

STATE OF MISSOURI



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **032015-001** Project Number: 2014-10-046
Installation Number: 109-0004

Parent Company: Balchem Corporation

Parent Company Address: 52 Sunrise Park Road, New Hampton, NY 10958

Installation Name: BCP Ingredients

Installation Address: 299 Extension St., P.O. Box 85, Verona, MO 65769-0085

Location Information: Lawrence County, S17, T26, R26

Application for Authority to Construct was made for:
Equipment for integrating salts with carriers and encapsulating feed materials. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

-
- Standard Conditions (on reverse) are applicable to this permit.
- Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

MAR 03 2015

EFFECTIVE DATE

Handwritten signature of Kyma L. Moore in black ink.

DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Department's Air Pollution Control Program of the anticipated date of start up of these air contaminant sources. The information must be made available within 30 days of actual startup. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual start up of these air contaminant sources.

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant sources(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

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Project No.	2014-10-046

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

BCP Ingredients
Lawrence County, T26N, R26E, 17

1. Superseding Condition
The conditions of this permit supersede Special Condition 2.A and associated Attachment A recordkeeping requirements of Special Condition 3 of Permit No. 012008-012 from the Air Pollution Control Program.
2. Installation Wide VOC Emission Limitations
 - A. Volatile Organic Compound (VOC) Emission Limitation
BCP Ingredients, Inc. shall emit less than 250 tons of VOCs in any consecutive 12-month period from the entire installation.
 - B. BCP Ingredients shall develop and use forms to demonstrate compliance with Special Condition 2.A. The forms shall contain at a minimum the following information,
 - 1) Installation name
 - 2) Installation ID
 - 3) Permit number
 - 4) Current month
 - 5) Current 12-month date range
 - 6) Emission units
 - 7) Each emission unit's respective current monthly throughput
 - 8) Emission unit respective emission factors, and source
 - 9) Emission unit capture and control efficiency
 - 10) Total VOC emissions for the reporting date range
 - 11) 12-month rolling total VOC emissions
 - 12) Indication of compliance status with Special Condition 2.A.
3. Control Device Requirement
 - A. BCP Ingredients shall control emissions using the devices indicated in Table 1, as specified in the permit application.

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- B. BCP Ingredients shall operate and maintain the devices indicated in Table 1 in accordance with the manufacturer's specifications.
- C. BCP Ingredients shall maintain an operating and maintenance log for the devices indicated in Table 1, which shall include the following:
 - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
 - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.

Table 1: Project Source Listing:

Emission Unit Number	Description	Control Device
EP 26-01	V-26 Encap Baghouse	EP2601 (baghouse)
EP 26-02	V-26 Encap Fugitive	No control device
EP 26-03	V-26 Dry Choline Cyclone Stack (Mixing)	EP2603 (dust cyclone)
EP 26-04 Seg 1	V-26 Dry Choline Cyclone Stack (Dryer Burner)	EP2604 (cyclone)
EP 26-04 Seg 2	V-26 Dry Choline Cyclone Stack (Dry Choline Drying)	EP2604 (cyclone)
EP 26-05	V-26 Dry Choline Bulk Bag Cyclone (Packaging)	EP2605 (cyclone)
EP 26-06	V-26 Dry Choline Carrier Stack (Unload & Conveying)	EP2606 (cyclone)
EP 26-07	V-26 Dry Choline Rework Hopper	No control device
EP 26-08	V-26 Dry Choline Cooler	No control device
EP 26-09	V-26 Dry Choline Bagging Hopper	EP2609 (hopper with filter sock)
EP 26-10	V-26 Dry Choline Bag Packaging	No control device

- 4. Control Device Requirement-Baghouse
 - A. BCP Ingredients shall equip the control device EP2601 with a gauge or meter, which indicates the pressure drop across the control device.

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

- B. BCP Ingredients' personnel shall read and document the pressure drop readings displayed by the instrumentation for the baghouse weekly, sometime when EP 26-01 is in operation (unless no operation occurs during the week).
 - C. BCP Ingredients shall maintain the operating pressure drop within the design conditions specified by the manufacturer's performance warranty.
 - D. BCP Ingredients shall keep replacement filters on hand at all times. The filters shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
 - E. BCP Ingredients shall maintain a copy of the filter manufacturer's performance warranty on site.
5. Collection Device Requirement
- A. BCP Ingredients shall maintain the pollutant collection systems for EP2601 and EP2603 to maximize particulate matter collection efficiency. These maintenance activities shall ensure that the collection systems do not become blocked or obstructed.
 - B. BCP Ingredients shall develop and include the inspection of the pollutant collection systems for EP2601 and EP2603 in its regular operating procedures.
 - C. BCP Ingredients shall maintain a maintenance log for the collection systems for EP2601 and EP2603, which shall include the following:
 - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
 - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
6. Particulate Matter Emission Limit:
- A. BCP Ingredients shall emit less than 25.0 tons of particulate matter (PM¹) from the following emission units in any consecutive 12-month period:

¹ Any airborne, finely divided solid or liquid material with an aerodynamic diameter smaller than one hundred (100) micrometers as measured in the ambient air as specified in 10 CSR 10-6.040(4)(B).

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SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

Table 2: Emissions Units Limited by Special Condition 4

EU	Description
EP 26-01	Baghouse
EP 26-03	Cyclone Carrier Weight
EP 26-04	Choline Drying
EP 26-05	Cyclone Bulk Bagging
EP 26-06	Carrier Receiving
EP 26-07	Rework Charge Hopper
EP 26-08	Choline Cooler
EP 26-09	Bag Packaging Hopper
EP 26-10	Bag Filling

- B. BCP Ingredients shall maintain an accurate record of PM emissions. Attachments E and F, or another permitting authority approved format, shall be used to demonstrate compliance with the emission limit.
7. Record Keeping and Reporting Requirements
- A. BCP Ingredients shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.
 - B. BCP Ingredients shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than 10 days after the end of the month during which any record required by this permit show an exceedance of a limitation imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2014-10-046
Installation ID Number: 109-0004
Permit Number:

BCP Ingredients
299 Extension St.
P.O. Box 85
Verona, MO 65769-0085

Complete: October 15, 2014

Parent Company:
Balchem Corporation
52 Sunrise Park Road
New Hampton, NY 10958

Lawrence County, T26N, R26E, 17

REVIEW SUMMARY

- BCP Ingredients has applied for authority to construct equipment for integrating salts with carriers and encapsulating feed materials
- HAP emissions are expected from EP 26-04 Segment 2.
- None of the NESHAPs apply to this installation. None of the currently promulgated MACT regulations apply to the proposed equipment.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of particulate matter, considering the required particulate matter control device, are below the de minimis levels.
- This installation is located in Lawrence County, an attainment area all criteria pollutants.
- This installation is not on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2].
- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.
- This installation operates under a Part 70 Operating Permit, OP2012-034. This project is considered covered by the "Off-Permit" provisions of that permit, and a revision is not necessary until the renewal or the next operating permit modification.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

BCP Ingredients, Inc. (BCPI) is located in Verona, Missouri and manufactures feed and food-grade nutritional additives. The manufacturing processes involve acid-base reactions and the resulting salts are either sold in liquid form or they are concentrated, purified and dried. A variety of chemical compounds are also produced including choline salts, clay stabilization products, and specialty chemicals.

The following New Source Review projects have been processed for BCP Ingredients from the Air Pollution Control Program.

