

## 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: **082008-017** Project Number: 2008-06-075

Parent Company: Kyowa Hakko Kogyo, Ltd.

Parent Company Address: P.O. Box 1550, Cape Girardeau, MO 63702-1550

Installation Name: BioKyowa, Incorporated Main Production Facility

Installation Address: 5469 Nash Road, Cape Girardeau, MO 63702

Location Information: Cape Girardeau County, S28, T18N, R13E

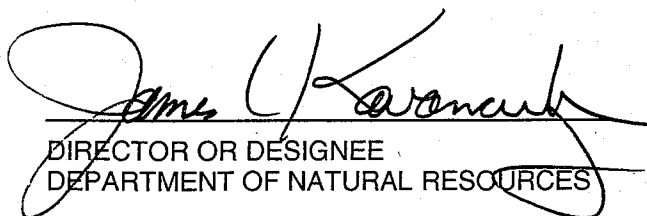
Application for Authority to Construct was made for:  
Installation of four (4) 11.56 million British thermal units per hour (MMBtu/hr) natural gas-fired boilers and addition of an aftercooler to Plant 2 which will result in increased throughput. This review was conducted in accordance with Section (6), 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.

AUG 22 2008

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EFFECTIVE DATE

  
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 departments' Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. 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 this (these) air contaminant source(s).

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 source(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.

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: Project Number: 2008-06-075

Parent Company: Kyowa Hakko Kogyo, Ltd.

Parent Company Address: P.O. Box 1550, Cape Girardeau, MO 63702-1550

Installation Name: BioKyowa, Incorporated Main Production Facility

Installation Address: 5469 Nash Road, Cape Girardeau, MO 63702

Location Information: Cape Girardeau County, S28, T18N, R13E

Application for Authority to Construct was made for:  
Installation of four (4) 11.56 million British thermal units per hour (MMBtu/hr) natural gas-fired boilers and addition of an aftercooler to Plant 2 which will result in increased throughput. This review was conducted in accordance with Section (6), 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.

---

EFFECTIVE DATE

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DIRECTOR OR DESIGNEE  
DEPARTMENT OF NATURAL RESOURCES

## STANDARD CONDITIONS:

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**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 departments' Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. 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 this (these) air contaminant source(s).

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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 source(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.

Page No.	3
Permit No.	
Project No.	2008-06-045

**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."*

BioKyowa, Incorporated Main Production Facility  
Cape Girardeau County, S28, T18N, R13E

1. **Superseding Condition**  
The conditions of this permit supersede Special Condition Number 2 and 3 found in the New Source Review Permit Number 122002-002A issued by the Air Pollution Control Program
2. **Methanol Emission Limitation**
  - A. BioKyowa, Incorporated Main Production Facility shall emit less than 10.0 tons of methanol (CAS Number 67-56-1) from the methanol process (EP-18), the methanol storage tanks (EP-19), and from the methanol wastewater treatment process (EP-28) in any consecutive 12-month period.
  - B. Attachment A *Methanol Compliance Worksheet*, or equivalent form(s) approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Condition 2.A. BioKyowa, Incorporated Main Production Facility shall maintain all records required by this permit for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.
  - C. BioKyowa, Incorporated Main Production Facility shall report to the APCP's Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after the end of the month during which the records from Special Condition Number 2.B indicate that the source exceeds the limitation of Special Conditions Number 2.A.
3. **Operation Limitations – Carbon Black Usage**
  - A. BioKyowa, Incorporated Main Production Facility shall not use more than 1,500 pounds of carbon black in the decolorizing system (EP-36) in any consecutive twenty four (24) hour period.
  - B. Attachment B *Daily Carbon Black Compliance Worksheet* or equivalent

Page No.	4
Permit No.	
Project No.	2008-06-045

**SPECIAL CONDITIONS:**

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

forms approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Condition 3.A. BioKyowa, Incorporated Main Production Facility shall maintain all records required by this permit for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.

- C. BioKyowa, Incorporated Main Production Facility shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, Missouri 65102, no later than ten (10) days after the end of the month during which the records from Special Condition Number 3.B indicate that the source exceeds the limitation of Special Condition Number 3.A.
4. Control Device – Fabric Filter Dust Collectors
- A. BioKyowa, Incorporated Main Production Facility shall control emissions from the aftercooler and from the methanol process using fabric filter dust collectors (EP-18 & EP-48) as specified in the permit application. The fabric filter dust collectors shall be operated and maintained in accordance with the manufacturer's specifications. The fabric filter dust collectors shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that the Department of Natural Resources employees may easily observe them. Replacement filters for the fabric filter dust collectors shall be kept on hand at all times. The bags shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).
  - B. BioKyowa, Incorporated Main Production Facility shall monitor and record the operating pressure drop across the fabric filter dust collectors at least once every 24 hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
  - C. BioKyowa, Incorporated Main Production Facility shall maintain an operating and maintenance log for the fabric filter dust collectors which shall include the following:
    - i. Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
    - ii. Maintenance activities, with inspection schedule, repair actions, and replacements, etc.

