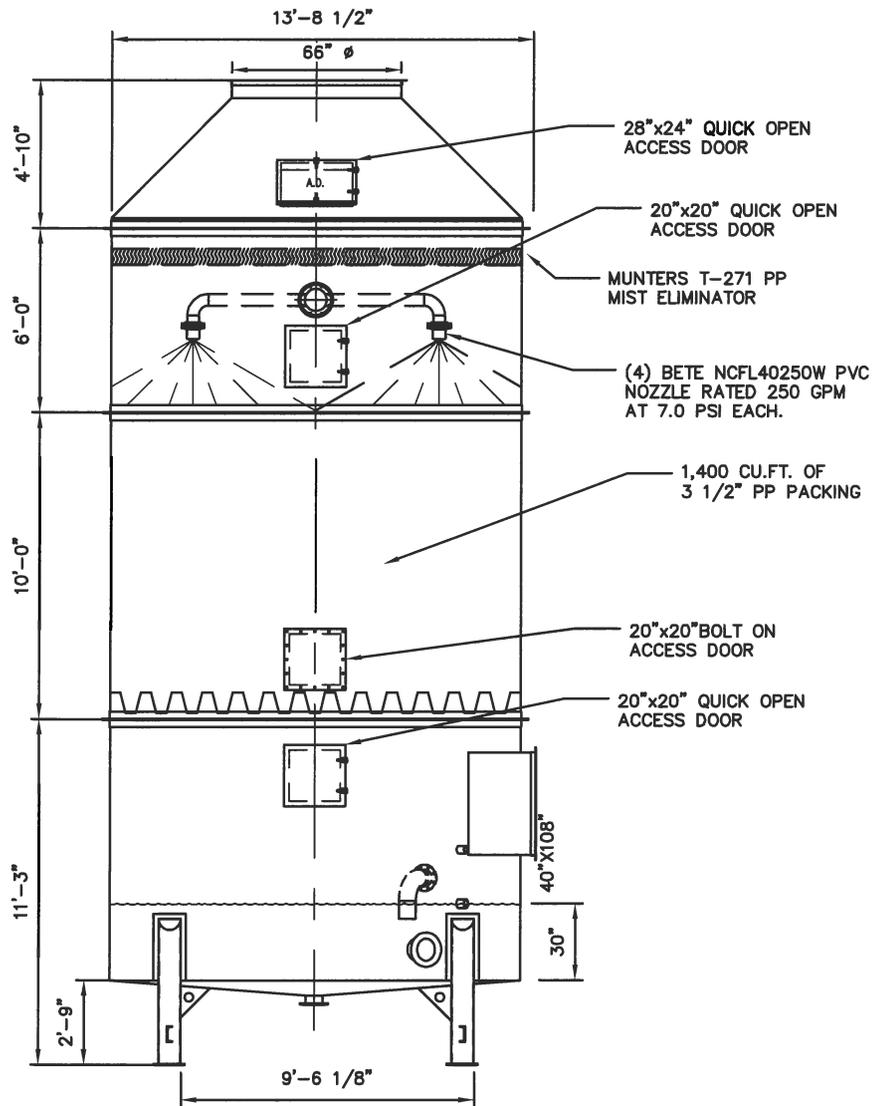
**MANUFACTURER SPECIFICATIONS FOR 85,000 CFM
PACKED BED SCRUBBERS**

NOTES

1. SHIPPING WEIGHT 16,315 LBS.
2. FLOODED WEIGHT 50,400 LBS.
3. NOZZLE: (4) BETE NCFL40250W PVC. RATED @ 250 GPM @ 7.0 PSI
4. MIST ELIMINATOR: MUNTERS T-271.
5. JO-BELL FLOAT SWITCH MODEL A-257.
6. TWO SCRUBBERS REQ'D.



PLAN VIEW



FRONT VIEW

MODEL MEF-PT-085
PILGRM'S PRIDE
 SCRUBBER UPFIT PROJECT
 MOOREFIELD, WV



AC Corporation
 Established 1935
 GREENSBORO, NORTH CAROLINA

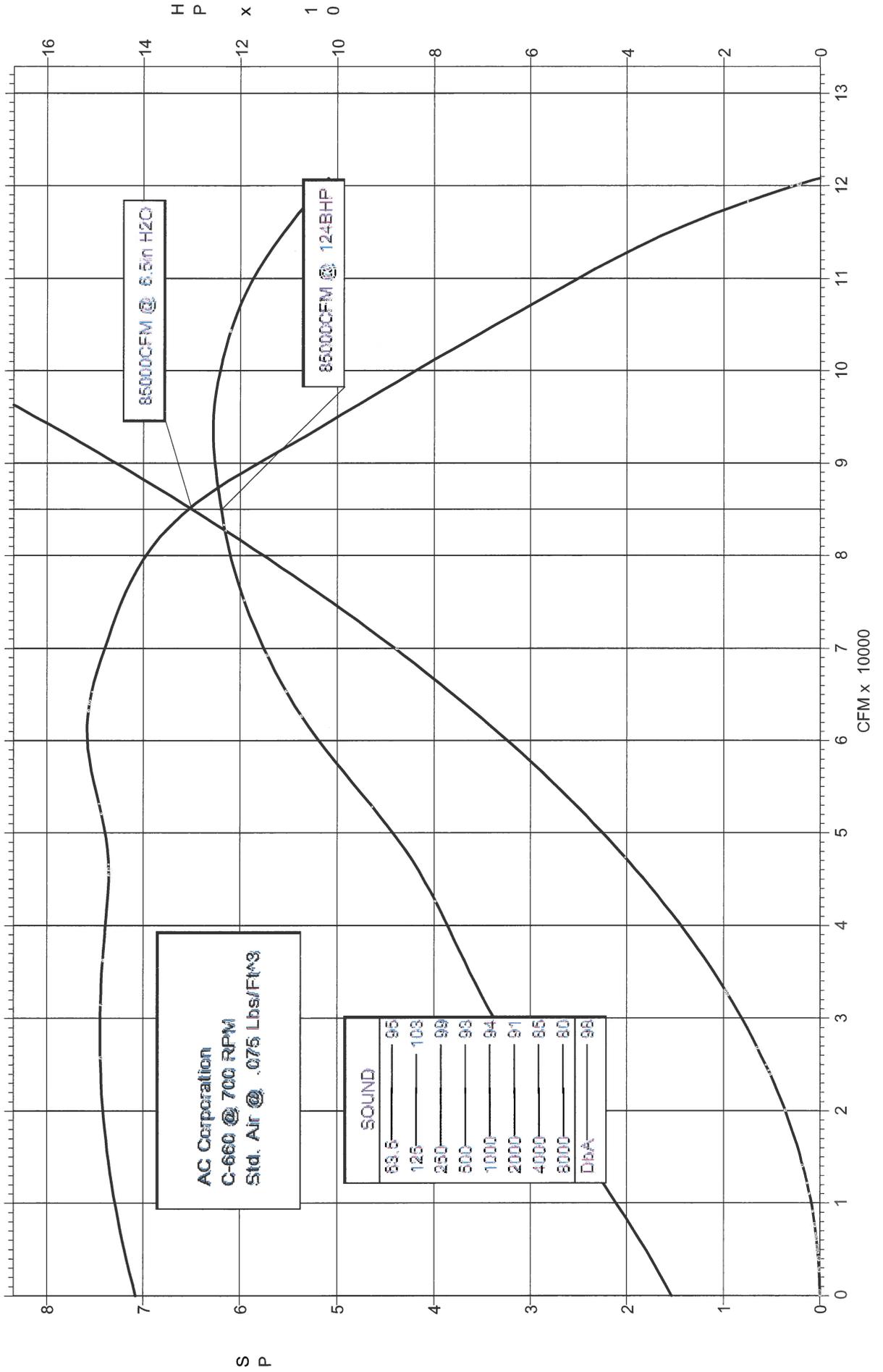
Corporate Office - 301 Creek Ridge Rd. Greensboro, NC 27408 (336) 273-4472

DRAWN: RWK
 CHECKED:
 APPROVED:

DATE: 7/7/16
 ACAD NO.: B-8160051.01.DWG
 DWG. NO.: B-8160051.01

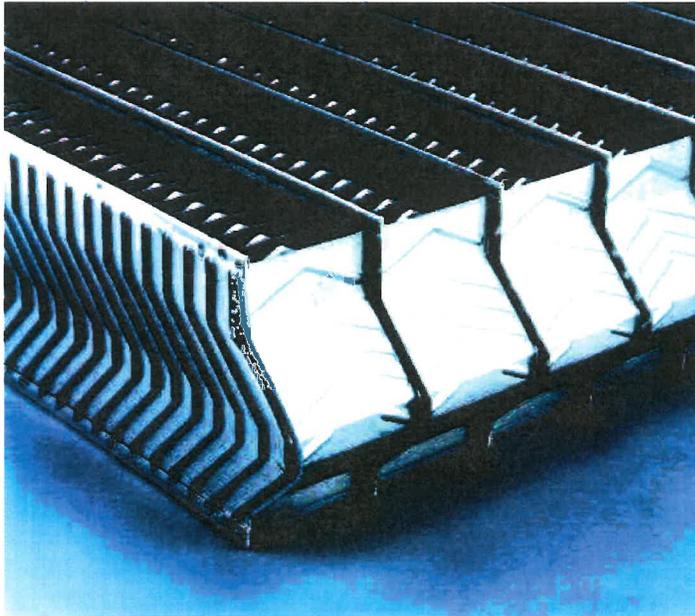


P.O. Box 190718 (72219-0718)
 10701 Interstate 30 (72209)
 Little Rock, Arkansas
 Phone: (501) 568-5550
 Fax: (501) 568-3363
info@phelpsfan.com



DV 270

Droplet Separator (Mist Eliminator)



The DV 270 (*T 271*) droplet separator is a vane type separator for vertical flow. The gas flow charged with liquid droplets is directed through separator chambers which are designed for maximum effect on the gas flow. As a result of this configuration, inertial forces act on the droplets. The droplets impinge onto the profiles, where they form a liquid film which is subsequently drained off as a result of gravity. V-shaped impressions on the separator plates ensure that the liquid is drained off in the correct manner and returns to the gas flow.