Table 3: Project History

Project #	Permit Number	Date Rec'd	Complete Date	Description
AP200110027	012002-009	10-09-01	01-14-02	Encapsulation Process
AP200110028	032002-023	10-09-01	03-27-02	Liquid/Gas Repacking
AP200607037		07-14-06	10-06-06	Increase Production
AP200607038		07-14-06	01-31-07	Confidentiality for 2006-07-037
AP200607085		07-14-06	09-26-06	Increase Ingredient Production
AP200704110	OP	04-23-07	05-05-08	Typographical errors
AP200707059	012008-012	07-06-07	01-29-08	Change Solvents
AP200707060		07-06-07	07-13-07	Confidentiality for 2007-07-059
AP200801018	OP	01-10-08	05-05-08	HAP limits
AP200802085		02-25-08	03-28-08	Test Process
AP200903026	OP2007-010A	03-04-09	02-03-10	Add new NSR permit
AP201007034	122010-009	07-19-10	12-13-10	Add production
AP201010009		10-06-10	04-19-11	Confidentiality for 2010-07-034
AP201107006	122010-009A	07-06-11	11-28-11	Production Modifications
AP201111015	OP2012-024	11-08-11	08-24-12	Food Additives
AP201204040		04-12-12	06-29-12	Drier
AP201407065		07-25-14	09-24-14	Tanks and controls
AP201410046		10-15-14		Ingredient Expansion
EX1090004022		04-15-96	04-23-96	Replace a 4500 Gal Tank With a 6000 Gal Tank.
EX1090004023	OP2007-010	05-13-97	03-08-07	Preservatives & Nutritional Additives
EX1090004024		06-26-97	07-14-97	Methanol still bottoms and liquor workup will be processed in building v-11 rather than v-10 (total methanol processed limited by Permit 0694-001.)
EX1090004025		06-26-97	07-10-97	Produce food-grade glucosamine hydrochloride from the digestion of chitin with hydrochloric acid
EX1998010133	0498-006	01-20-98	04-09-98	New product, benzoate production
EX199804184		04-27-98	05-01-98	Egg Washing Process Modification
EX199806077	N/A	06-19-98	10-21-98	Betacho/Betaine Produce & Store
EX200008016	122000-006	08-04-00	12-18-00	New thiocyanate process
EX25800004005	0290-012	12-19-89	02-26-90	

Project #	Permit Number	Date Rec'd	Complete Date	Description
EX25800004007	0990-001	05-02-90	08-17-90	
EX25800004008	0991-012	08-29-91	09-27-91	
EX25800004009	1191-005	09-05-91	11-12-91	
EX25800004010	0692-025	01-03-92	06-15-92	
EX25800004011		09-10-92	12-02-92	
EX25800004012	0793-005	02-18-93	07-09-93	
EX25800004013	0294-001	04-11-93	07-26-93	
EX25800004014	0893-013	05-17-93	07-22-93	
EX25800004015	0694-025	07-29-93	06-29-94	
EX25800004016	0694-007	04-07-94	05-31-94	
EX25800004017	0894-029	05-02-94	07-31-94	
EX25800004018	0290-012A	08-05-94	10-13-94	
EX25800004019		11-17-94	12-09-94	
EX25800004020		08-22-95	01-15-97	Wastewater Treatment Facility
EX25800004021	0297-019	11-17-95	02-20-97	Production Increase
EX25800004023		01-15-97	09-02-97	Liquid proprionate products using existing equipment
EX25800004024	0997-045	03-27-97	09-30-97	Increase production limits
EX25800004025		06-26-97	07-14-97	Moving Equipment

PROJECT DESCRIPTION

Verona manufactures food and feed grade nutritional additives. The manufacturing processes involve acid-base reactions followed by concentration, purification, and solidification of the resulting salts. One set of equipment to be installed allows addition of the salts to carriers yielding the final products in the proposed dry choline facility. A second set of equipment to be installed allows encapsulation of these salts using vegetable oils. The encapsulation shields active ingredients from degradation by adverse temperature, light, moisture and pH conditions. Encapsulation also allows control of the rate of active ingredient release during processing by the end-user. The manufacturing process is proprietary, and process details are considered CONFIDENTIAL information.

Dry Choline Process

As shown in the process flow diagram (Figure 3, Attachment D, page 31), the material produced in an acid-base reaction is transferred, added to carriers, and dried. The first step in the process is conveying carrier material from new storage silos. Next, the carriers are mixed with liquid (dissolved salts). This mixture is dried in a natural gas fired, cylindrical, tumble dryer and then cooled. The final product is packaged and shipped to end-users or transferred to the encapsulation process. The dryer has a design rate of 6 million BTU per hour and an expected annual production rate of 20,000 tons per year.

Encapsulation Process

As shown in the process flow diagram (Figure 4, Attachment D, page 32), the material to be encapsulated is conveyed from hoppers to the encapsulation reactors.

Additives/processing aids are also fed to the reactors as well as oil from an oil-handling system composed of heated vegetable oil tanks. The resulting encapsulated salt is screened, packaged and shipped. The annual production rate is estimated at 20 million pounds per year of total encapsulated product.

EMISSIONS/CONTROLS EVALUATION

The emission factors and control efficiencies used in this analysis were obtained from the permittee, and are consistent with emission calculations for AP-42 and good engineering practice (please refer Attachment A and C for the emission calculations).

The following table provides an emissions summary for this project. Existing potential emissions were taken from the analysis of the annual emission report. Existing actual emissions were taken from the installation's 2013 EIQ/MoEIS report. Potential emissions of the application represent the potential of the modified equipment, assuming continuous operation (8760 hours per year). Please refer to Attachment D for several selected pages from the application that contain pertinent information regarding emissions calculations. Particulate matter is the primary regulated air pollutant expected from this source. Ethylene glycol will be emitted from EP26-04 Segment 2 in the amount of 1.7 tons per year. The Screening Model Action Level (SMAL) for ethylene glycol is 10 tons per year. Therefore, no modeling was done for air toxics. The emissions of ethylene glycol and VOC will have to be included in the HAP and VOC tracking currently being done for operating permit OP2012-034, permit conditions PW001 and PW002.

Table 4: Emissions Summary (tons per year, rounded)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions ² (2013 EIQ)	Potential Emissions of the Application ³	New Installation Conditioned Potential
PM	25.0	N/D	N/A ⁴	25.0 ⁵	N/D
PM ₁₀	15.0	50	10	13	63 ⁶
PM _{2.5}	10.0	19	7	13 ⁷	32 ⁶
SO _x ⁸	40.0	72	0.04	0.02	72
NO _x	40.0	102	5	2.56	105

² Reported values rounded to the significant digitals shown.

³ These emissions are after the control device, which is required by special conditions.

⁴ Particulate matter (PM) is not an annually reported pollutant.

⁵ A permit condition has been included with this permit to limit particulate matter emissions.

⁶ The PM₁₀ and PM_{2.5} emissions from this project should be expected to be less than indicated here due to the effects of the emission limit on particulate matter.

⁷ All of the particulate matter emissions are considered to be PM_{2.5}, due to the efficiency of the baghouse on these types of sources.

