

AIR EMISSION PERMIT NO. 10900032-003

IS ISSUED TO

Kerry Biofunctional Ingredients Inc.

KERRY BIO-SCIENCE

2402 7th Street Northwest
Rochester, Olmsted County, MN 55901

The emission units, control equipment and emission stacks at the stationary source authorized in this permit are as described in the following permit application(s):

Permit Type	Application Date	Issue Date	Action Number
Total Facility Operating Permit	01/17/95 with updates	05/04/2004	001
Administrative Amendment	03/02/2005	05/19/2005	002
Major Amendment	11/28/2005	See below	003

This permit authorizes the Permittee to operate the stationary source at the address listed above unless otherwise noted in Table A. The Permittee must comply with all the conditions of the permit. Any changes or modifications to the stationary source must be performed in compliance with Minn. R. 7007.1150 to 7007.1500. Terms used in the permit are as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

Permit Type: State; Limits to Avoid Part 70 and New Source Review

Issue Date: September 27, 2006

Expiration: Permit does not expire
Title I Conditions do not expire.

Richard J. Sandberg, Manager
Air Quality Permits Section
Industrial Division

for Brad Moore
Acting Commissioner
Minnesota Pollution Control Agency

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NOTICE TO THE PERMITTEE:

Your stationary source may be subject to the requirements of the Minnesota Pollution Control Agency's (MPCA) solid waste, hazardous waste, and water quality programs. If you wish to obtain information on these programs, including information on obtaining any required permits, please contact the MPCA general information number at:

Metro Area	(651) 296-6300
Outside Metro Area	1-800-657-3864
TTY	(651) 282-5332

The rules governing these programs are contained in Minn. R. chs. 7000-7105. Written questions may be sent to: Minnesota Pollution Control Agency, 520 Lafayette Road North, St. Paul, Minnesota 55155-4194.

Questions about this air emission permit or about air quality requirements can also be directed to the telephone numbers and address listed above.

PERMIT SHIELD:

Subject to the limitations in Minn. R. 7007.1800, compliance with the conditions of this permit shall be deemed compliance with the specific provision of the applicable requirement identified in the permit as the basis of each condition. Subject to the limitations of Minn. R. 7007.1800 and 7017.0100, subp. 2, notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements.

FACILITY DESCRIPTION:**Action 001 (Total Facility Permit)**

This facility processes cheese whey, corn syrup solids, and related ingredients into food ingredients and frozen cultures. The main emission sources are two Cleaver Brooks 600 horsepower gas-fired boilers, two spray dryers, and a wet blend bag dump station dust collector. No facility changes are authorized by this permitting action. Action 001 was a federally enforceable state operating permit.

Action 002 (Administrative Amendment)

This permit amendment is for a change of ownership at the facility. The facility is now owned by Kerry Biofunctional Ingredients, Inc. and will be known as Kerry Bio-science (previously Quest International).

Action 003 (Major Amendment)

This permit amendment revises the Small Delaval Spray Dryer (EU 006) PM₁₀ emission limit based on August 2005 performance testing, requires performance re-testing of the small dryer scrubber (CE 002) to measure PM₁₀ emissions, and a contingent requirement to test CE 002 control efficiency. The permit also imposes a production limit for each of the two dryers, revises operating parameters for the scrubbers on each dryer, and revises the pressure drop range for the wet dump bag filter. The facility remains a non-major source under part 70 and New Source Review.

TABLE A: LIMITS AND OTHER REQUIREMENTS

A-1

09/27/06

Facility Name: Kerry Bio-Science

Permit Number: 10900032 - 003

Table A contains limits and other requirements with which your facility must comply. The limits are located in the first column of the table (What To do). The limits can be emission limits or operational limits. This column also contains the actions that you must take and the records you must keep to show that you are complying with the limits. The second column of Table A (Why to do it) lists the regulatory basis for these limits. Appendices included as conditions of your permit are listed in Table A under total facility requirements.

Subject Item:**Total Facility**

What to do	Why to do it
OPERATIONAL REQUIREMENTS	hdr
Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted.	Minn. R. 7011.0020
Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated, unless otherwise noted in Table A.	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)
Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. At a minimum, the O & M plan shall identify all air pollution control equipment and shall include a preventative maintenance program for that equipment, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment to proper operation to meet applicable permit conditions, a description of the employee training program for proper operation and maintenance of the control equipment, and the records kept to demonstrate plan implementation.	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.	Minn. R. 7019.1000, subp. 4
Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.	Minn. R. 7011.0150
Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7030.0010 - 7030.0080
Inspections: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A).	Minn. R. 7007.0800, subp. 9(A)
The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
PERFORMANCE TESTING	hdr
Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A, B, and/or C.	Minn. R. ch. 7017
Performance Test Notifications and Submittals: Performance Tests are due as outlined in Tables A and B of the permit. See Table B for additional testing requirements. Performance Test Notification (written): due 30 days before each Performance Test Performance Test Plan: due 30 days before each Performance Test Performance Test Pre-test Meeting: due 7 days before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy: due 105 days after each Performance Test The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018.	Minn. R. 7017.2030, subp. 1-4, Minn. R. 7017.2018, and Minn. R. 7017.2035, subp. 1-2
Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as specified by Minn. R. 7017.2025 following formal review of a subsequent performance test on the same unit.	Minn. R. 7017.2025
MONITORING REQUIREMENTS	hdr
Monitoring Equipment Calibration: Annually calibrate all required monitoring equipment (any requirements applying to continuous emission monitors are listed separately in this permit).	Minn. R. 7007.0800, subp. 4(D)