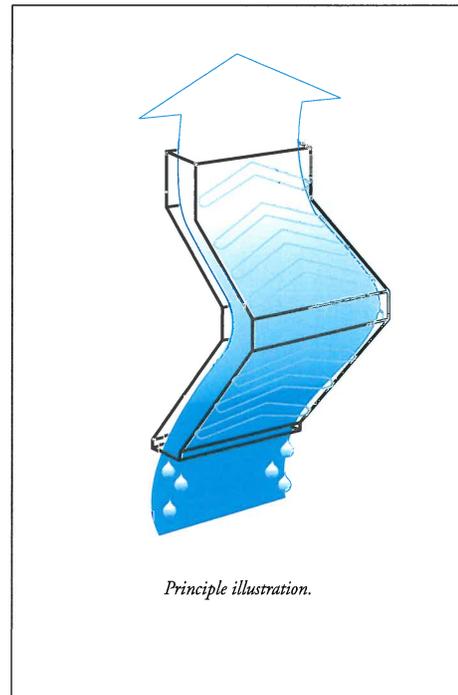
Target applications

- Evaporators
- Absorbers
- Gas scrubbers
- Desulphurization units
- Gas coolers
- Exhaust air treatment plants
- Chemical plant

PRODUCT INFORMATION

DV 270 (*T 271*)

- The most established droplet separator for vertical flow scrubber applications
- Extremely low pressure loss
- Suitable for retrofits
- Available in PE, PP, PPGC, PVDF and stainless steel alloys ASTM 304, ASTM 316Ti, ASTM 316L, ASTM 321; DIN 1.4301, DIN 1.4404, DIN 1.4541, DIN 1.4571. Special materials are available upon request.
- Equipped with flushing / cleaning systems for plugging sensitive applications



Performance data

All technical performance data apply for a system air / water at 20 °C and 1 bar.

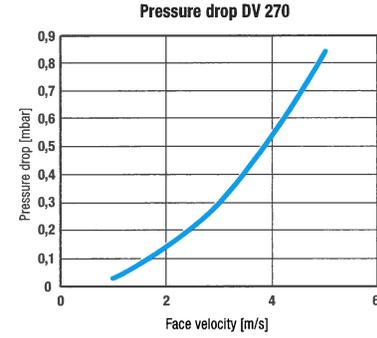
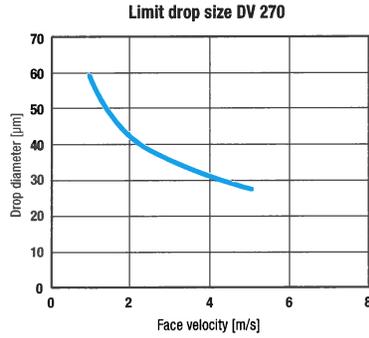
The limit drop size represents a performance characteristic of the profile. At the relevant velocity and operating conditions, it is the size of the smallest droplet that is completely separated.

The pressure loss of a mist eliminator should be as low as possible, in order to ensure favorable operating costs.

The separation efficiency specifies how much liquid the mist eliminator removes from the gas flow. It is customary to specify a maximum permissible inlet load and a guaranteed level of residual liquid content downstream of the eliminator.

Materials

- PE, PP, PPGC, PVDF
- Stainless steel alloys ASTM: 304, 316Ti, 316L, 321; DIN 1.4301, DIN 1.4404, DIN 1.4541, DIN 1.4571
- Special material available upon request

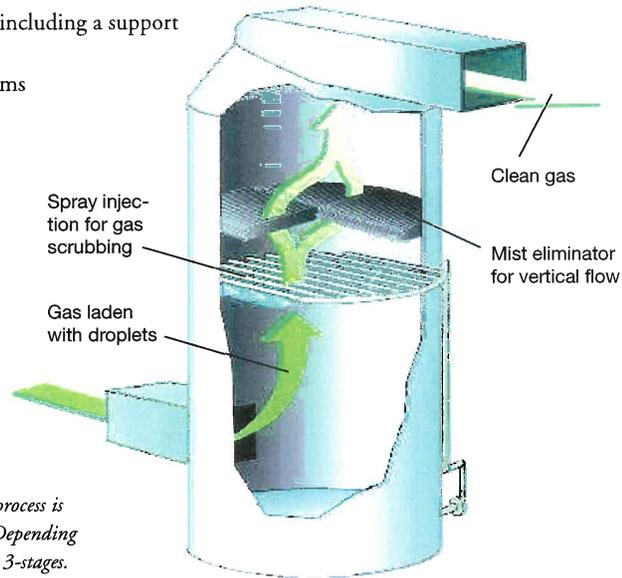


Scope of supply

The DV 270 is available in different configurations:

- Eliminator packs
- Framed pack for installation as internal
- Eliminator together with casing or pressure vessel
- Framed packs including a support structure
- Cleaning systems

Material certificates can be delivered for most materials upon request. Pressure loss, limit drop sizes and fractional efficiency curves for given operating data are delivered upon request.



Wet scrubber with mist eliminator. Liquid carry-over from the cleaning process is eliminated in the vane section of the scrubber and falls back by gravity. Depending on the required cleaning efficiency the mist eliminator can consist of 2 or 3-stages.



Munters, HumiCool Division, Kung Hans Väg 8, P.O. Box 434, SE-191 24 Sollentuna, Sweden. Phone +46 8 626 63 00, Fax +46 8 754 56 66.

Munters Euroform GmbH, Aachen, Germany. Phone +49 241 89 00 0, Fax +49 241 89 00 5199, munters@muntersac.de

Munters Corporation, Fort Myers, USA. Phone +1 239 936 1555, Fax +1 239 936 8858, moreinfo_me@americas.munters.com

www.munters.com

Australia Munters Pty Limited, Phone +61 2 6025 6422, Fax +61 2 6025 6266, **Austria** via sales organization in Germany, **Brazil** Munters Brasil Industria e Comercio Ltda, Phone +55 11 5054 0150, Fax +55 11 5054 0883, **China** Munters Air Treatment Equipment (Beijing) Co., Ltd., Phone +86 10 80 481 121, Fax +86 10 80 483 493, **Denmark** via sales organization in Sweden, **Finland** Munters Oy, Phone +358 9 83 86 030, Fax +358 9 83 86 0336, **France** Munters France S.A., Phone +33 1 34 11 57 50, Fax +33 1 34 11 57 51, **Germany** Munters Euroform GmbH, Phone +49 241 89 00 0, Fax +49 241 89 00 5199, **Indonesia** Munters, Phone +62 21 9105446-7, Fax +62 21 5310509, **Italy** Munters Italy S.p.A., Phone +39 0183-52 11, Fax +39 0183-521 333, **Japan** Munters K.K., Phone +81 3 5970 0021, Fax +81 3 5970 3197, **Kingdom of Saudi Arabia and Middle East** Hawa Munters, c/o Hawa United Cooling Syst. Co. Ltd., Phone +966 1 477 15 14, Fax +966 1 476 09 36, **Korea** Munters Korea Co., Ltd, Phone +82 2 761 8701, Fax +82 2 761 8777, **Mexico** Munters Mexico Phone +52 722 270 40 30, Fax +52 722 270 41 95, **Norway** via sales organization in Sweden, **South Africa and Sub-Sahara Countries** Munters (Pty) Ltd, Phone +27 11 997 2000, Fax +27 11 608 3501, **Russia** Munters Europe AB, Phone +7 812 4485740, Fax +7 812 5418660, **Spain** sales via Munters Euroform GmbH, Phone +34 93 688 1017, Fax +34 93 688 1655, **Sweden** Munters Europe AB, Phone +46 8 626 63 00, Fax +46 8 754 56 66, **Switzerland** via sales organization in Germany, **Thailand** Munters (Thailand) Co. Ltd., Phone +66 2 645 2708-12, Fax +66 2 645 2710, **United Kingdom** Munters Ltd, Phone +44 845 644 3980, Fax +44 845 644 3981, **USA** Munters Corporation Fort Myers, Phone +1 239 936 1555, Fax +1 239 936 8858, Munters Corp. **Mason**, Phone +1 888 335 0100, Fax +1 517 676 7078, **Export & Other countries** Munters, Phone +46 8 626 63 00, Fax +46 8 754 56 66.

Your closest distributor



NOTE:Mist eliminators should not be used for personnel access. Place planks across at least two support members. Review safety procedures with appropriate supervisory personnel prior to performing maintenance, especially before entering closed vessels.

To ensure continued trouble-free mist eliminator service, periodic internal inspections and appropriate maintenance should be performed. Preventive procedures should be scheduled and accomplished during each system outage.

At the minimum, the maintenance program should include:

1. Visual check of all internals, blade elements, structural members, etc., for solids buildup and/or damage.
 - a) Areas exhibiting defined buildup patterns may be attributed to spray nozzle malfunction, excessive system carry over, an upset in system chemistry, temperature or water pressure excursions, or too brief or infrequent washing periods. These areas should be noted for further specific investigation and source correction. Buildup problems associated with gas maldistribution are not covered in these recommendations.
 - b) Clean all areas of solids buildup with high-pressure hoses as required (not to exceed 300 psi).
 - c) Damaged components should be replaced as needed.
2. Check spray nozzles for evidence of malfunction. Disassemble, if necessary, and check internal parts for excessive wear or plugging. Clean and/or replace as required.
3. Manually cycle individual spray headers "on", checking valve function and sequence. Visually check mist eliminator surface for spray coverage and intensity. Verify correct line pressure, cleaning strainers as required.
4. Visually check all connections and member assemblies. Verify correct placement of all components. Check for evidence of relative movement and proper component clearance, and/or evidence of gas bypass. Repair or replace as needed.