⁸ Based on the fuel oil combustion capability being removed from the boilers

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions ² (2013 EIQ)	Potential Emissions of the Application ³	New Installation Conditioned Potential
VOC	40.0	250 ⁹	54	17.96	250 ¹⁰
CO	100.0	40	4	2.15	42
GHG (CO ₂ e)	75,000 / 100,000	160	N/A ¹¹	N/D	N/D
GHG (mass)	0.0 / 100.0 / 250.0	160	N/A ¹²	N/D	N/D
HAPs	10.0/25.0	10/25 ¹³	8	3.35	10/25

N/A = Not Applicable; N/D = Not Determined; "--" Below Detectable;

Attachment C contains an analysis of the only relevant regulation applicable to this application. This permit contains special conditions that require the operation, maintenance, monitoring and record keeping of the proposed baghouse for the subject source (EP-26).

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are below de minimis levels. Particulate matter has been limited to de minimis levels.

APPLICABLE REQUIREMENTS

BCP Ingredients shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for the installation, please consult the operating permit.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110

⁹ Construction permit 012008-012 limited plant wide emissions of VOC to 250 tons per year and this limit is superseded and reestablished in this permit.

¹⁰ Construction permit 012008-012 limited plant wide emissions of VOC to 250 tons per year and this limit is superseded and reestablished in this permit.

¹¹ GHG (CO₂e) is not an annually reported pollutant.

¹² GHG (mass) is not an annually reported pollutant.

¹³ Operating permit OP2012-034 limited plant wide emissions of HAP to 10 tons per year individually or 25 tons per year collectively.

- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400 (exemption provided through special conditions, see Attachment A)

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

 Randy Raymond
 New Source Review Unit

 Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated October 10, 2014, received October 15, 2014, designating Balchem Corporation as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.

Attachment A – Emission Summary
(four pages)

Emission Desc.	Emission Point	Air Pollutant	Source of Emission Factor	Emission Factor (lbs/unit)	Overall Control Efficiency (%)	Potential to Emit (tons per year)	Actual Emissions (tons per year)
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TABLE 1 - Dry Choline Process Emission Estimates
(BCP Ingredients - Verona, MO)

Production Rate	40 MM lbs/yr	20,000 tons/yr
Throughput (carrier)	15.2 MMlbs/yr	7,600 tons/yr

		Maximum Hourly Design Rate (tons or mmscf) ->	1.7				
Cyclone Carrier Weight	EP 26-03	PM10	4	0.45	54.0%	1.54	0.68
	EP 26-03	PM2.5	5	0.0153	54.0%	0.05	0.02

		Maximum Hourly Design Rate (tons or mmscf) ->	0.01				
Dryer Stack (throughput 20 MMCF natural gas)	EP 26-04	PM10	4 F	7.6	70.0%	0.06	0.02
	EP 26-04	PM2.5	4 F	7.6	70.0%	0.06	0.02
	EP 26-04	SOx	4 F	0.6	0.0%	0.02	0.01
	EP 26-04	NOx	4 F	100	0.0%	2.56	1.00
	EP 26-04	VOC	4 F	5.5	0.0%	0.14	0.06
	EP 26-04	CO	4 F	84	0.0%	2.15	0.84

Emission Desc.	Emission Point	Air Pollutant	Source of Emission Factor	Emission Factor (lbs/unit)	Overall Control Efficiency (%)	Potential to Emit (tons per year)	Actual Emissions (tons per year)
Maximum Hourly Design Rate (tons or mmscf) ->			4.5				
Choline Drying	EP 26-04	PM10	4	0.9	70.0%	5.32	1.03
	EP 26-04	VOC	3	0.488	0.0%	9.62	4.88
	EP 26-04	HAP's	2T	0.17	0.0%	3.35	1.70
	EP 26-04	PM2.5	5	0.6669	70.0%	3.94	0.76
Maximum Hourly Design Rate (tons or mmscf) ->			4.5				
Cyclone Bulk Bagging	EP 26-05	PM10	4	0.075	30.0%	1.03	0.18
	EP 26-05	PM2.5	5	0.0026	30.0%	0.04	0.01
Maximum Hourly Design Rate (tons or mmscf) ->			1.7				
Carrier Receiving	EP 26-06	PM10	4	0.18	99.0%	0.01	0.01
	EP 26-06	PM2.5	5	0.0061	99.0%	0.00	0.00
Maximum Hourly Design Rate (tons or mmscf) ->			0.9				
Rework Charge Hopper	EP 26-07	PM10	4	0.075	0.0%	0.30	0.03
	EP 26-07	PM2.5	5	0.0026	0.0%	0.01	0.00
Maximum Hourly Design Rate (tons or mmscf) ->			4.5				
Choline Cooler	EP 26-08	PM10	4	0.075	0.0%	1.48	0.75
	EP 26-08	PM2.5	5	0.0026	0.0%	0.05	0.03

Emission Desc.	Emission Point	Air Pollutant	Source of Emission Factor	Emission Factor (lbs/unit)	Overall Control Efficiency (%)	Potential to Emit (tons per year)	Actual Emissions (tons per year)
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Maximum Hourly Design Rate (tons or mmscf) ->

4.5

Bag Packaging Hopper	EP 26-09	PM10	4	0.075	80.0%	0.30	0.10
	EP 26-09	PM2.5	5	0.0026	80.0%	0.01	0.00

Maximum Hourly Design Rate (tons or mmscf) ->

3

Bag Filling	EP 26-10	PM10	4	0.075	0.0%	0.99	0.49
	EP 26-10	PM2.5	5	0.0026	0.0%	0.03	0.02

TABLE 2 - Encapsulation Process Emission Estimates
(BCP Ingredients - Verona, MO)

Production Rate	20	10,000 tons/yr
Throughput Rate (Oil)	13 MMlbs/yr	6,500 tons/yr

Maximum Hourly Design Rate (tons or mmscf) ->

1

Baghouse	EP 26-01	PM10	4	0.0225	79.2%	0.02	0.00
	EP 26-01	VOC	2	1.872	0.0%	8.20	6.08
	EP 26-01	PM2.5	5	0.0167	79.2%	0.02	0.00

Maximum Hourly Design Rate (tons or mmscf) ->

1

Emission Desc.	Emission Point	Air Pollutant	Source of Emission Factor	Emission Factor (lbs/unit)	Overall Control Efficiency (%)	Potential to Emit (tons per year)	Actual Emissions (tons per year)
Fugitive	EP 26-02	PM10	4	0.45	0.0%	1.97	1.46
	EP 26-02	PM2.5	5	0.0153	0.0%	0.07	0.05

Total Estimated Emissions		
	APCP PTE	Actual Emissions (tons/yr)
PM10	1.99	1.46
VOC	8.20	6.08

Total Estimated Emissions			
	APCP PTE	Deminimis Levels	Actual Emissions (tons/yr)
PM10	13.02	15.00	3.28
SOx	0.02	40.00	0.01
NOx	2.56	40.00	1.00
VOC	17.96	40.00	4.94
CO	2.15	100.00	0.84
HAP's	3.35	10/25	1.70

Source of Emission Factor
2 – Stack Test
4 – AP-42
4F – FIRE or webFIRE
5 – Other (Updated CEIDARS Table with PM2.5 Fractions[Table A])

Attachment B – 10 CSR 10-6.400 Analysis
(two pages)