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-2**

09/27/06

Facility Name: Kerry Bio-Science

Permit Number: 10900032 - 003

Operation of Monitoring Equipment: Unless otherwise noted in Tables A and/or B, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system.	Minn. R. 7007.0800, subp. 4(D)
RECORDKEEPING	hdr
Recordkeeping: Retain all records at the stationary source for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).	Minn. R. 7007.0800, subp. 5(C)
Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350, subp. 2), including records of the emissions resulting from those changes.	Minn. R. 7007.0800, subp. 5(B)
REPORTING/SUBMITTALS	hdr
Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3. At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.	Minn. R. 7019.1000, subp. 3
Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2. At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.	Minn. R. 7019.1000, subp. 2
Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment.	Minn. R. 7019.1000, subp. 1
Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description: 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.	Minn. R. 7019.1000, subp. 1
Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.	Minn. R. 7007.1150 through Minn. R. 7007.1500
Extension Requests: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H).	Minn. R. 7007.1400, subp. 1(H)
Emission Inventory Report: due 91 days after end of each calendar year following permit issuance (April 1). The report shall be submitted on a form approved by the Commissioner.	Minn. R. 7019.3000 through Minn. R. 7019.3100
Emission Fees: due 60 days after receipt of an MPCA bill.	Minn. R. 7002.0005 through Minn. R. 7002.0095

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Kerry Bio-Science
Permit Number: 10900032 - 003

Subject Item: GP 001 Boilers not in service
Associated Items: EU 002 Boiler 2 - out of service Cleaver Brooks 1970
EU 003 Boiler 3 - out of service Cleaver Brooks 1977

What to do	Why to do it
Prohibition of Operation: The Permittee shall not operate EU 002 and EU 003 unless an amendment to this permit is obtained that specifically authorizes operation of one or both of these emission units.	Minn. R. 7007.0800, subp. 2 to avoid major source classification under 40 CFR Section 70.2

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-4**

09/27/06

Facility Name: Kerry Bio-Science

Permit Number: 10900032 - 003

Subject Item: GP 002 New Indirect Heating Equipment**Associated Items:** EU 004 Boiler 4 Cleaver Brooks 1977

EU 008 Main Office Space Heater

What to do	Why to do it
LIMITS AND OPERATING RESTRICTIONS - apply individually to each GP 002 emission unit	hdr
Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input (maximum potential emission rate is 0.007 lb/mmBtu).	Minn. R. 7011.0515, subp. 1
Opacity: less than or equal to 20 percent except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0515, subp. 2
Permitted Fuels: Natural gas and propane	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-5**

09/27/06

Facility Name: Kerry Bio-Science

Permit Number: 10900032 - 003

Subject Item: GP 003 Dryers

Associated Items: CE 002 Wet Scrubber - High Efficiency
CE 004 Wet Scrubber - High Efficiency
CE 007 Wet Scrubber - High Efficiency
CE 008 Wet Scrubber - High Efficiency
CE 009 Wet Scrubber - High Efficiency
EU 005 Large Delaval Spray Dryer (SV 007 & SV 008)
EU 006 Small Delaval Spray Dryer
SV 006 Small Deleval Spray Dryer Stack
SV 007 Large Delaval Spray Dryer Stack 1
SV 008 Large Delaval Spray Dryer Stack 2