Preventive maintenance should also include the following "on line" observations and practices.

5. Routine, daily review of operational data for the purpose of identifying equipment and/or component malfunction, as evidenced by:
 - a) Abrupt or continued increase or decrease in operating drop.
 - b) Abrupt or continued increase or decrease in spray system pressure.
 - c) Excursions in temperature, flow rates, effluent discharge, etc.
6. Maintenance of a detailed log, recording specific procedures used for inspection, cleaning and replacement operations, as well as dates and times and operating data.
7. Maintenance of an adequate inventory of spare parts for quick turnaround repair or replacement.

Product Safety

Safety, of everyone handling, installing, servicing and operating Munters products is our #1 concern. Munters ME Division products are designed, with safety in mind.

Munters cannot be aware of all of the safety, fire and personnel procedures in force among all our customers. The following is intended to be a general overview of potential hazards, not a complete safety course. We urge you to check with your supervisor to be sure that you are familiar with all of the regulations covering your job and job site, and that you have all the training and equipment needed to perform your job safely.

Confined Spaces - Whenever equipment is installed inside a tower, tank, vessel or anywhere that entrance and exit is limited, it may be considered a "confined space". Special hazards can include heat, toxic or asphyxiating gasses and fire. Access to "confined spaces" is generally controlled and may involve special procedures for lockout of equipment which could affect the environment in the space,

Fire - Many products are flammable if ignited, especially products made of PVC (SCRUBdek™ and DRIFdek®) and polypropylene (mist eliminators) to mention just a few. These products can easily be ignited from any source of ignition, but welding is perhaps the most common. Not only do welding sparks and splatter, present a danger, but improperly discarded welding rod stubs can ignite flammable materials. Welding on the outside of a vessel having flammable mist eliminators or packing in contact with the inner surface of the vessel, can be the source of ignition., remember that products of combustion may be toxic, asphyxiating or inflammable themselves.

Personnel Access - Mist eliminators and packing should not be used for personnel access. Whenever it is necessary for personnel to be on eliminators or packing, planking or plywood of sufficient strength must be placed over the surface SPANNING AT LEAST 2 SUPPORTS, and personnel must not venture off the planking.

Sharp Edges - Sharp edges can be found on any equipment, but especially on light gauge fabrications such as METAdek® and mist eliminators. Proper attire must be worn.



Munters Corporation - ME Division

PO Box 6428

Fort Myers, FL 33911 USA

Tel: (239)936-1555 Toll Free: (800)446-6868

Fax: (239)936-2657

E-Mail: moreinfo_me@americas.munters.com

www.munters.us

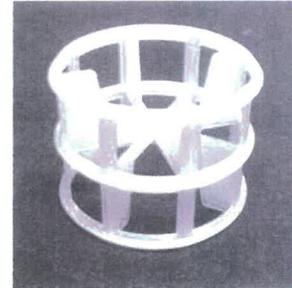
©Copyright Munters Corporation 2005 Printed in USA

Hiflow[®] ring 90-7 plastic

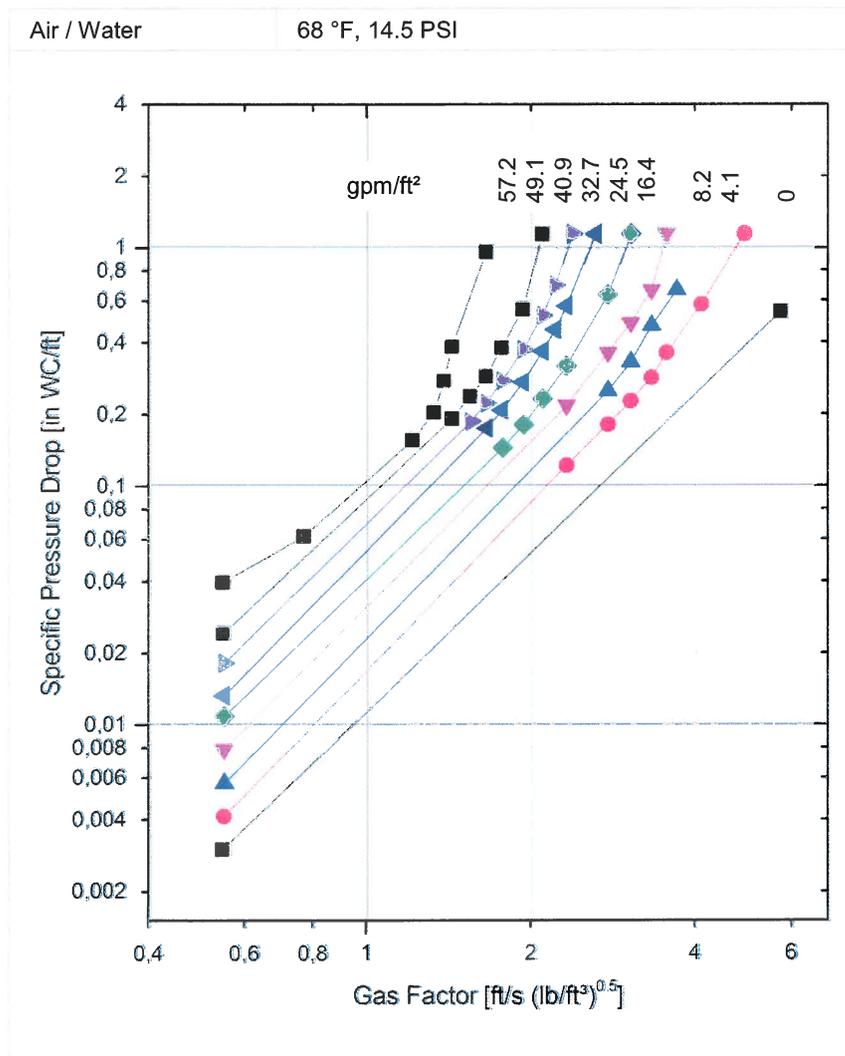


Physical data

Nominal size	3.5 in	90 mm
Weight	2.06 lb/ft ³	30 kg/m ³
Surface area	23.2 ft ² /ft ³	76 m ² /m ³
Void fraction	97 %	
Material	PP	
Available materials	PP, PPH, PE, PVC, C-PVC, PVDF, PFA, ECTFE and others on request	



Pressure drop



PE117 2013/12/18

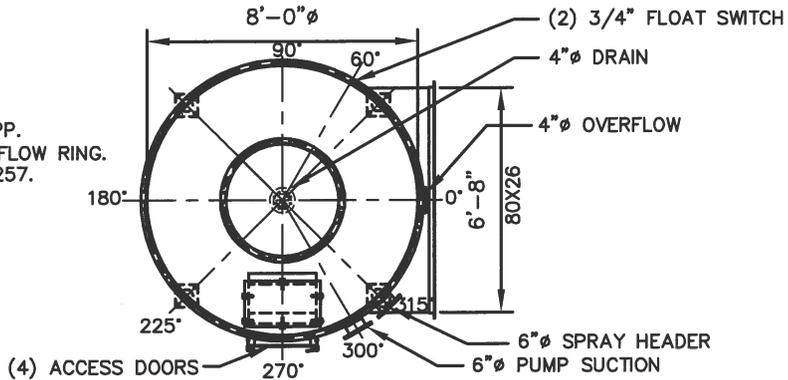
The values indicated above apply for a ratio of diameter of vessel to tower packings of D/d = 20.

All information presented herein is believed to be accurate and reliable but does not constitute a warranty or performance guarantee on part of RVT Process Equipment GmbH.

**MANUFACTURER SPECIFICATIONS FOR 25,000 CFM
PACKED BED SCRUBBER**

NOTES:

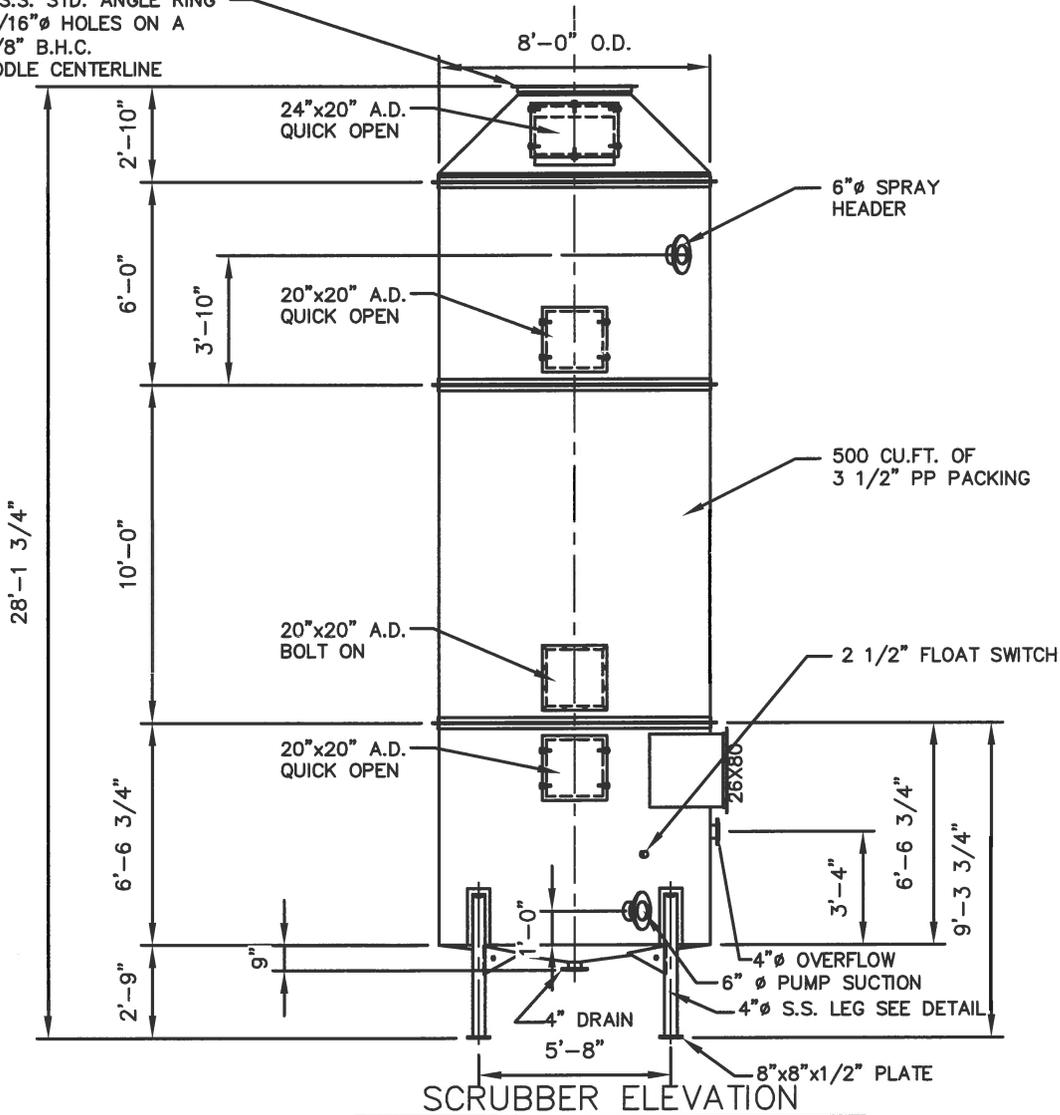
1. SHIPPING WEIGHT 7,750 LBS.
2. FLOODED WEIGHT 21,000 LBS.
3. NOZZLE: BETE NCFL-60480W PVC.
4. MIST ELIMINATOR: MUNTERS T-271 PP.
5. PACKING: RAUSCHERT 3 1/2" HIGH FLOW RING.
6. FLOAT SWITCH: JO-BELL MODEL A-257.