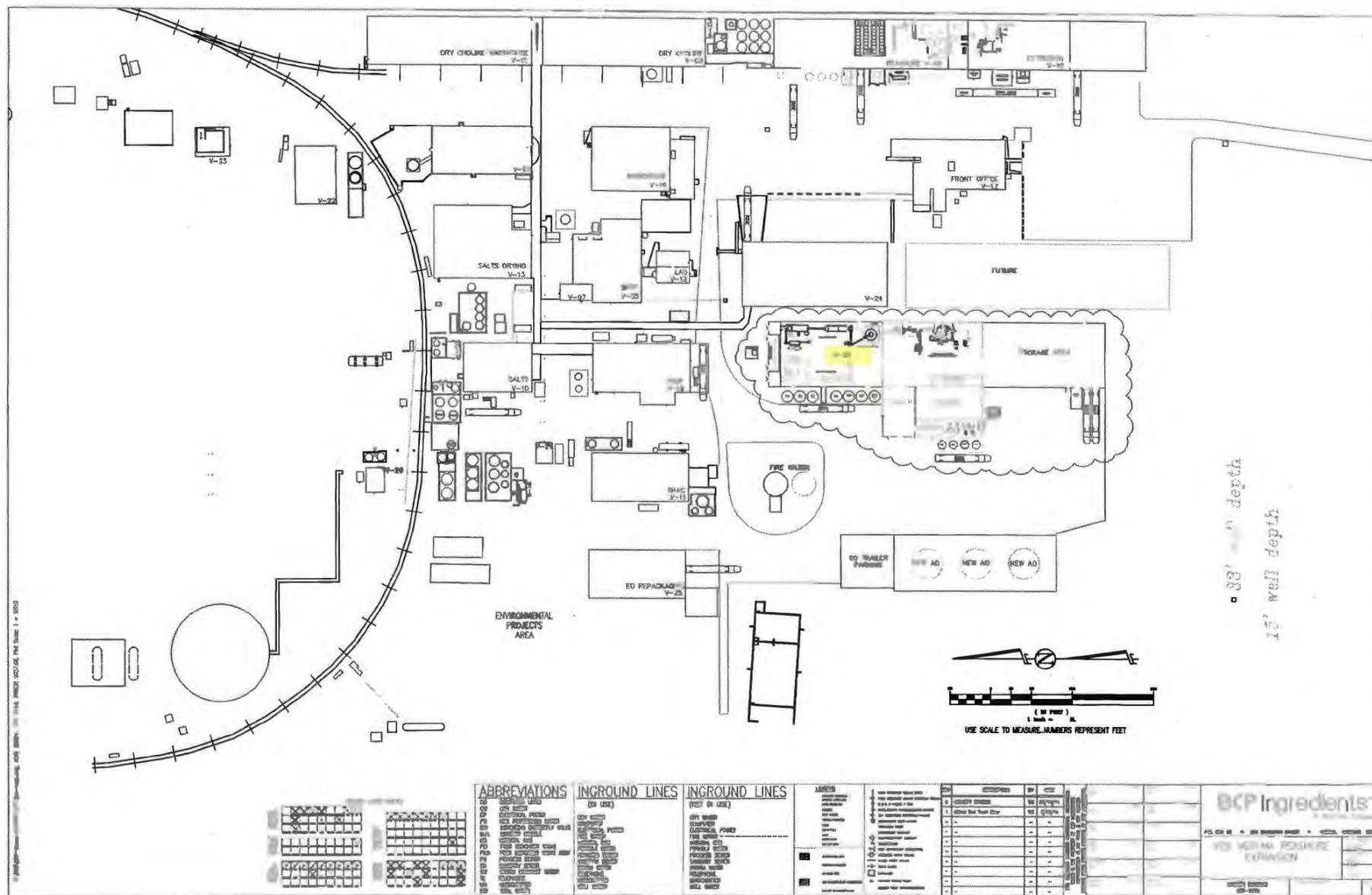
EU	Description	Process Weight Rate (ton/hr)	PM Emission Factor (lb/ton)	EF Source	Capture Device Efficiency (%)	Control Device Efficiency (%)	Uncontrolled Emission Rate (lb/hr)	Controlled Emission Rate (lb/hr)	Allowable Emission Rate (lb/hr)	PTE is less than 0.5 lbs per hour? (with control / without control)	Is unit in compliance without controls?	Is the Control Efficiency Greater Than 90%?	Is unit in compliance with controls?	PTE as percentage of Allowable
EP 26-01	Baghouse	1.0	0.00049	4F (30201408) includes baghouse control	80%	0%	0.00049	0.00049	4.10	YES/wo	YES	NO	YES	0%
EP 26-03	Cyclone Carrier Weight	1.7	5.5	4F (30200804) uncontrolled	90%	60%	9.35	4.30	5.85	NO	NO	NO	YES	74%
EP 26-04	Choline Drying	4.5	0.27	4F (30200763) includes miscellaneous control	100%	0%	1.22	1.22	11.23	NO	YES	NO	YES	11%
EP 26-05	Cyclone Bulk Bagging	4.5	0.87	4F (30200752) uncontrolled	100%	30%	3.92	2.74	11.23	NO	YES	NO	YES	24%
EP 26-06	Carrier Receiving	1.7	0.18	4F (30200741) uncontrolled	100%	99%	0.31	0.00	5.85	YES/wo	YES	NO	YES	0%
EP 26-07	Rework Charge Hopper	0.9	0.18	4F (30200551) uncontrolled	100%	0%	0.16	0.16	3.82	YES/wo	YES	NO	YES	4%
EP 26-08	Choline Cooler	4.5	0.18	4F (30200551) uncontrolled	100%	0%	0.81	0.81	11.23	NO	YES	NO	YES	7%

EU	Description	Process Weight Rate (ton/hr)	PM Emission Factor (lb/ton)	EF Source	Capture Device Efficiency (%)	Control Device Efficiency (%)	Uncontrolled Emission Rate (lb/hr)	Controlled Emission Rate (lb/hr)	Allowable Emission Rate (lb/hr)	PTE is less than 0.5 lbs per hour? (with control / without control)	Is unit in compliance without controls?	Is the Control Efficiency Greater Than 90%?	Is unit in compliance with controls?	PTE as percentage of Allowable
EP 26-09	Bag Packaging Hopper	4.5	0.18	4F (30200551) uncontrolled	100%	80%	0.81	0.16	11.23	YES/w	YES	NO	YES	1%
EP 26-10	Bag Filling	3.0	0.87	4F (30200752) uncontrolled	100%	0%	2.61	2.61	8.56	NO	YES	NO	YES	30%

The columns 9, 10 and 11 represent exemptions from *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400. This permit contains conditions requiring the control device used in these calculations. Therefore, this sources is exempt from 10 CSR 10-6.400, provided the control device is required by a federally enforceable permit condition.

FIGURE 2:

Attachment C – Source Location on Site



Attachment D – Selected Application Data

Emission Information for Air Construction Permit Application

Form 2.0 Emission Point Information (duplicate this form as needed.)