What to do	Why to do it
EMISSION LIMITS AND OPERATING REQUIREMENTS	hdr
Particulate Matter < 10 micron: less than or equal to 8.0 lbs/hour as a total for the 2 stacks (SV 007 and SV 008) for the Large Delaval Spray Dryer (EU 005).	Title I Condition: Limit to avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 to avoid major source status under 40 CFR Section 70.2 and Minn. R. 7007.0200
Particulate Matter < 10 micron: less than or equal to 4.0 lbs/hour for the stack (SV 006) for the Small Delaval Spray Dryer (EU 006).	Title I Condition: Limit to avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 to avoid major source status under 40 CFR Section 70.2 and Minn. R. 7007.0200
Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot of exhaust gas and comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735. This limit applies individually to each emission unit. The less stringent limits are 28.6 and 9.11 lb/hr, for EU 005 and EU 006 respectively, based on Minn. R. 7011.0735. Potential controlled total particulate matter emissions are 6.61 and 1.66 lb/hr, for EU 005 and EU 006 respectively, based on the dryer PM emission factor and the required wet scrubber control efficiency in GP 004.	Minn. R. 7011.0610, subp. 1(A)(1)
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity for each emission unit.	Minn. R. 7011.0610, subp. 1(A)(2)
Process Throughput: less than or equal to 3357 lbs/hour using 8-hour Block Average for the large dryer (EU 005).	Minn. R. 7017.2025, subp. 3
Process Throughput: less than or equal to 491 lbs/hour using 8-hour Block Average for the small dryer (EU 006).	Minn. R. 7017.2025, subp. 3
Permitted Fuels: Natural gas and propane	Minn. R. 7007.0800, subp. 2
Dryer Throughput Monitoring and Recordkeeping: Calculate and record the eight-hour block average process throughput rate for each dryer. The eight-hour block average is determined by dividing the total weight of material dried during each eight-hour time block by the total operating time during each eight-hour time block. Do not include downtime periods greater than 15 minutes in length.	Minn. R. 7007.0800, subps. 4 & 5
WET SCRUBBER REQUIREMENTS	hdr
Refer to subject item GP 004 on pages A-6 and A-7 for dryer wet scrubber requirements.	
PERFORMANCE TESTING REQUIREMENTS	hdr
Performance testing requirements for each dryer are located under the following subject items: SV 006 (EU 006 Small Deleval Dryer) on pages A-8 and B-2; SV 007 (EU 005 Large Deleval Dryer) on page A-9; SV 008 (EU 005 Large Deleval Dryer) on page A-10. Also, see page A-1 of this permit for additional general requirements pertaining to performance testing.	

TABLE A: LIMITS AND OTHER REQUIREMENTS

A-6

09/27/06

Facility Name: Kerry Bio-Science

Permit Number: 10900032 - 003

Subject Item: GP 004 Dryer Scrubbers**Associated Items:** CE 002 Wet Scrubber - High Efficiency

CE 004 Wet Scrubber - High Efficiency

CE 007 Wet Scrubber - High Efficiency

CE 008 Wet Scrubber - High Efficiency

CE 009 Wet Scrubber - High Efficiency

What to do	Why to do it
OPERATING REQUIREMENTS	hdr
<p>Wet Scrubber Operation: The Permittee shall operate and maintain the wet scrubber(s) at all times that any emission unit controlled by the wet scrubber(s) is in operation.</p> <p>CE 004, CE 007, CE 008, and CE 009 control emissions from the large dryer (EU 005) and vent through SV 007 and SV 008.</p> <p>CE 002 controls emissions from the small dryer (EU 006) and vents through SV 006.</p>	<p>Title I Condition: To limit PM10 emissions to non-major source level in 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 and 14 to limit PM10 emissions to non-major source level under 40 CFR Section 70.2, and to meet limits in Minn. R. 7011.0610</p>
The Permittee shall operate and maintain each wet scrubber so that it achieves an overall control efficiency for Particulate Matter < 10 micron: greater than or equal to 90 percent control efficiency	Title I Condition: To limit PM10 emissions to non-major source level in 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 and 14 to limit PM10 emissions to non-major source level under 40 CFR Section 70.2
The Permittee shall operate and maintain each wet scrubber so that it achieves an overall control efficiency for Total Particulate Matter: greater than or equal to 90 percent control efficiency	Minn. R. 7007.0800, subp. 2 and 14 to meet limits in Minn. R. 7011.0610
Water flow rate: greater than or equal to 73.4 gallons/minute for CE 004, CE 007, CE 008, and CE 009, unless a new minimum is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated. This water flow rate applies to each large dryer scrubber.	Title I Condition: To limit PM10 emissions to non-major source level in 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 and 14 to limit PM10 emissions to non-major source level under 40 CFR Section 70.2, and to meet limits in Minn. R. 7011.0610
Water flow rate: greater than or equal to 42.4 gallons/minute for CE 002 unless a new minimum is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated.	Title I Condition: To limit PM10 emissions to non-major source level in 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 and 14 to limit PM10 emissions to non-major source level under 40 CFR Section 70.2, and to meet limits in Minn. R. 7011.0610
Pressure Drop: greater than or equal to 8.75 inches of water column for CE 004, CE 007, CE 008, and CE 009, unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated. This pressure drop applies to each large dryer scrubber.	Title I Condition: To limit PM10 emissions to non-major source level in 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 and 14 to limit PM10 emissions to non-major source level under 40 CFR Section 70.2, and to meet limits in Minn. R. 7011.0610
<p>Pressure Drop: greater than or equal to 1.7 inches of water column for CE 002.</p> <p>This requirement becomes obsolete on the date SV 006 PM10 testing (due 04/15/2007) is conducted.</p>	Title I Condition: To limit PM10 emissions to non-major source level in 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 and 14 to limit PM10 emissions to non-major source level under 40 CFR Section 70.2, and to meet limits in Minn. R. 7011.0610
<p>Pressure Drop: greater than or equal to 4.0 inches of water column for CE 002 unless a new higher minimum pressure drop is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated.</p> <p>This requirement becomes effective on the date SV 006 PM10 testing (due 04/15/2007) is conducted.</p>	Title I Condition: To limit PM10 emissions to non-major source level in 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 and 14 to limit PM10 emissions to non-major source level under 40 CFR Section 70.2, and to meet limits in Minn. R. 7011.0610
MONITORING AND RECORDKEEPING	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-7**