ORIENTATION OF SCRUBBER

SCALE: 3/16" = 1'-0"

40" ϕ S.S. STD. ANGLE RING
 24-7/16" ϕ HOLES ON A
 42 3/8" B.H.C.
 STRADDLE CENTERLINE



SCRUBBER ELEVATION

SCALE: 3/16" = 1'-0"



AC Corporation
 Established 1935
 GREENSBORO, NORTH CAROLINA

Corporate Office - 301 Creek Ridge Rd. Greensboro, NC 27406 (336) 273-4472

DRAWN: RWK
 CHECKED:
 APPROVED:

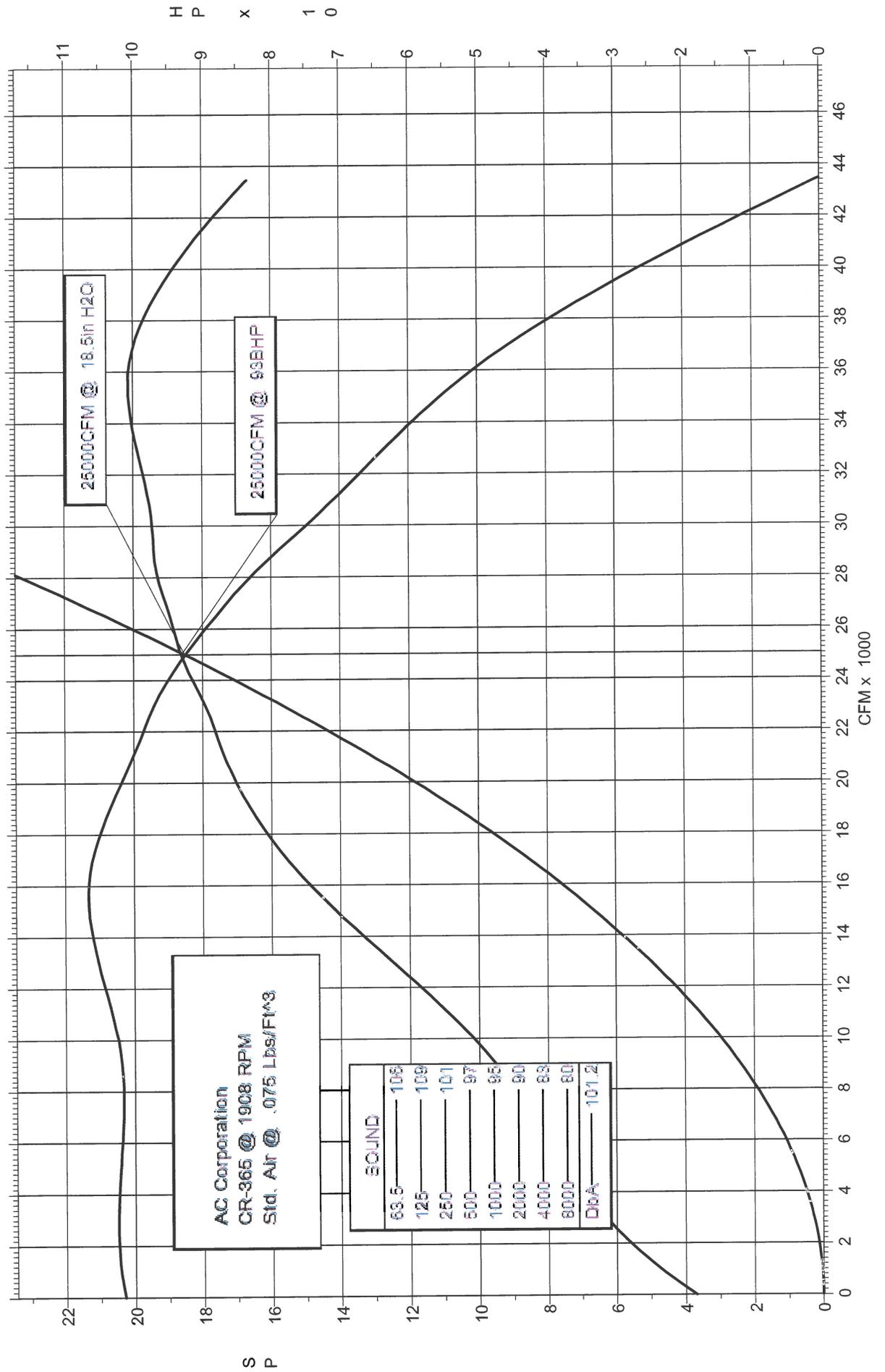
DATE: 7/7/16
 DWG. NO. A-8160051.02
 ACAD NO. A-8160051.02.dwg

**MODEL MEF-PT-25 PACKED TOWER
 PILGRIM'S PRIDE
 SCRUBBER UPFIT PROJECT
 MOOREFIELD, WV**

THIS DRAWING IS PRIVATE AND CONFIDENTIAL, ALL USE IS FORBIDDEN EXCEPT BY WRITTEN CONSENT OF A C CORP.

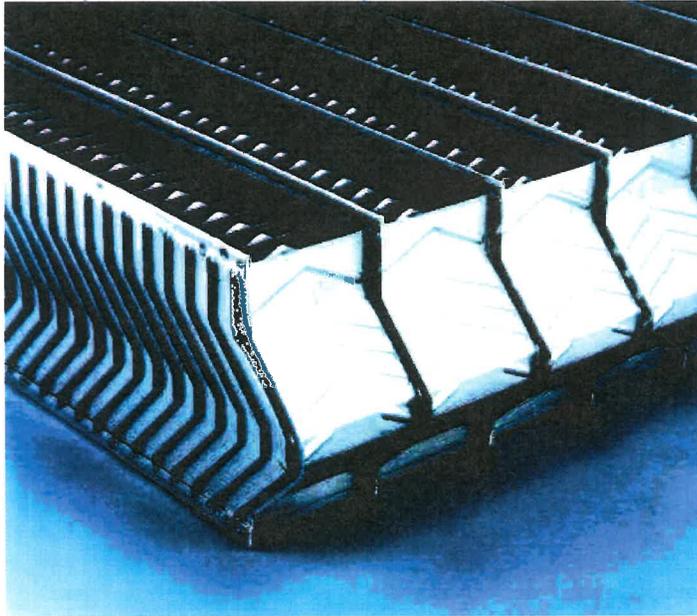


P.O. Box 190718 (72219-0718)
 10701 Interstate 30 (72209)
 Little Rock, Arkansas
 Phone:(501)568-5550
 Fax:(501)568-3363
info@phelpsfan.com



DV 270

Droplet Separator (Mist Eliminator)



The DV 270 (T 271) droplet separator is a vane type separator for vertical flow. The gas flow charged with liquid droplets is directed through separator chambers which are designed for maximum effect on the gas flow. As a result of this configuration, inertial forces act on the droplets. The droplets impinge onto the profiles, where they form a liquid film which is subsequently drained off as a result of gravity. V-shaped impressions on the separator plates ensure that the liquid is drained off in the correct manner and returns to the gas flow.

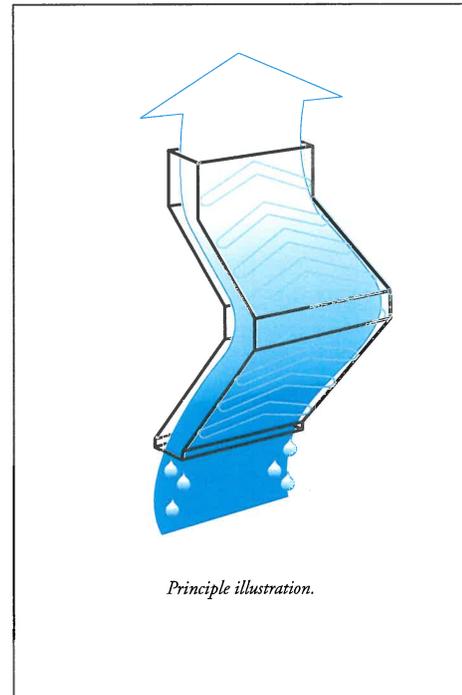
Target applications

- Evaporators
- Absorbers
- Gas scrubbers
- Desulphurization units
- Gas coolers
- Exhaust air treatment plants
- Chemical plant

PRODUCT INFORMATION

DV 270 (T 271)

- The most established droplet separator for vertical flow scrubber applications
- Extremely low pressure loss
- Suitable for retrofits
- Available in PE, PP, PPGC, PVDF and stainless steel alloys ASTM 304, ASTM 316Ti, ASTM 316L, ASTM 321; DIN 1.4301, DIN 1.4404, DIN 1.4541, DIN 1.4571. Special materials are available upon request.
- Equipped with flushing / cleaning systems for plugging sensitive applications



Performance data

All technical performance data apply for a system air / water at 20 °C and 1 bar.