INSTALLATION NAME (A.) BCP Ingredients		RIPS COUNTY NO. (B.) 109		PLANT NO. (C.) 0004			
POINT IDENTIFICATION							
POINT NO. (D.) EP 26-01		POINT DESCRIPTION (E.) V-26 Encap Baghouse					
SOURCE CLASSIFICATION CODE (SCC) (F.) 30201408		MAKE (G.) ?	MODEL (H.) ?	YEAR (I.) 2014			
STACK/VENT PARAMETERS							
STACK NO. (J.) 2601		HEIGHT (FT) (K.) 20		DIAMETER (FT) (L.) 2			
TEMPERATURE (F) (M.) 80		VELOCITY (FT/MIN) (N.) 5,730		FLOW RATE (STANDARD CUBIC FT/MIN) (O.) 18,000			
OPERATING RATE/SCHEDULE							
EXPECTED ANNUAL THROUGHPUT (P.) 6,000		UNITS (Q.) tons	MAXIMUM HOURLY DESIGN RATE (R.) 1		UNITS/HR (S.) ton		
HOURS/DAY (T.) 24		DAYS/WEEK 7		WEEKS/YEAR 52			
AIR POLLUTION CONTROLS							
DEVICE NO. (U.)	CONTROL DEVICE DESCRIPTION (V.)	Control Device Destruction/Removal Efficiency % (w.)					
		PM ₁₀	SO _x	NO _x	VOC	CO	HAPs
EP2601	Baghouse	99			0		
DEVICE NO.	DESCRIPTION OF COLLECTION/SUPPRESSION SYSTEM (X.)						
EP2601	Pollutants are connected to the emission unit through rigid and flexible duct work, but not directly.						
	Collection efficiency is estimated at 80%, based on reactor openings and collection points.						

Attachment D – Selected Application Data
(Continued)

Emission Information for Air Construction Permit Application

Form 2.0 Emission Point Information (duplicate this form as needed.)

INSTALLATION NAME (A.) BCP Ingredients		FIPS COUNTY NO. (B.) 109		PLANT NO. (C.) 0004		
POINT IDENTIFICATION						
POINT NO. (D.) EP 26-02		POINT DESCRIPTION (E.) V-26 Encap Fugitives				
SOURCE CLASSIFICATION CODE (SCC) (F.) 30200804		MAKE (G.)	MODEL (H.)	YEAR (I.)		
STACK/VENT PARAMETERS						
STACK NO. (J.)		HEIGHT (FT) (K.)		DIAMETER (FT) (L.)		
TEMPERATURE (F) (M.)		VELOCITY (FT/MIN) (N.)		FLOW RATE (STANDARD CUBIC FT/MIN) (O.)		
OPERATING RATE/SCHEDULE						
EXPECTED ANNUAL THROUGHPUT (P.) 6,000		UNITS (Q.) tons	MAXIMUM HOURLY DESIGN RATE (R.) 1		UNITS/HR (S.) ton	
HOURS/DAY (T.) 24		DAYS/WEEK 7		WEEKS/YEAR 52		
AIR POLLUTION CONTROLS						
DEVICE NO. (U.)	CONTROL DEVICE DESCRIPTION (V.)	Control Device Destruction/Removal Efficiency % (w.)				
		PM ₁₀	SO _x	NO _x	VOC	CO

Attachment D – Selected Application Data
(Continued)

Emission Information for Air Construction Permit Application

Form 2.0 Emission Point Information (duplicate this form as needed.)

INSTALLATION NAME (A.) BCP Ingredients		FIPS COUNTY NO. (B.) 109	PLANT NO. (C.) 0004				
POINT IDENTIFICATION							
POINT NO. (D.) EP 26-03		POINT DESCRIPTION (E.) V-26 Dry Choline Cyclone Stack (Mixing)					
SOURCE CLASSIFICATION CODE (SCC) (F.) 30200804			MAKE (G.) ?	MODEL (H.) ?	YEAR (I.) 2014		
STACK/VENT PARAMETERS							
STACK NO. (J.) 2603		HEIGHT (FT) (K.)		DIAMETER (FT) (L.)			
TEMPERATURE (F) (M.)		VELOCITY (FT/MIN) (N.)		FLOW RATE (STANDARD CUBIC FT/MIN) (O.)			
OPERATING RATE/SCHEDULE							
EXPECTED ANNUAL THROUGHPUT (P.) 7,600		UNITS (Q.) tons	MAXIMUM HOURLY DESIGN RATE (R.) 1.7		UNITS/HR (S.) ton		
HOURS/DAY (T.) 24		DAYS/WEEK 7		WEEKS/YEAR 52			
AIR POLLUTION CONTROLS							
DEVICE NO. (U.)	CONTROL DEVICE DESCRIPTION (V.)	Control Device Destruction/Removal Efficiency % (w.)					
		PM ₁₀	SO _x	NO _x	VOC	CO	HAPs
EP2603	Dust Cyclone Stack	60					
DEVICE NO.	DESCRIPTION OF COLLECTION/SUPPRESSION SYSTEM (X.)						
EP2603	The pollutants are connected to the emission unit through duct work and piping. Collection efficiency is estimated at 90%						
	based on mixer design and processing procedures.						

Attachment D – Selected Application Data
(Continued)

Emission Information for Air Construction Permit Application

Form 2.0 Emission Point Information (duplicate this form as needed.)

INSTALLATION NAME (A.) BCP Ingredients		RIPS COUNTY NO. (B.) 109	PLANT NO. (C.) 0004				
POINT IDENTIFICATION							
POINT NO. (D.) EP 26-04 Segment 1	POINT DESCRIPTION (E.) V-26 Dry Choline Cyclone Stack (Dryer Burner)						
SOURCE CLASSIFICATION CODE (SCC) (F.) 10200602		MAKE (G.) ?	MODEL (H.) ?	YEAR (I.) 2014			
STACK/VENT PARAMETERS							
STACK NO. (J.) 2604-1	HEIGHT (FT) (K.) 50	DIAMETER (FT) (L.) 2					
TEMPERATURE (F) (M.) 280	VELOCITY (FT/MIN) (N.) 4,775	FLOW RATE (STANDARD CUBIC FT/MIN) (O.) 15,000					
OPERATING RATE/SCHEDULE							
EXPECTED ANNUAL THROUGHPUT (P.) 20	UNITS (Q.) MMCF	MAXIMUM HOURLY DESIGN RATE (R.) 6,000,000			UNITS/HR (S.) BTU		
HOURS/DAY (T.) 24	DAYS/WEEK 7	WEEKS/YEAR 52					
AIR POLLUTION CONTROLS							
DEVICE NO. (U.)	CONTROL DEVICE DESCRIPTION (V.)	Control Device Destruction/Removal Efficiency % (w.)					
		PM ₁₀	SO _x	NO _x	VOC	CO	HAPs
EP2604	Cyclone	70	0	0	0	0	
DEVICE NO.	DESCRIPTION OF COLLECTION/SUPPRESSION SYSTEM (X.)						
EP2604	The pollutants are directly connected to the emission unit with duct work or piping components. Collection eff. is 100%.						

Attachment D – Selected Application Data
(Continued)

Emission Information for Air Construction Permit Application

Form 2.0 Emission Point Information (duplicate this form as needed.)