09/27/06

Facility Name: Kerry Bio-Science

Permit Number: 10900032 - 003

<p>Daily Monitoring and Recordkeeping of Pressure Drop and Water Flow Rate. Once each day of operation, the Permittee shall observe and record the following for each GP 004 wet scrubber:</p> <ol style="list-style-type: none">1. the pressure drop reading;2. the water flow rate3. the time and date of each pressure drop and water flow rate reading;4. whether or not the recorded pressure drops and the water flow rates were above the minimum values specified in this permit.	<p>Title I Condition: To limit PM10 emissions to non-major source level in 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 and 14 to limit PM10 emissions to non-major source level under 40 CFR Section 70.2, and to meet limits in Minn. R. 7011.0610</p>
<p>Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturing specifications, the Permittee shall inspect the control equipment components. The Permittee shall maintain a written record of these inspections.</p>	<p>Minn. R. 7007.0800, subp. 4, 5, and 14</p>
<p>Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur:</p> <ul style="list-style-type: none">- the recorded pressure drop or water flow rate is below the required minimum value; or- the scrubber or any of its components are found during any inspection to need repair. <p>Corrective actions shall return the pressure drop and/or water flow rate to above the permitted minimum, and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the scrubber. The Permittee shall keep a record of the type and date of any corrective action taken for each scrubber.</p>	<p>Minn. R. 7007.0800, subp. 4, 5, and 14</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-8**

09/27/06

Facility Name: Kerry Bio-Science

Permit Number: 10900032 - 003

Subject Item: SV 006 Small Deleval Spray Dryer Stack**Associated Items:** EU 006 Small Delaval Spray Dryer

GP 003 Dryers

What to do	Why to do it
Performance Test: due before 04/15/2007 to measure SV 006 PM10 emissions. Emissions from EU 006 (small dryer) are controlled by CE 002 and vent through SV 006.	Title I Condition: To avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 to avoid major source status under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7017.2020, subp. 1
Performance Test: due before 10/15/2007 to measure CE 002 PM10 control efficiency if during the PM10 performance test (due 04/15/2007) the CE 002 pressure drop was less than 4.0 inches w.c., or the PM10 emission rate was greater than 2.9 lbs/hour. This test requires CE 002 inlet and outlet testing. This control efficiency test is not required if during the PM10 performance test (due 04/15/2007) the CE 002 pressure drop was greater than or equal to 4.0 inches w.c. and the PM10 emission rate was less than or equal to 2.9 lbs/hour.	Title I Condition: To avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 to avoid major source status under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7017.2020, subp. 1
Refer to pages A-5 and B-2 for additional EU 006/SV 006 requirements.	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-9**

09/27/06

Facility Name: Kerry Bio-Science

Permit Number: 10900032 - 003

Subject Item: SV 007 Large Delaval Spray Dryer Stack 1**Associated Items:** EU 005 Large Delaval Spray Dryer (SV 007 & SV 008)

GP 003 Dryers

What to do	Why to do it
Performance Test: due before end of each 60 months starting 08/04/2009 to measure PM10 emissions from SV 007. The first test is due August 4, 2009. EU 005 vents through SV 007 and SV 008. Total EU 005 emissions are the sum of SV 007 and SV 008 emissions.	Title I Condition: To avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 to avoid major source status under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7017.2020, subp. 1
Refer to GP 003 for additional EU 005/SV 007 requirements.	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-10**

09/27/06

Facility Name: Kerry Bio-Science

Permit Number: 10900032 - 003

Subject Item: **SV 008 Large Delaval Spray Dryer Stack 2****Associated Items:** EU 005 Large Delaval Spray Dryer (SV 007 & SV 008)

GP 003 Dryers

What to do	Why to do it
Performance Test: due before end of each 60 months starting 08/04/2009 to measure PM10 emissions from SV 008. The first test is due August 4, 2009. EU 005 vents through SV 007 and SV 008. Total EU 005 emissions are the sum of SV 007 and SV 008 emissions.	Title I Condition: To avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 to avoid major source status under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7017.2020, subp. 1
Refer to GP 003 for additional EU 005/SV 008 requirements.	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-11**