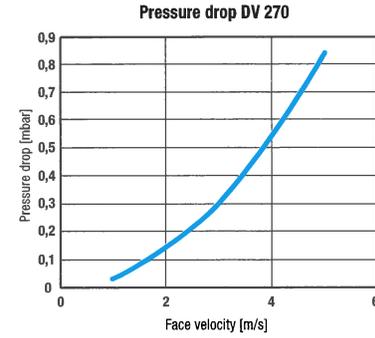
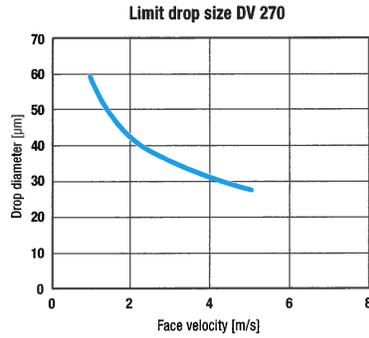
The limit drop size represents a performance characteristic of the profile. At the relevant velocity and operating conditions, it is the size of the smallest droplet that is completely separated.

The pressure loss of a mist eliminator should be as low as possible, in order to ensure favorable operating costs.

The separation efficiency specifies how much liquid the mist eliminator removes from the gas flow. It is customary to specify a maximum permissible inlet load and a guaranteed level of residual liquid content downstream of the eliminator.

Materials

- PE, PP, PPGC, PVDF
- Stainless steel alloys ASTM: 304, 316Ti, 316L, 321; DIN 1.4301, DIN 1.4404, DIN 1.4541, DIN 1.4571
- Special material available upon request

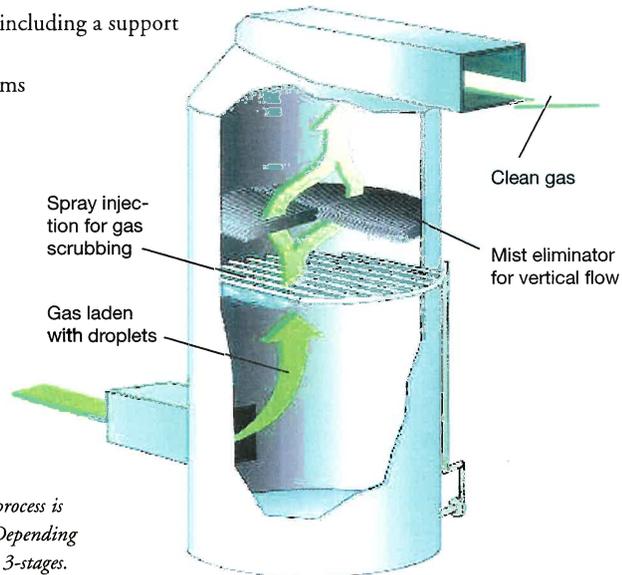


Scope of supply

The DV 270 is available in different configurations:

- Eliminator packs
- Framed pack for installation as internal
- Eliminator together with casing or pressure vessel
- Framed packs including a support structure
- Cleaning systems

Material certificates can be delivered for most materials upon request. Pressure loss, limit drop sizes and fractional efficiency curves for given operating data are delivered upon request.



Wet scrubber with mist eliminator. Liquid carry-over from the cleaning process is eliminated in the vane section of the scrubber and falls back by gravity. Depending on the required cleaning efficiency the mist eliminator can consist of 2 or 3-stages.



Munters, HumiCool Division, Kung Hans Väg 8, P.O. Box 434, SE-191 24 Sollentuna, Sweden. Phone +46 8 626 63 00, Fax +46 8 754 56 66.

Munters Euroform GmbH, Aachen, Germany. Phone +49 241 89 00 0, Fax +49 241 89 00 5199, munters@muntersac.de

Munters Corporation, Fort Myers, USA. Phone +1 239 936 1555, Fax +1 239 936 8858, moreinfo_me@americas.munters.com

www.munters.com

Australia Munters Pty Limited, Phone +61 2 6025 6422, Fax +61 2 6025 8266, **Austria** via sales organization in Germany, **Brazil** Munters Brasil Indústria e Comércio Ltda, Phone +55 11 5054 0150, Fax +55 11 5054 0883, **China** Munters Air Treatment Equipment (Beijing) Co., Ltd., Phone +86 10 80 481 121, Fax +86 10 80 483 493, **Denmark** via sales organization in Sweden, **Finland** Munters Oy, Phone +358 9 83 86 030, Fax +358 9 83 86 0336, **France** Munters France S.A., Phone +33 1 34 11 57 50, Fax +33 1 34 11 57 51, **Germany** Munters Euroform GmbH, Phone +49 241 89 00 0, Fax +49 241 89 00 5199, **Indonesia** Munters, Phone +62 21 9105446-7, Fax +62 21 5310509, **Italy** Munters Italy S.p.A., Phone +39 0183-52 11, Fax +39 0183-521 333, **Japan** Munters K.K., Phone +81 3 5970 0021, Fax +81 3 5970 3197, **Kingdom of Saudi Arabia and Middle East** Hawa Munters, c/o Hawa United Cooling Syst. Co. Ltd., Phone +966 1 477 15 14, Fax +966 1 476 09 36, **Korea** Munters Korea Co., Ltd, Phone +82 2 761 8701, Fax +82 2 761 8777, **Mexico** Munters Mexico Phone +52 722 270 40 30, Fax +52 722 270 41 95, **Norway** via sales organization in Sweden, **South Africa and Sub-Sahara Countries** Munters (Pty) Ltd, Phone +27 11 997 2000, Fax +27 11 608 3501, **Russia** Munters Europe AB, Phone +7 812 4485740, Fax +7 812 5418660, **Spain** sales via Munters Euroform GmbH, Phone +34 93 688 1017, Fax +34 93 688 1655, **Sweden** Munters Europe AB, Phone +46 8 626 63 00, Fax +46 8 754 56 66, **Switzerland** via sales organization in Germany, **Thailand** Munters (Thailand) Co. Ltd., Phone +66 2 645 2708-12, Fax +66 2 645 2710, **United Kingdom** Munters Ltd, Phone +44 845 644 3980, Fax +44 845 644 3981, **USA** Munters Corporation Fort Myers, Phone +1 239 936 1555, Fax +1 239 936 8858, Munters Corp. **Mason**, Phone +1 888 335 0100, Fax +1 517 676 7078, **Export & Other countries** Munters, Phone +46 8 626 63 00, Fax +46 8 754 56 66.

Your closest distributor



NOTE:Mist eliminators should not be used for personnel access. Place planks across at least two support members. Review safety procedures with appropriate supervisory personnel prior to performing maintenance, especially before entering closed vessels.

To ensure continued trouble-free mist eliminator service, periodic internal inspections and appropriate maintenance should be performed. Preventive procedures should be scheduled and accomplished during each system outage.

At the minimum, the maintenance program should include:

1. Visual check of all internals, blade elements, structural members, etc., for solids buildup and/or damage.
 - a) Areas exhibiting defined buildup patterns may be attributed to spray nozzle malfunction, excessive system carry over, an upset in system chemistry, temperature or water pressure excursions, or too brief or infrequent washing periods. These areas should be noted for further specific investigation and source correction. Buildup problems associated with gas maldistribution are not covered in these recommendations.
 - b) Clean all areas of solids buildup with high-pressure hoses as required (not to exceed 300 psi).
 - c) Damaged components should be replaced as needed.
2. Check spray nozzles for evidence of malfunction. Disassemble, if necessary, and check internal parts for excessive wear or plugging. Clean and/or replace as required.
3. Manually cycle individual spray headers "on", checking valve function and sequence. Visually check mist eliminator surface for spray coverage and intensity. Verify correct line pressure, cleaning strainers as required.
4. Visually check all connections and member assemblies. Verify correct placement of all components. Check for evidence of relative movement and proper component clearance, and/or evidence of gas bypass. Repair or replace as needed.

Preventive maintenance should also include the following "on line" observations and practices.

5. Routine, daily review of operational data for the purpose of identifying equipment and/or component malfunction, as evidenced by:
 - a) Abrupt or continued increase or decrease in operating drop.
 - b) Abrupt or continued increase or decrease in spray system pressure.
 - c) Excursions in temperature, flow rates, effluent discharge, etc.
6. Maintenance of a detailed log, recording specific procedures used for inspection, cleaning and replacement operations, as well as dates and times and operating data.
7. Maintenance of an adequate inventory of spare parts for quick turnaround repair or replacement.

Product Safety

Safety, of everyone handling, installing, servicing and operating Munters products is our #1 concern. Munters ME Division products are designed, with safety in mind.

Munters cannot be aware of all of the safety, fire and personnel procedures in force among all our customers. The following is intended to be a general overview of potential hazards, not a complete safety course. We urge you to check with your supervisor to be sure that you are familiar with all of the regulations covering your job and job site, and that you have all the training and equipment needed to perform your job safely.