INSTALLATION NAME (A.) BCP Ingredients		FIPS COUNTY NO. (B.) 109	PLANT NO. (C.) 0004				
POINT IDENTIFICATION							
POINT NO. (D.) EP 26-04 Segment 2		POINT DESCRIPTION (E.) V-26 Dry Choline Cyclone Stack (Dry Choline Drying)					
SOURCE CLASSIFICATION CODE (SCC) (F.) 30200763			MAKE (G.) ?	MODEL (H.) ?	YEAR (I.) 2014		
STACK/VENT PARAMETERS							
STACK NO. (J.) 2604-2		HEIGHT (FT) (K.)		DIAMETER (FT) (L.)			
TEMPERATURE (F) (M.)		VELOCITY (FT/MIN) (N.)		FLOW RATE (STANDARD CUBIC FT/MIN) (O.)			
OPERATING RATE/SCHEDULE							
EXPECTED ANNUAL THROUGHPUT (P.) 20,000		UNITS (Q.) tons	MAXIMUM HOURLY DESIGN RATE (R.) 4.5		UNITS/HR (S.) ton		
HOURS/DAY (T.) 24		DAYS/WEEK 7		WEEKS/YEAR 52			
AIR POLLUTION CONTROLS							
DEVICE NO. (U.)	CONTROL DEVICE DESCRIPTION (V.)	Control Device Destruction/Removal Efficiency % (w.)					
		PM ₁₀	SO _x	NO _x	VOC	CO	HAPs
EP2604	Cyclone	70			0		0
DEVICE NO.	DESCRIPTION OF COLLECTION/SUPPRESSION SYSTEM (X.)						
EP2604	The pollutants are directly connected to the emission unit with duct work or piping components. Collection eff. is 100%.						

Attachment D – Selected Application Data
(Continued)

Emission Information for Air Construction Permit Application

Form 2.0 Emission Point Information (duplicate this form as needed.)

INSTALLATION NAME (A.) BCP Ingredients		FIPS COUNTY NO. (B.) 109		PLANT NO. (C.) 0004		
POINT IDENTIFICATION						
POINT NO. (D.) EP 26-05		POINT DESCRIPTION (E.) V-26 Dry Choline Bulk Bag Cyclone (Packaging)				
SOURCE CLASSIFICATION CODE (SCC) (F.) 30200752		MAKE (G.) ?	MODEL (H.) ?	YEAR (I.) 2014		
STACK/VENT PARAMETERS						
STACK NO. (J.)		HEIGHT (FT) (K.)		DIAMETER (FT) (L.)		
TEMPERATURE (F) (M.)		VELOCITY (FT/MIN) (N.)		FLOW RATE (STANDARD CUBIC FT/MIN) (O.)		
OPERATING RATE/SCHEDULE						
EXPECTED ANNUAL THROUGHPUT (P.) 7,000		UNITS (Q.) tons	MAXIMUM HOURLY DESIGN RATE (R.) 4.5		UNITS/HR (S.) ton	
HOURS/DAY (T.) 24		DAYS/WEEK 7		WEEKS/YEAR 52		
AIR POLLUTION CONTROLS						
DEVICE NO. (U.)	CONTROL DEVICE DESCRIPTION (V.)	Control Device Destruction/Removal Efficiency % (w.)				
		PM ₁₀	SO _x	NO _x	VOC	CO
EP2605	Cyclone	30				
DEVICE NO.	DESCRIPTION OF COLLECTION/SUPPRESSION SYSTEM (X.)					
EP2605	The pollutants are directly connected to the emission unit with piping and conveying systems. Collection eff.is 100%.					

Attachment D – Selected Application Data
(Continued)

Emission Information for Air Construction Permit Application

Form 2.0 Emission Point Information (duplicate this form as needed.)

INSTALLATION NAME (A.) BCP Ingredients		RIPS COUNTY NO. (B.) 109		PLANT NO. (C.) 0004			
POINT IDENTIFICATION							
POINT NO. (D.) EP 26-06		POINT DESCRIPTION (E.) V-26 Dry Choline Carrier Stack (Unload & Conveying)					
SOURCE CLASSIFICATION CODE (SCC) (F.) 30200741			MAKE (G.) ?	MODEL (H.) ?	YEAR (I.) 2014		
STACK/VENT PARAMETERS							
STACK NO. (J.) 2606		HEIGHT (FT) (K.)		DIAMETER (FT) (L.)			
TEMPERATURE (F) (M.)		VELOCITY (FT/MIN) (N.)		FLOW RATE (STANDARD CUBIC FT/MIN) (O.)			
OPERATING RATE/SCHEDULE							
EXPECTED ANNUAL THROUGHPUT (P.) 7,500		UNITS (Q.) tons	MAXIMUM HOURLY DESIGN RATE (R.) 1.7		UNITS/HR (S.) ton		
HOURS/DAY (T.) 24		DAYS/WEEK 7		WEEKS/YEAR 52			
AIR POLLUTION CONTROLS							
DEVICE NO. (U.)	CONTROL DEVICE DESCRIPTION (V.)	Control Device Destruction/Removal Efficiency % (w.)					
		PM ₁₀	SO _x	NO _x	VOC	CO	HAPs
EP2606	Cyclone	99					
DEVICE NO.	DESCRIPTION OF COLLECTION/SUPPRESSION SYSTEM (X.)						
EP2606	The pollutants are directly connected to the emission unit with duct work or piping. Collection efficiency is 100%.						

Attachment D – Selected Application Data
(Continued)

Emission Information for Air Construction Permit Application

Form 2.0 Emission Point Information (duplicate this form as needed.)

INSTALLATION NAME (A.) BCP Ingredients		FIPS COUNTY NO. (B.) 109	PLANT NO. (C.) 0004			
POINT IDENTIFICATION						
POINT NO. (D.) EP 26-07		POINT DESCRIPTION (E.) V-26 Dry Choline Rework Hopper				
SOURCE CLASSIFICATION CODE (SCC) (F.) 30200551		MAKE (G.) ?	MODEL (H.) ?	YEAR (I.) 2014		
STACK/VENT PARAMETERS						
STACK NO. (J.)	HEIGHT (FT) (K.)	DIAMETER (FT) (L.)				
TEMPERATURE (F) (M.)	VELOCITY (FT/MIN) (N.)	FLOW RATE (STANDARD CUBIC FT/MIN) (O.)				
OPERATING RATE/SCHEDULE						
EXPECTED ANNUAL THROUGHPUT (P.) 700	UNITS (Q.) tons	MAXIMUM HOURLY DESIGN RATE (R.) 0.9		UNITS/HR (S.) ton		
HOURS/DAY (T.) 24	DAYS/WEEK 7	WEEKS/YEAR 52				
AIR POLLUTION CONTROLS						
DEVICE NO. (U.)	CONTROL DEVICE DESCRIPTION (V.)	Control Device Destruction/Removal Efficiency % (w.)				
		PM ₁₀	SO _x	NO _x	VOC	CO

Attachment D – Selected Application Data
(Continued)

Emission Information for Air Construction Permit Application

Form 2.0 Emission Point Information (duplicate this form as needed.)

INSTALLATION NAME (A.) BCP Ingredients		FIPS COUNTY NO. (B.) 109	PLANT NO. (C.) 0004			
POINT IDENTIFICATION						
POINT NO. (D.) EP 26-08		POINT DESCRIPTION (E.) V-26 Dry Choline Cooler				
SOURCE CLASSIFICATION CODE (SCC) (F.) 30200551			MAKE (G.) ?	MODEL (H.) ?	YEAR (I.) 2014	
STACK/VENT PARAMETERS						
STACK NO. (J.)		HEIGHT (FT) (K.)		DIAMETER (FT) (L.)		
TEMPERATURE (F) (M.)		VELOCITY (FT/MIN) (N.)		FLOW RATE (STANDARD CUBIC FT/MIN) (O.)		
OPERATING RATE/SCHEDULE						
EXPECTED ANNUAL THROUGHPUT (P.) 20,000		UNITS (Q.) tons	MAXIMUM HOURLY DESIGN RATE (R.) 4.5		UNITS/HR (S.) ton	
HOURS/DAY (T.) 24		DAYS/WEEK 7		WEEKS/YEAR 52		
AIR POLLUTION CONTROLS						
DEVICE NO. (U.)	CONTROL DEVICE DESCRIPTION (V.)	Control Device Destruction/Removal Efficiency % (w.)				
		PM ₁₀	SO _x	NO _x	VOC	CO

Attachment D – Selected Application Data
(Continued)

Emission Information for Air Construction Permit Application

Form 2.0 Emission Point Information (duplicate this form as needed.)