09/27/06

Facility Name: Kerry Bio-Science

Permit Number: 10900032 - 003

Subject Item: EU 001 Boiler 1 Cleaver Brooks 1970**Associated Items:** SV 001 Boiler 1

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.6 lbs/million Btu heat input (maximum potential emission rate is 0.007 lb/mmBtu).	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0510, subp. 2
Permitted Fuels: Natural gas and propane	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-12**

09/27/06

Facility Name: Kerry Bio-Science

Permit Number: 10900032 - 003

Subject Item: EU 007 Wet Blend Bag Dump**Associated Items:** CE 005 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 009 Wet Blend Bag Dump

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas and comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent from SV 009.	Minn. R. 7011.0715, subp. 1(B)
CONTROL EQUIPMENT REQUIREMENTS	hdr
The Permittee shall operate and maintain CE 005 such that it achieves an overall control efficiency for Total Particulate Matter: greater than or equal to 79 percent control efficiency	Minn. R. 7007.0800, subp. 2 and 14 to meet limits in Minn. R. 7011.0715
The Permittee shall operate and maintain CE 005 such that it achieves an overall control efficiency for Particulate Matter < 10 micron: greater than or equal to 79 percent control efficiency	Title I Condition: To limit PM10 emissions to non-major source level in 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 and 14 to limit PM10 emissions to non-major source level under 40 CFR Section 70.2
Pressure Drop: greater than or equal to 0.5 inches of water column and less than or equal to 3.75 inches of water column, unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated.	Title I Condition: To limit PM10 emissions to non-major source level in 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 and 14 to limit PM10 emissions to non-major source level under 40 CFR Section 70.2 and to meet limits in Minn. R. 7011.0715
Recordkeeping of Pressure Drop: The Permittee shall record the pressure drop once every 24 hours when in operation. The Permittee shall record the time and date of each pressure drop reading and whether or not the recorded pressure drop was within the range specified in this permit.	Title I Condition: To limit PM10 emissions to non-major source level in 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 and 5 to limit PM10 emissions to non-major source level under 40 CFR Section 70.2 and to meet limits in Minn. R. 7011.0715
The Permittee shall operate and maintain CE 005 at all times that any emission unit controlled by CE 005 is in operation.	Title I Condition: To limit PM10 emissions to non-major source level in 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 and 14 to limit PM10 emissions to non-major source level under 40 CFR Section 70.2 and to meet limits in Minn. R. 7011.0715
Monitoring Equipment: The Permittee shall operate and maintain the necessary monitoring equipment for measuring and recording pressure drop as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when CE 005 is in operation.	Minn. R. 7007.0800, subp. 4
Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturing specifications, the Permittee shall inspect the CE 005 components. The Permittee shall maintain a written record of these inspections.	Minn. R. 7007.0800, subp. 4, 5 and 14
Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur: 1. the recorded pressure drop is outside the required operating range; or 2. CE 005 or any of its components are found during the inspections to need repair. Corrective actions shall return the pressure drop to within the permitted range, eliminate visible emissions, and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the fabric filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.	Minn. R. 7007.0800, subp. 4, 5, and 14
The Permittee shall operate and maintain CE 005 in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.	Minn. R. 7007.0800, subp. 14
Hood Certification and Evaluation: The CE 005 hood must conform to the requirements listed in Minn. R. 7011.0070, subp. 1. The Permittee shall maintain a copy of the certification on site, as well as an annual record of fan rotation speed, fan power draw, or face velocity of each hood, or other comparable air flow indication method.	Minn. R. 7007.0800, subp. 4, 5, and 14

TABLE B: SUBMITTALS

B-1 09/27/06

Facility Name: Kerry Bio-Science
Permit Number: 10900032 - 003

Table B lists most of the submittals required by this permit. Please note that some submittal requirements may appear in Table A or, if applicable, within a compliance schedule located in Table C. Table B is divided into two sections in order to separately list one-time only and recurrent submittal requirements.

Each submittal must be postmarked or received by the date specified in the applicable Table. Those submittals required by parts 7007.0100 to 7007.1850 must be certified by a responsible official, defined in Minn. R. 7007.0100, subp. 21. Other submittals shall be certified as appropriate if certification is required by an applicable rule or permit condition.

Send any application for a permit or permit amendment to:

AQ Permit Technical Advisor
Industrial Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Also, where required by an applicable rule or permit condition, send to the Permit Technical Advisor notices of:

- accumulated insignificant activities,
- installation of control equipment,
- replacement of an emissions unit, and
- changes that contravene a permit term.