Confined Spaces - Whenever equipment is installed inside a tower, tank, vessel or anywhere that entrance and exit is limited, it may be considered a "confined space". Special hazards can include heat, toxic or asphyxiating gasses and fire. Access to "confined spaces" is generally controlled and may involve special procedures for lockout of equipment which could affect the environment in the space,

Fire - Many products are flammable if ignited, especially products made of PVC (SCRUBdek™ and DRIFdek®) and polypropylene (mist eliminators) to mention just a few. These products can easily be ignited from any source of ignition, but welding is perhaps the most common. Not only do welding sparks and splatter, present a danger, but improperly discarded welding rod stubs can ignite flammable materials. Welding on the outside of a vessel having flammable mist eliminators or packing in contact with the inner surface of the vessel, can be the source of ignition., remember that products of combustion may be toxic, asphyxiating or inflammable themselves.

Personnel Access - Mist eliminators and packing should not be used for personnel access. Whenever it is necessary for personnel to be on eliminators or packing, planking or plywood of sufficient strength must be placed over the surface SPANNING AT LEAST 2 SUPPORTS, and personnel must not venture off the planking.

Sharp Edges - Sharp edges can be found on any equipment, but especially on light gauge fabrications such as METAdek® and mist eliminators. Proper attire must be worn.



Munters Corporation - ME Division

PO Box 6428

Fort Myers, FL 33911 USA

Tel: (239)936-1555 Toll Free: (800)446-6868

Fax: (239)936-2657

E-Mail: moreinfo_me@americas.munters.com

www.munters.us

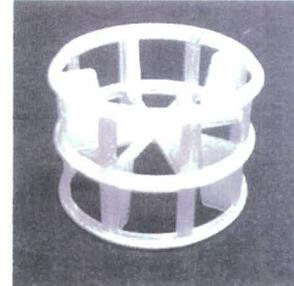
©Copyright Munters Corporation 2005 Printed in USA

Hiflow[®] ring 90-7 plastic

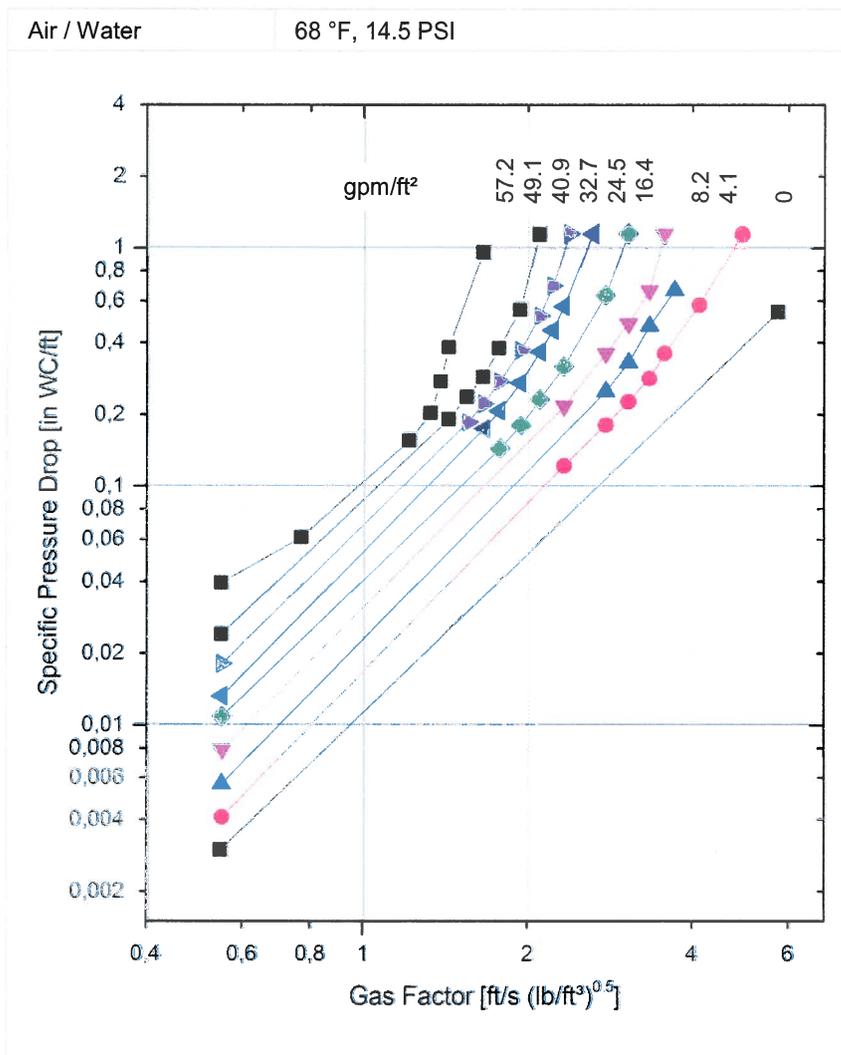


Physical data

Nominal size	3.5 in	90 mm
Weight	2.06 lb/ft ³	30 kg/m ³
Surface area	23.2 ft ² /ft ³	76 m ² /m ³
Void fraction	97 %	
Material	PP	
Available materials	PP, PPH, PE, PVC, C-PVC, PVDF, PFA, ECTFE and others on request	



Pressure drop



PE117 2013/12/18

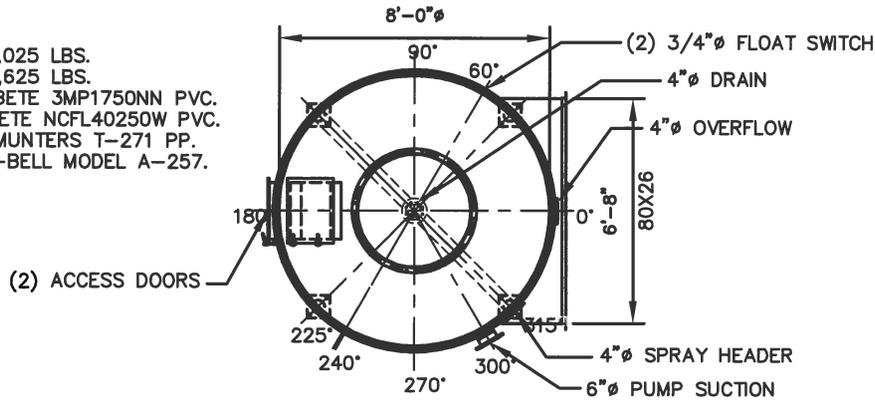
The values indicated above apply for a ratio of diameter of vessel to tower packings of D/d = 20.

All information presented herein is believed to be accurate and reliable but does not constitute a warranty or performance guarantee on part of RVT Process Equipment GmbH.

**MANUFACTURER SPECIFICATIONS FOR 25,000 CFM
VENTURI SCRUBBER**

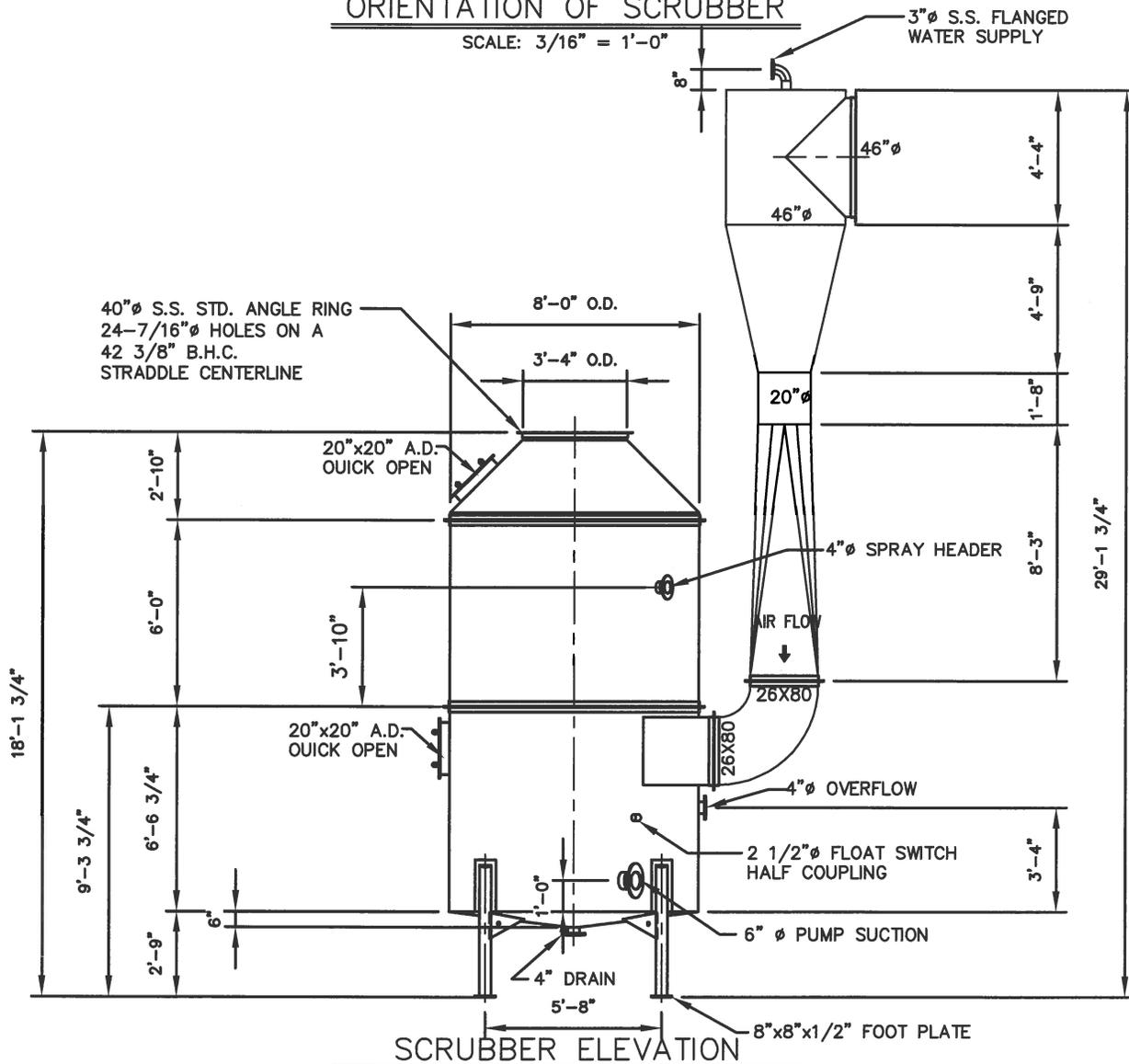
NOTES:

1. SHIPPING WEIGHT 3,025 LBS.
2. FLOODED WEIGHT 7,625 LBS.
3. VENTURI NOZZLE: BETE 3MP1750NN PVC.
TANK NOZZLE: BETE NCFL40250W PVC.
4. MIST ELIMINATOR: MUNTERS T-271 PP.
5. FLOAT SWITCH: JO-BELL MODEL A-257.