INSTALLATION NAME (A.) BCP Ingredients		RIPS COUNTY NO. (B.) 109	PLANT NO. (C.) 0004				
POINT IDENTIFICATION							
POINT NO. (D.) EP 26-09		POINT DESCRIPTION (E.) V-26 Dry Choline Bagging Hopper					
SOURCE CLASSIFICATION CODE (SCC) (F.) 30200551			MAKE (G.) ?	MODEL (H.) ?	YEAR (I.) 2014		
STACK/VENT PARAMETERS							
STACK NO. (J.)		HEIGHT (FT) (K.)	DIAMETER (FT) (L.)				
TEMPERATURE (F) (M.)		VELOCITY (FT/MIN) (N.)	FLOW RATE (STANDARD CUBIC FT/MIN) (O.)				
OPERATING RATE/SCHEDULE							
EXPECTED ANNUAL THROUGHPUT (P.) 20,000		UNITS (Q.) tons	MAXIMUM HOURLY DESIGN RATE (R.) 4.5			UNITS/HR (S.) ton	
HOURS/DAY (T.) 24		DAYS/WEEK 7		WEEKS/YEAR 52			
AIR POLLUTION CONTROLS							
DEVICE NO. (U.)	CONTROL DEVICE DESCRIPTION (V.)	Control Device Destruction/Removal Efficiency % (w.)					
		PM ₁₀	SO _x	NO _x	VOC	CO	HAPs
EP2609	Hopper with filter sock	80					
DEVICE NO.	DESCRIPTION OF COLLECTION/SUPPRESSION SYSTEM (X.)						
EP2609	The pollutants are directly connected to the emission unit with duct work. Collection efficiency is 100%.						

Attachment D – Selected Application Data
(Continued)

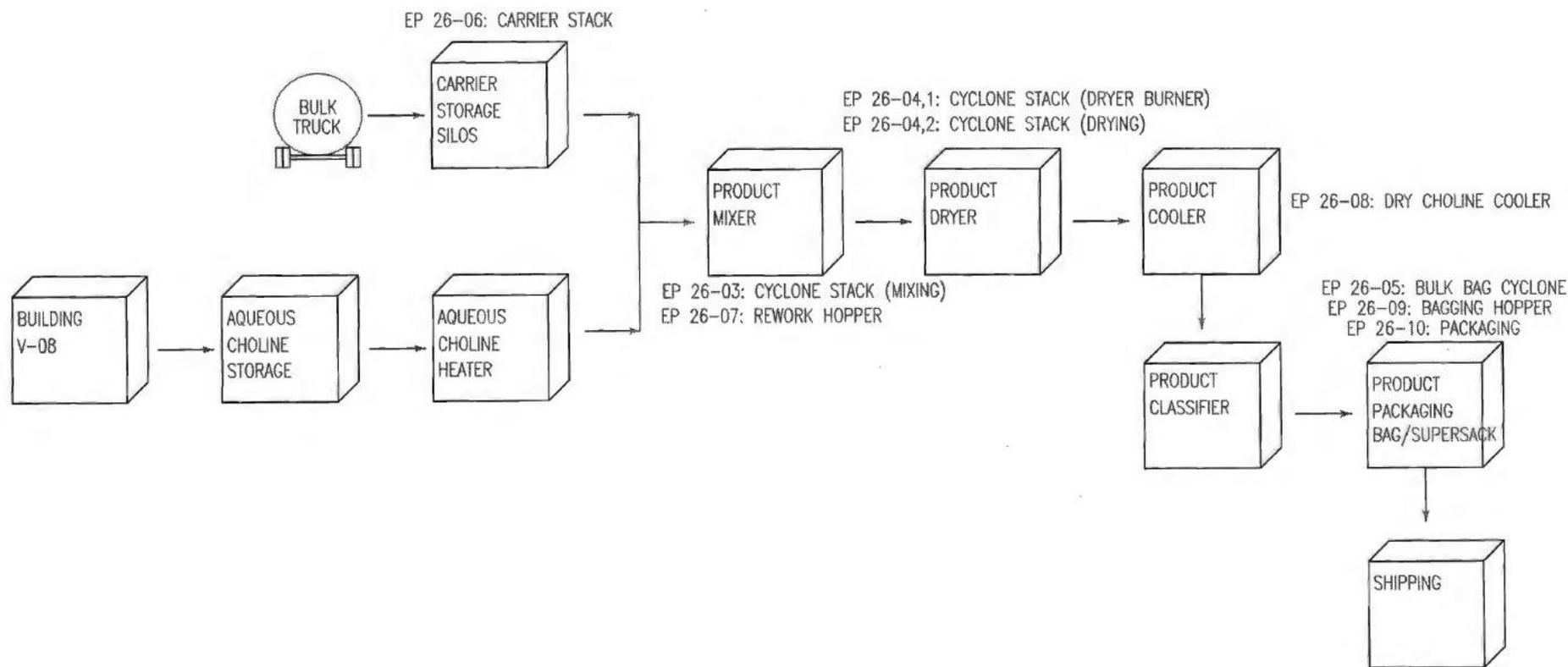
Emission Information for Air Construction Permit Application

Form 2.0 Emission Point Information (duplicate this form as needed.)

INSTALLATION NAME (A.) BCP Ingredients		FIPS COUNTY NO. (B.) 109	PLANT NO. (C.) 0004			
POINT IDENTIFICATION						
POINT NO. (D.) EP 26-10		POINT DESCRIPTION (E.) V-26 Choline Bag Packaging				
SOURCE CLASSIFICATION CODE (SCC) (F.) 30200752			MAKE (G.) ?	MODEL (H.) ?	YEAR (I.) 2014	
STACK/VENT PARAMETERS						
STACK NO. (J.)		HEIGHT (FT) (K.)		DIAMETER (FT) (L.)		
TEMPERATURE (F) (M.)		VELOCITY (FT/MIN) (N.)		FLOW RATE (STANDARD CUBIC FT/MIN) (O.)		
OPERATING RATE/SCHEDULE						
EXPECTED ANNUAL THROUGHPUT (P.) 13,000		UNITS (Q.) tons	MAXIMUM HOURLY DESIGN RATE (R.) 3		UNITS/HR (S.) ton	
HOURS/DAY (T.) 24		DAYS/WEEK 7		WEEKS/YEAR 52		
AIR POLLUTION CONTROLS						
DEVICE NO. (U.)	CONTROL DEVICE DESCRIPTION (V.)	Control Device Destruction/Removal Efficiency % (w.)				
		PM ₁₀	SO _x	NO _x	VOC	CO