Unless another person is identified in the applicable Table, send all other submittals to:

AQ Compliance Tracking Coordinator
Industrial Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Send submittals that are required to be submitted to the U.S. EPA regional office to:

Mr. George Czerniak
Air and Radiation Branch
EPA Region V
77 West Jackson Boulevard
Chicago, Illinois 60604

Send submittals that are required by the Acid Rain Program to:

U.S. Environmental Protection Agency
Clean Air Markets Division
1200 Pennsylvania Avenue NW (6204N)
Washington, D.C. 20460

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS**B-2** 09/27/06

Facility Name: Kerry Bio-Science

Permit Number: 10900032 - 003

What to send	When to send	Portion of Facility Affected
Testing Frequency Plan	<p>due 60 days after Performance Test to measure SV 006 PM10 emissions.</p> <p>The plan shall specify a testing frequency for determining SV 006 PM10 emissions, based on the test data and MPCA guidance. Future performance tests based on 12-month, 36-month, 60-month intervals, or as applicable, shall be required upon written approval of the MPCA.</p> <p>If during the PM10 performance test (due 04/15/2007) CE 002 pressure drop was less than 4.0 inches w.c., or the PM10 emission rate was greater than 2.9 lbs/hour, the plan shall specify that CE 002 inlet and outlet testing will be conducted by 10/15/2007.</p> <p>CE 002 controls emissions from EU 006 and vents through SV 006.</p>	SV006

TABLE B: RECURRENT SUBMITTALS**B-3** 09/27/06

Facility Name: Kerry Bio-Science

Permit Number: 10900032 - 003

What to send	When to send	Portion of Facility Affected
Semiannual Deviations Report	due 30 days after end of each calendar half-year starting 05/04/2004 . The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31. If no deviations have occurred, the Permittee shall submit the report stating no deviations.	Total Facility
Compliance Certification	due 31 days after end of each calendar year starting 05/04/2004 (for the previous calendar year). The certification shall be submitted to the Commissioner on a form approved by the Commissioner. This report covers all deviations experienced during the calendar year.	Total Facility

APPENDIX MATERIAL

Facility Name: Kerry Bio-Science

Permit Number: 10900032-003

Insignificant Activities Required To Be Listed

Minn. R. 7007.1300	EQUIPMENT
subp. 3.A	Space Heaters fired by natural gas or propane
subp. 3.B.(2)	Natural gas-fired furnaces
subp. 3.G	Laboratory emissions
subp. 3.H.(3)	Welding equipment
subp. 3.I.(2)	Parts washer solvent usage \leq 200 gallons per 12-month period
subp. 3.J	Fugitive emissions from paved roads and parking lots

TECHNICAL SUPPORT DOCUMENT
For
AIR EMISSION PERMIT NO. 10900032-003

This Technical Support Document (TSD) is for all parties interested in the draft permit and meets the requirements at 40 CFR § 70.7(a)(5) and Minn. R. 7007.0850, subp. 1. The purpose of this document is to provide the legal and factual justification for each applicable requirement or policy decision considered in the determination to issue the draft permit.

1. General Information

1.1. Applicant and Stationary Source Location:

Applicant/Address	Stationary Source/Address (SIC Code: 2023)
Kerry Biofunctional Ingredients, Inc. 1 Millington Road Beloit, WI 53511	2402 7 th St NW Rochester Olmsted County
Contact: Kevin Grigg Phone: (507) 285-3458	

1.2. Facility Description

The facility processes cheese whey, corn syrup solids, and related ingredients into food ingredients and frozen cultures. The main emission sources are two Cleaver Brooks 600 horsepower gas-fired boilers, two spray dryers, and a wet blend bag dump station dust collector.

1.3 Activities Allowed by this Permit Action

This is a major amendment to revise the PM₁₀ emission limit for the small dryer, EU 006. The Permittee failed a PM₁₀ stack test in August 2005 when a PM₁₀ emission rate of 2.9 lb/hr was measured compared to a limit of 2.0 lb/hr. To mitigate the noncompliance, the Permittee requested an increase of the limit. This appeared acceptable because the initial PM₁₀ emissions limit was based on an estimation of emissions by the Permittee that may have not been accurate, and increasing the PM₁₀ limit will still allow the total facility emissions to remain well below part 70 permit thresholds. However, due to the relatively low scrubber (CE 002) pressure drop measured during testing (1.7 inches w.c.), compliance with the scrubber PM₁₀ 90% control efficiency requirement in GP 004 is questionable. Instead of scrubber inlet and outlet testing to determine efficiency, MPCA staff will allow the Permittee to make changes to the scrubber to increase the pressure drop and then retest outlet PM₁₀ emissions by spring 2007.

This permit adds operating limits and revises control equipment operating parameters for the two dryers based on the 2005 stack testing. Also, the required pressure drop range for CE 005 is

revised based on real time monitoring after the PER 001-required installation of a pressure drop gauge.