ORIENTATION OF SCRUBBER

SCALE: 3/16" = 1'-0"



SCRUBBER ELEVATION

SCALE: 3/16" = 1'-0"



AC Corporation

Established 1935

GREENSBORO, NORTH CAROLINA

Corporate Office - 301 Creek Ridge Rd. Greensboro, NC 27406 (336) 273-4472

DRAWN: RWK

CHECKED:

APPROVED:

DATE: 7/7/16

DWG. NO. A-8160051.01

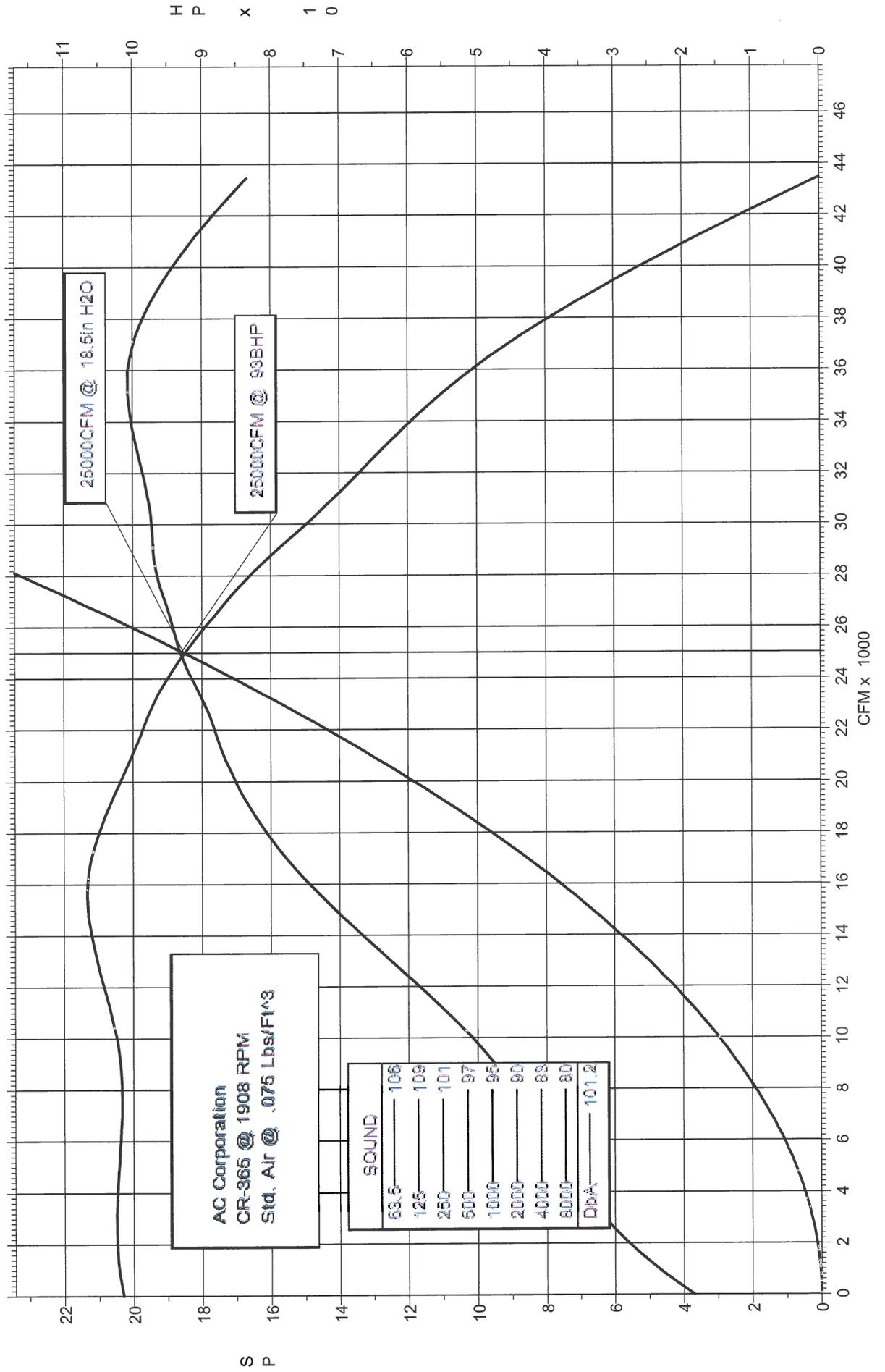
ACAD NO. A-8160051.01.dwg

**MODEL VS-25T VENTURI SCRUBBER
PILGRIM'S PRIDE
SCRUBBER UPFIT PROJECT
MOOREFIELD, WV**

THIS DRAWING IS PRIVATE AND CONFIDENTIAL. ALL USE IS FORBIDDEN EXCEPT BY WRITTEN CONSENT OF A C CORP.

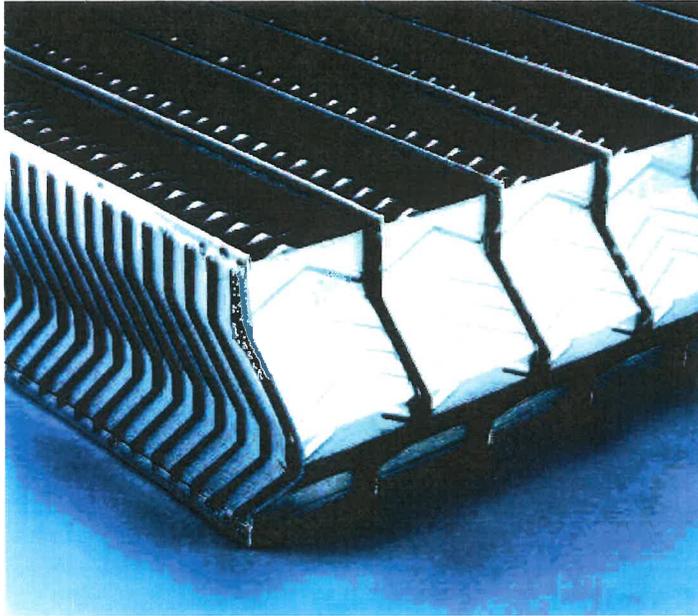


P.O. Box 190718 (72219-0718)
 10701 Interstate 30 (72209)
 Little Rock, Arkansas
 Phone: (501) 568-5550
 Fax: (501) 568-3363
 info@phelpstan.com



DV 270

Droplet Separator (Mist Eliminator)



The DV 270 (T 271) droplet separator is a vane type separator for vertical flow. The gas flow charged with liquid droplets is directed through separator chambers which are designed for maximum effect on the gas flow. As a result of this configuration, inertial forces act on the droplets. The droplets impinge onto the profiles, where they form a liquid film which is subsequently drained off as a result of gravity. V-shaped impressions on the separator plates ensure that the liquid is drained off in the correct manner and returns to the gas flow.

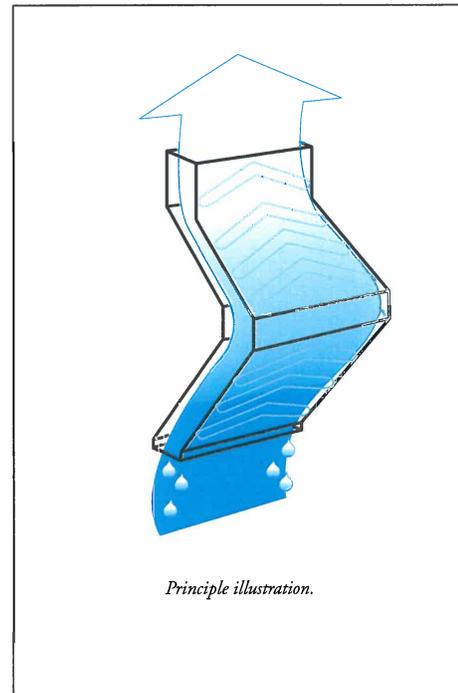
Target applications

- Evaporators
- Absorbers
- Gas scrubbers
- Desulphurization units
- Gas coolers
- Exhaust air treatment plants
- Chemical plant

PRODUCT INFORMATION

DV 270 (T 271)

- The most established droplet separator for vertical flow scrubber applications
- Extremely low pressure loss
- Suitable for retrofits
- Available in PE, PP, PPGC, PVDF and stainless steel alloys ASTM 304, ASTM 316Ti, ASTM 316L, ASTM 321; DIN 1.4301, DIN 1.4404, DIN 1.4541, DIN 1.4571. Special materials are available upon request.
- Equipped with flushing / cleaning systems for plugging sensitive applications



Principle illustration.

Performance data

All technical performance data apply for a system air / water at 20 °C and 1 bar.

The limit drop size represents a performance characteristic of the profile. At the relevant velocity and operating conditions, it is the size of the smallest droplet that is completely separated.

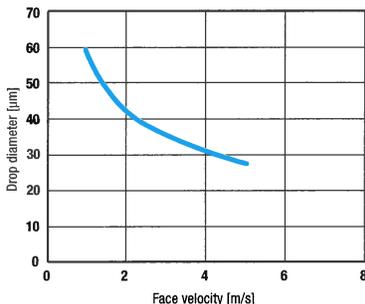
The pressure loss of a mist eliminator should be as low as possible, in order to ensure favorable operating costs.