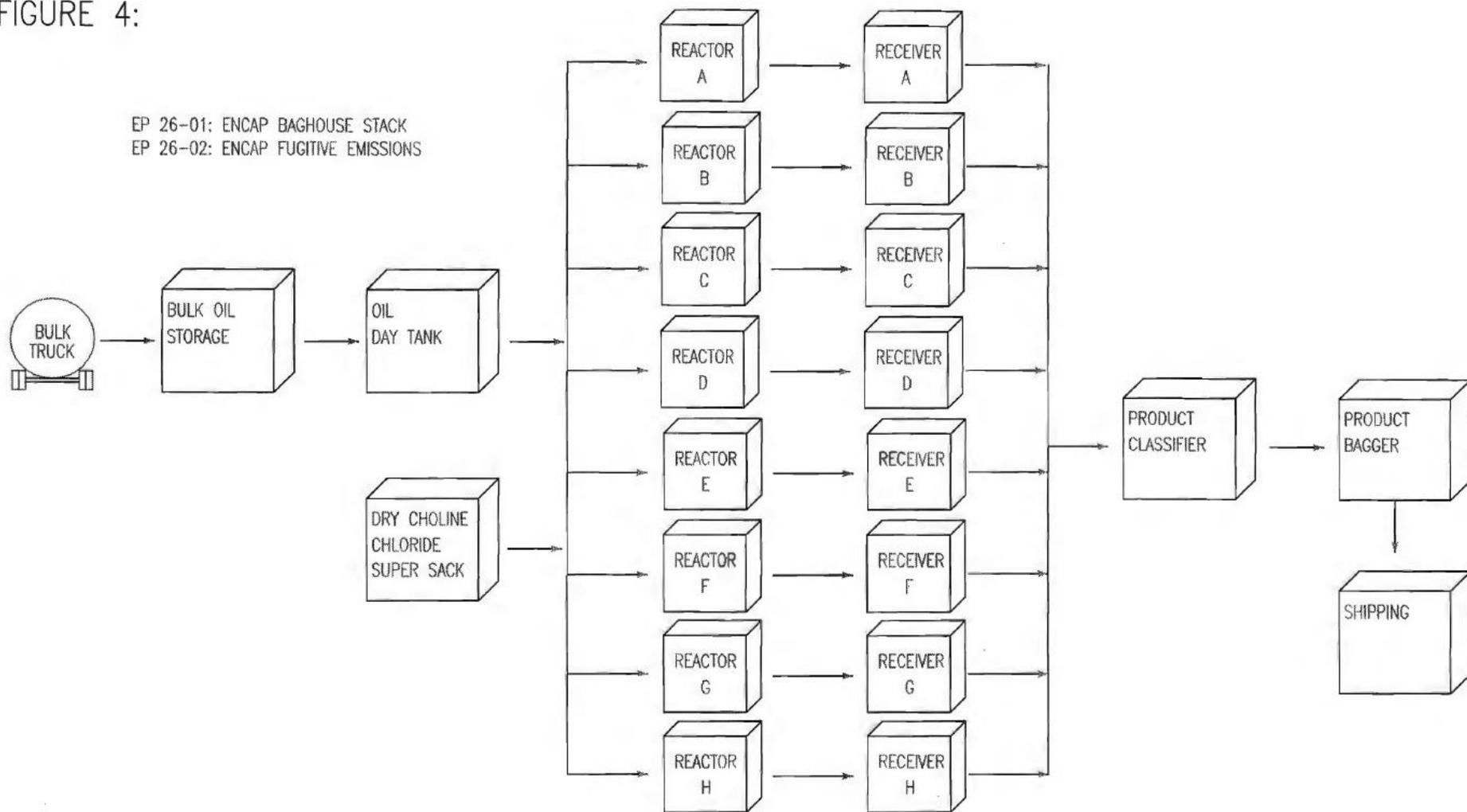
Attachment D – Selected Application Data
(Continued)

FIGURE 3:



Attachment D – Selected Application Pages
(Continued)

FIGURE 4:



Attachment E – PM Record Keeping

Month and Year: _____

EU	Description	(1) Monthly throughput of material	Unit of Measure	(2) PM Emission Factor (lbs./ton)	EF Source	(3) Capture Device Efficiency (%)	(4) Control Device Efficiency (%)	(5) Controlled Emission Rate (tons per month)
EP 26-01	Baghouse		TONS	0.00049	4F (30201408) includes baghouse control	80%	0%	
EP 26-03	Cyclone Carrier Weight		TONS	5.5	4F (30200804) uncontrolled	90%	60%	
EP 26-04	Choline Drying		TONS	0.27	4F (30200763) includes miscellaneous control	100%	0%	
EP 26-05	Cyclone Bulk Bagging		TONS	0.87	4F (30200752) uncontrolled	100%	30%	
EP 26-06	Carrier Receiving		TONS	0.18	4F (30200741) uncontrolled	100%	99%	
EP 26-07	Rework Charge Hopper		TONS	0.18	4F (30200551) uncontrolled	100%	0%	
EP 26-08	Choline Cooler		TONS	0.18	4F (30200551) uncontrolled	100%	0%	
EP 26-09	Bag Packaging Hopper		TONS	0.18	4F (30200551) uncontrolled	100%	80%	
EP 26-10	Bag Filling		TONS	0.87	4F (30200752) uncontrolled	100%	0%	
Total of Controlled Emissions ->>								

Column (5) shall be filled with the results of performing this equation [express Columns (3) and (4) as their decimal equivalent, i.e. 100% is 1]:

$$[[\text{Column (1)} * \text{Column (2)}] * [1 - \text{Column (3)} * \text{Column (4)}]] / 2000$$

APPENDIX A

Abbreviations and Acronyms

% percent	m/s meters per second
°F degrees Fahrenheit	Mgal 1,000 gallons
acfm actual cubic feet per minute	MW megawatt
BACT Best Available Control Technology	MHDR maximum hourly design rate
BMPs Best Management Practices	MMBtu Million British thermal units
Btu British thermal unit	MMCF million cubic feet
CAM Compliance Assurance Monitoring	MSDS Material Safety Data Sheet
CAS Chemical Abstracts Service	NAAQS ... National Ambient Air Quality Standards
CEMS Continuous Emission Monitor System	NESHAPs National Emissions Standards for Hazardous Air Pollutants
CFR Code of Federal Regulations	NO_x nitrogen oxides
CO carbon monoxide	NSPS New Source Performance Standards
CO₂ carbon dioxide	NSR New Source Review
CO_{2e} carbon dioxide equivalent	PM particulate matter
COMS Continuous Opacity Monitoring System	PM_{2.5} particulate matter less than 2.5 microns in aerodynamic diameter
CSR Code of State Regulations	PM₁₀ particulate matter less than 10 microns in aerodynamic diameter
dscf dry standard cubic feet	ppm parts per million
EQ Emission Inventory Questionnaire	PSD Prevention of Significant Deterioration
EP Emission Point	PTE potential to emit
EPA Environmental Protection Agency	RACT Reasonable Available Control Technology
EU Emission Unit	RAL Risk Assessment Level
fps feet per second	SCC Source Classification Code
ft feet	scfm standard cubic feet per minute
GACT Generally Available Control Technology	SIC Standard Industrial Classification
GHG Greenhouse Gas	SIP State Implementation Plan
gpm gallons per minute	SMAL Screening Model Action Levels
gr grains	SO_x sulfur oxides
GWP Global Warming Potential	SO₂ sulfur dioxide
HAP Hazardous Air Pollutant	tph tons per hour
hr hour	tpy tons per year
hp horsepower	VMT vehicle miles traveled
lb pound	VOC Volatile Organic Compound
lbs/hr pounds per hour	
MACT Maximum Achievable Control Technology	
µg/m³ micrograms per cubic meter	