Future stack testing at a specified deadline has been added for the large dryer, based on the results of 2005 testing. Dryer testing requirements were moved from GP 003 (Dryers) to the dryer stack/vents (SV 006, SV 007, and SV 008) to improve tracking of the requirements in Delta.

1.4. Facility Emissions:

Table 1. Title I Emissions Increase Summary

Pollutant	Emissions Increase from the Modification (tpy)	Limited Emissions Increase from the Modification (tpy)	PSD/112(g) Significant Thresholds for major sources (tpy)	NSR/112(g) Review Required? (Yes or No)
PM	0	0	250	NO
PM ₁₀	8.76	8.76	250	NO
NO _x	0	0	250	NO
SO ₂	0	0	250	NO
CO	0	0	250	NO
Ozone (VOC)	0	0	250	NO
Lead	0	0	0.6	NO
single and total HAPs	0	0	10/25	NO

Table 2. Total Facility Potential to Emit Summary

	PM tpy	PM ₁₀ tpy	SO ₂ tpy	NO _x tpy	CO tpy	VOC tpy	HAP
Total Facility Limited Potential Emissions	38.8	55.2	5.53	71.1	28.7	1.91	<1
Total Facility Actual Emissions (2004)	0.31	0.31	0.03	7.60	6.24	0.41	Not Reported

Table 3. Facility Classification

Classification	Major/Affected Source	Synthetic Minor	Minor
PSD		PM ₁₀	PM, SO ₂ , NO _x , CO, VOC, Pb
Part 70 Permit Program		PM ₁₀	SO ₂ , NO _x , CO, VOC, Pb,
Part 63 NESHAP			HAPs

2. Regulatory and/or Statutory Basis

New Source Review

The facility is a non-major source under New Source Review.

Part 70 Permit Program

This permit contains enforceable limits and conditions to restrict emissions to less than the Part 70 major source level. This allows the permit to be a non-expiring state permit.

New Source Performance Standards (NSPS)

No New Source Performance Standards apply to this facility.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

No NESHAPs apply to this facility and unlimited potential HAP emissions are less than the major source level under § 63.2.

Minnesota State Rules

Portions of the facility are subject to the following Minnesota Standards of Performance:

- Minn. R. 7011.0510 Standards of Performance for Existing Indirect Heating Equipment
- Minn. R. 7011.0515 Standards of Performance for New Indirect Heating Equipment
- Minn. R. 7011.0715 Standards of Performance for Post-1969 Industrial Process Equipment

Table 4. Regulatory Overview of Facility

EU, GP, or SV	Applicable Regulations	Comments:
GP 001	Minn. R. 7007.0800, subp. 2	Boilers not in service - prohibition of operation
GP 002	Minn. R. 7011.0510	Standards of Performance for New Indirect Heating Equipment
GP 003	Minn. R. 7011.0610, subp. 1	Title I PM ₁₀ limits; Direct Heating Equipment Rule PM and opacity limits
GP 004	Title I Conditions;	Dryer scrubber operating requirements

	Minn. R. 7007.0800, subps. 2, 4, 5, & 14	
SV 006 SV 007 SV 008	Title I Condition: To avoid major source status under 40 CFR Section 52.21 and Minn. R. 7007.3000	Scrubber PM ₁₀ testing requirements
EU 001	Minn. R. 7011.0510	Standards of Performance for Existing Indirect Heating
EU 007	Minn. R. 7011.0715	Standards of Performance for New Industrial Process Equipment

3. Technical Information

The facility is an existing source that has uncontrolled potential PM₁₀ emissions exceeding the major source definition under the New Source Review permit program. Actual PM₁₀ emissions have never exceeded the major source threshold. In order to keep the source non-major for NSR, this draft permit contains Title I PM₁₀ emissions limits for the 2 spray dryers and Title I Conditions for PM₁₀ control equipment operation.

In PER 001, the Title I PM₁₀ limits were determined by adding a 20% increment to the calculated controlled PM₁₀ emission rates. The 20% increment was intended to serve as a buffer to enable a demonstration of compliance during a PM₁₀ performance test. However, testing of the small dryer (EU 006) showed emissions above the 2.0 lb/hr limit (test result was 2.9 lb/hr).

At 2.0 lb/hr PM₁₀ for EU 006, the limited total facility PM₁₀ was only 46.33 tpy. Increasing the EU 006 PM₁₀ limit to 4.0 is acceptable to mitigate the noncompliant test result because the revised total facility PM₁₀ at 55.2 tpy remains considerably below the part 70 threshold.

However, during drafting of PER 002, the Permittee stated the small dryer scrubber (CE 002) pressure drop during the August 2005 performance test was 1.7 inches w.c. (a value of 8.75 inches w.c. was incorrectly reported for CE 002 in the September 22, 2005, Notice of Compliance/ Notice of Noncompliance). This is quite low for a wet scrubber and generates concern regarding compliance with the GP 004 scrubber PM₁₀ 90% control efficiency requirement. In response to this, MPCA staff suggested that CE 002 inlet and outlet testing should be conducted to verify compliance with the control efficiency requirement.