The separation efficiency specifies how much liquid the mist eliminator removes from the gas flow. It is customary to specify a maximum permissible inlet load and a guaranteed level of residual liquid content downstream of the eliminator.

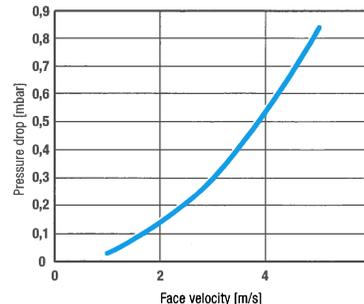
Materials

- PE, PP, PPGC, PVDF
- Stainless steel alloys ASTM: 304, 316Ti, 316L, 321; DIN 1.4301, DIN 1.4404, DIN 1.4541, DIN 1.4571
- Special material available upon request

Limit drop size DV 270



Pressure drop DV 270

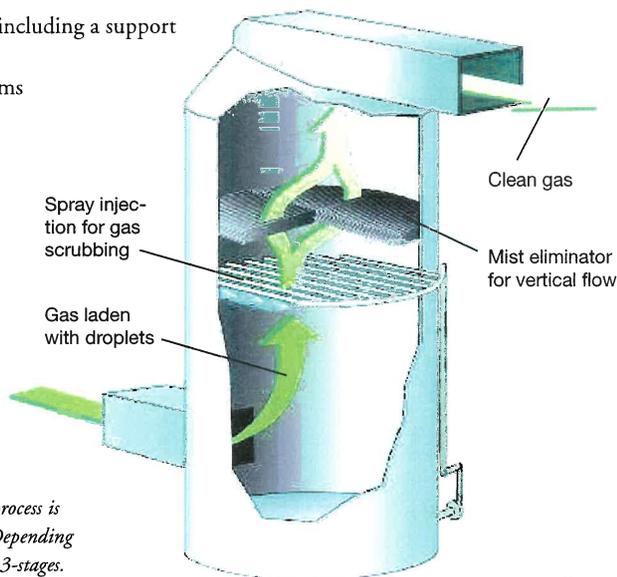


Scope of supply

The DV 270 is available in different configurations:

- Eliminator packs
- Framed pack for installation as internal
- Eliminator together with casing or pressure vessel
- Framed packs including a support structure
- Cleaning systems

Material certificates can be delivered for most materials upon request. Pressure loss, limit drop sizes and fractional efficiency curves for given operating data are delivered upon request.



Wet scrubber with mist eliminator. Liquid carry-over from the cleaning process is eliminated in the vane section of the scrubber and falls back by gravity. Depending on the required cleaning efficiency the mist eliminator can consist of 2 or 3-stages.



Munters, HumiCool Division, Kung Hans Väg 8, P.O. Box 434, SE-191 24 Sollentuna, Sweden. Phone +46 8 626 63 00, Fax +46 8 754 56 66.

Munters Euroform GmbH, Aachen, Germany. Phone +49 241 89 00 0, Fax +49 241 89 00 5199, munters@muntersac.de

Munters Corporation, Fort Myers, USA. Phone +1 239 936 1555, Fax +1 239 936 8858, moreinfo_me@americas.munters.com

www.munters.com

Australia Munters Pty Limited, Phone +61 2 6025 6422, Fax +61 2 6025 8266, **Austria** via sales organization in Germany, **Brazil** Munters Brasil Indústria e Comércio Ltda, Phone +55 11 5054 0150, Fax +55 11 5054 0883, **China** Munters Air Treatment Equipment (Beijing) Co., Ltd., Phone +86 10 80 461 121, Fax +86 10 80 483 493, **Denmark** via sales organization in Sweden, **Finland** Munters Oy, Phone +358 9 83 86 030, Fax +358 9 83 86 0336, **France** Munters France S.A., Phone +33 1 34 11 57 50, Fax +33 1 34 11 57 51, **Germany** Munters Euroform GmbH, Phone +49 241 89 00 0, Fax +49 241 89 00 5199, **Indonesia** Munters, Phone +62 21 9105446-7, Fax +62 21 5310509, **Italy** Munters Italy S.p.A., Phone +39 0183-52 11, Fax +39 0183-521 333, **Japan** Munters K.K., Phone +81 3 5970 0021, Fax +81 3 5970 3197, **Kingdom of Saudi Arabia and Middle East** Hawa Munters, c/o Hawa United Cooling Syst. Co. Ltd., Phone +966 1 477 15 14, Fax +966 1 476 09 36, **Korea** Munters Korea Co., Ltd, Phone +82 2 761 8701, Fax +82 2 761 8777, **Mexico** Munters Mexico Phone +52 722 270 40 30, Fax +52 722 270 41 95, **Norway** via sales organization in Sweden, **South Africa and Sub-Sahara Countries** Munters (Pty) Ltd, Phone +27 11 997 2000, Fax +27 11 608 3501, **Russia** Munters Europe AB, Phone +7 812 4485740, Fax +7 812 5418660, **Spain** sales via Munters Euroform GmbH, Phone +34 93 688 1017, Fax +34 93 688 1655, **Sweden** Munters Europe AB, Phone +46 8 626 63 00, Fax +46 8 754 56 66, **Switzerland** via sales organization in Germany, **Thailand** Munters (Thailand) Co. Ltd., Phone +66 2 645 2708-12, Fax +66 2 645 2710, **United Kingdom** Munters Ltd, Phone +44 845 644 3980, Fax +44 845 644 3981, **USA** Munters Corporation **Fort Myers**, Phone +1 239 936 1555, Fax +1 239 936 8858, **Munters Corp. Mason**, Phone +1 888 335 0100, Fax +1 517 676 7078, **Export & Other countries** Munters, Phone +46 8 626 63 00, Fax +46 8 754 56 66.

Your closest distributor

Munters reserves the right to make alterations to specifications, quantities, etc., for production or other reasons, subsequent to publication.

© Munters, 2007



NOTE: Mist eliminators should not be used for personnel access. Place planks across at least two support members. Review safety procedures with appropriate supervisory personnel prior to performing maintenance, especially before entering closed vessels.

To ensure continued trouble-free mist eliminator service, periodic internal inspections and appropriate maintenance should be performed. Preventive procedures should be scheduled and accomplished during each system outage.

At the minimum, the maintenance program should include:

1. Visual check of all internals, blade elements, structural members, etc., for solids buildup and/or damage.
 - a) Areas exhibiting defined buildup patterns may be attributed to spray nozzle malfunction, excessive system carry over, an upset in system chemistry, temperature or water pressure excursions, or too brief or infrequent washing periods. These areas should be noted for further specific investigation and source correction. Buildup problems associated with gas maldistribution are not covered in these recommendations.
 - b) Clean all areas of solids buildup with high-pressure hoses as required (not to exceed 300 psi).
 - c) Damaged components should be replaced as needed.
2. Check spray nozzles for evidence of malfunction. Disassemble, if necessary, and check internal parts for excessive wear or plugging. Clean and/or replace as required.
3. Manually cycle individual spray headers "on", checking valve function and sequence. Visually check mist eliminator surface for spray coverage and intensity. Verify correct line pressure, cleaning strainers as required.
4. Visually check all connections and member assemblies. Verify correct placement of all components. Check for evidence of relative movement and proper component clearance, and/or evidence of gas bypass. Repair or replace as needed.

Preventive maintenance should also include the following "on line" observations and practices.

5. Routine, daily review of operational data for the purpose of identifying equipment and/or component malfunction, as evidenced by:
 - a) Abrupt or continued increase or decrease in operating drop.
 - b) Abrupt or continued increase or decrease in spray system pressure.
 - c) Excursions in temperature, flow rates, effluent discharge, etc.
6. Maintenance of a detailed log, recording specific procedures used for inspection, cleaning and replacement operations, as well as dates and times and operating data.
7. Maintenance of an adequate inventory of spare parts for quick turnaround repair or replacement.

Product Safety

Safety, of everyone handling, installing, servicing and operating Munters products is our #1 concern. Munters ME Division products are designed, with safety in mind.

Munters cannot be aware of all of the safety, fire and personnel procedures in force among all our customers. The following is intended to be a general overview of potential hazards, not a complete safety course. We urge you to check with your supervisor to be sure that you are familiar with all of the regulations covering your job and job site, and that you have all the training and equipment needed to perform your job safely.

Confined Spaces - Whenever equipment is installed inside a tower, tank, vessel or anywhere that entrance and exit is limited, it may be considered a "confined space". Special hazards can include heat, toxic or asphyxiating gasses and fire. Access to "confined spaces" is generally controlled and may involve special procedures for lockout of equipment which could affect the environment in the space,

Fire - Many products are flammable if ignited, especially products made of PVC (SCRUBdek™ and DRIFdek®) and polypropylene (mist eliminators) to mention just a few. These products can easily be ignited from any source of ignition, but welding is perhaps the most common. Not only do welding sparks and splatter, present a danger, but improperly discarded welding rod stubs can ignite flammable materials. Welding on the outside of a vessel having flammable mist eliminators or packing in contact with the inner surface of the vessel, can be the source of ignition., remember that products of combustion may be toxic, asphyxiating or inflammable themselves.

Personnel Access - Mist eliminators and packing should not be used for personnel access. Whenever it is necessary for personnel to be on eliminators or packing, planking or plywood of sufficient strength must be placed over the surface SPANNING AT LEAST 2 SUPPORTS, and personnel must not venture off the planking.

Sharp Edges - Sharp edges can be found on any equipment, but especially on light gauge fabrications such as METAdek® and mist eliminators. Proper attire must be worn.



Munters Corporation - ME Division
PO Box 6428
Fort Myers, FL 33911 USA
Tel: (239)936-1555 Toll Free: (800)446-6868
Fax: (239)936-2657
E-Mail: moreinfo_me@americas.munters.com
www.munters.us

©Copyright Munters Corporation 2005 Printed in USA