The Permittee responded by stating that the ductwork leading to the small scrubber inlet has elbows and bends that pre-empt an appropriate location for a test port to measure small dryer scrubber inlet emissions. The Permittee indicated the ductwork could be modified if inlet testing was required, but also stated it preferred to instead make changes to the small dryer scrubber to increase the pressure drop and re-test outlet PM₁₀ emissions by spring 2007. MPCA staff agreed to this approach because the small dryer is a small emission source.

As a result, this permit requires small dryer scrubber outlet testing no later than April 15, 2007. The permit also requires a CE 002 pressure drop of 1.7 inches w.c. based on the August 2005

testing until the testing due April 15, 2007, is conducted. Upon conducting the test, the CE 002 pressure drop requirement changes to 4.0 inches w.c.

The permit also contains a contingent requirement stating if the testing due April 15, 2007, results in a pressure drop below 4.0 inches w.c. or the PM₁₀ emissions exceed 2.9 lb/hr, the Permittee must modify the CE 002 inlet ductwork to accommodate an inlet test port and test to determine CE 002 control efficiency by October 15, 2007.

This permit also adds operating limits for the two dryers and revises dryer control equipment operating parameters based on the 2005 stack testing (see discussion above for small dryer scrubber). The production/operating limit for the small dryer is the 491 lb/hr operating rate during the August 2005 stack testing. The large dryer operating limit is the 3,357 lb/hr value listed in the September 22, 2005, Notice of Compliance/Notice of Noncompliance letter to the Permittee.

Also, the required pressure drop range for CE 005 is revised based on real-time monitoring after the PER 001-required installation of a pressure drop gauge. Future stack testing at a specified deadline has been added for the large dryer, based on the results of 2005 testing. Dryer testing requirements were moved from GP 003 (Dryers) to the dryer stack/vents (SV 006, SV 007, and SV 008).

3.1 Emission Calculations

Emissions data for EU 006 was revised by changing the limited PM₁₀ emissions from the initial 2.0 lb/hr to 4.0 lb/hr. All other emissions data remains the same.

3.2 Periodic Monitoring

In accordance with the Clean Air Act, it is the responsibility of the owner or operator of a facility to have sufficient knowledge of the facility to certify that the facility is in compliance with all applicable requirements.

In evaluating the monitoring included in the permit, the MPCA considers the following:

- The likelihood of violating the applicable requirements;
- Whether add-on controls are necessary to meet the emission limits;
- The variability of emissions over time;
- The type of monitoring, process, maintenance, or control equipment data already available for the emission unit;
- The technical and economic feasibility of possible periodic monitoring methods; and
- The kind of monitoring found on similar units elsewhere.

Table 5 summarizes the periodic monitoring requirements for those emission units for which the monitoring required by the applicable requirement is nonexistent or inadequate.

Table 5. Periodic Monitoring

Emission	Requirement	Additional	Discussion
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Unit or Group	(basis)	Monitoring	
GP 002 EU 001 2 boilers & space heater	Minn. R. 7011.0510 & 7011.0515 PM & opacity	None	Boilers and space heater are fired with NG & LPG only. The likelihood of violating the applicable PM and opacity limits is so low that no additional monitoring is appropriate
GP 003 Dryers	Minn. R. 7011.0610 PM & opacity	None	Dryers are controlled by wet scrubbers. See GP 004.
GP 004 Dryer Scrubbers	Title I Conditions to avoid NSR for PM ₁₀	Control equipment monitoring and recordkeeping	Monitoring of scrubber pressure drop, water pressure, and water flow rate, as well as scrubber O & M, will ensure adequate scrubber operation and PM/PM ₁₀ control.
EU 007 bag dump	Minn. R. 7011.0715 PM & opacity	None	Monitoring of filter pressure drop and filter O & M, will ensure adequate filter operation and PM/PM ₁₀ control.

3.3 Insignificant Activities

The Permittee has multiple space heaters, and fuel burning equipment (water heaters and hot air furnaces) which are classified as insignificant activities. These are listed in the Appendix to the permit. All are fired with either natural gas or propane. No periodic monitoring is warranted for the same reason as described in Table 5 for GP 002/EU 001.

3.4 Comments Received

Public Notice Period: August 24, 2006 - September 22, 2006. No comments received.

4. Conclusion

Based on the information provided by Kerry Bio-Science, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 10900032-003 and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Marshall Cole (permit writer/engineer)
 Suzanne Venem & Greg Berger (enforcement)
 Steve Gorg (stack testing)
 Toni Volkmeier (peer reviewer)

Attachment: Emissions Calculations