Page No.	5
Permit No.	
Project No.	2008-06-045

**SPECIAL CONDITIONS:**

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

5. **Control Device – Low Nitrogen Oxides (NO<sub>x</sub>) Burners**
  - A. BioKyowa, Incorporated Main Production Facility shall control emissions from the four (4) natural gas fired package boilers (EP-44 through EP-47) using low NO<sub>x</sub> burners as specified in the permit application. The low NO<sub>x</sub> burners shall be operated and maintained in accordance with the manufacturer's specifications.
  - B. BioKyowa, Incorporated Main Production Facility shall maintain an operating and maintenance log for the low NO<sub>x</sub> burners which shall include the following:
    - i. Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
    - ii. Maintenance activities, with inspection schedule, repair actions, and replacements, etc.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE  
SECTION (6) REVIEW

Project Number: 2008-06-075  
Installation ID Number: 031-0064  
Permit Number:

BioKyowa, Incorporated Main Production Facility      Complete: July 2, 2008  
5469 Nash Road  
Cape Girardeau, MO 63702

Parent Company:  
Kyowa Hakko Kogyo, Ltd.  
P.O. Box 1550  
Cape Girardeau, MO 63702-1550

Cape Girardeau County, S28, T18N, R13E

REVIEW SUMMARY

- BioKyowa, Incorporated Main Production Facility has applied for authority to install four (4) 11.56 million British thermal units per hour (MMBtu/hr) natural gas-fired boilers and add an aftercooler to Plant 2 which will result in increased throughput in Plant 2.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. The HAPs of concern from this project is hydrochloric acid (HCl) and methanol. Methanol potential emissions will not increase as a result of this project due to the reestablishment of the 10 ton per year annual methanol limitation.
- 40 CFR Part 60, Subpart Dc, *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*, of the New Source Performance Standards (NSPS) applies to the four (4) new boilers.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) or currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- A fabric filter dust collector (EP-48) is being used to control the particulate matter less than 10 microns (PM<sub>10</sub>) emissions from the aftercooler. Low NO<sub>x</sub> burners are being used to control NO<sub>x</sub> emissions from the four (4) natural gas fired package boilers (EP-44 through EP-47). All other equipment associated with modification are controlled as per 122002-002 with the exception of the following: The catalytic oxidizer will be used to control volatile organic compounds (VOCs) along with organic HAP emissions only when the Methanol Process (EP-18) is in operation. The oxidizer will not be operation when the product associated with ethanol emissions is being produced.



- This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are below de minimis levels.
- This installation is located in Cape Girardeau County, an attainment area for all criteria air 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 for this review. No model is currently available which can accurately predict ambient ozone concentrations caused by this installation's VOC emissions.
- Emissions testing is not required for this project.
- An amendment to your Part 70 Operating Permit is required for this installation within 1 year of equipment startup.
- Approval of this permit is recommended with special conditions.

#### INSTALLATION DESCRIPTION

BioKyowa, Incorporated - Main Production Facility (BioKyowa) (Installation ID Number 031-0064) located in Cape Girardeau manufactures feed additives for animal and human consumption. The manufacturing process consists of Plant 1 for the production of amino acids; Plant 2 for the production of other amino acids; the natural gas/fuel oil fired Utility Plant to produce process steam for operations; the Evaporation Plant; and the Wastewater Treatment Plant. The method of production involves fermentation to produce the feed additive and subsequent processing and handling of the product.

The emissions from the existing installation consist of particulate matter from the grinding and sizing of finished product, products of combustion from the boilers, and HAPs/VOCs from the fermentation and extraction processes. The installation was considered an existing major source of criteria air pollutants as well as a named source, with potential sulfur oxide (SO<sub>x</sub>) emissions in excess of 250 tons per year. BioKyowa, Inc was considered a named source due to total boiler input capacity exceeding 250 MMBtu/hr. However, with the removal of Boiler 1 (EP-01), boiler input capacity is now less than 250 MMBtu/hr and the potential emissions of sulfur dioxide are now below 250 tons per year. Since actual emissions have never exceeded 250 tons per year, BioKyowa can resort to being classified as a minor source with regards to Construction Permitting.

BioKyowa, Inc. has been issued a Part 70 Operating Permit (Permit Number OP2006-040) in July of 2006. The following construction permits have been issued to BioKyowa, Inc. from the Air Pollution Control Program.

Table 1: Previously Issued Construction Permits

Permit Number	Description
0983-006...009	Construction of a new l-lysine production installation
0284-020	Addition of a new boiler
0190-002	New boiler and drying system
0693-020	Approval to burn No. 2 fuel oil in existing natural gas fired boilers
1099-021	Expansion to increase l-lysine production and to add FNA line
1099-021A	Wording correction
1099-021A	Wording change
122002-002	Modification of an existing FNA feed additive process line to allow for the production of argenine, glutamine and other amino acids in what is called the BFK process line.

## PROJECT DESCRIPTION

BioKyowa will be replacing a fuel oil/natural gas-fired boiler (EP-01) with four (4) 11.56 MMBtu/hr natural gas-fired package boilers (EP44 – 47). EP-01 was originally permitted in 1983 (Permit No. 0983-006). With the removal of this boiler and its replacement with natural gas only boilers, the facility's potential to emit for SO<sub>2</sub> will be significantly reduced. Potential emissions for SO<sub>2</sub> will no longer be greater than 250 tons per year.

Plant 2 will be modified with the installation of an aftercooler (EP-48), a centrifuge, and ceramic filter which will allow for increased throughput in Plant 2. Plant 2 was previously permitted under Permit No. 122002-002. Currently, with no product aftercooler, the existing dryer also functions as a product cooler, thus increasing the batch processing time. With the addition of the aftercooler, Plant 2 products can now be cooled in the aftercooler while the dryer (upstream of the aftercooler) can process the next batch, resulting in a reduction in the batch processing time, and an increase in the number of batches of manufactured product. The pollutant of concern for the aftercooler is PM<sub>10</sub>. PM<sub>10</sub> emissions from the aftercooler will be controlled by a fabric filter dust collector.

Due to the proposed increase in production rates in Plant 2, the following emission points (EP-18, 24, 30, 31, 32 and 38) will see a small increase in PM<sub>10</sub> actual emissions. These emission points have already been permitted at their potential-to-emit (PTE) and the proposed throughput increase will not increase the PTE. The exception to this is the PM<sub>10</sub> emissions associated with EP-18. EP-18 is a batch process consisting of a condenser, a centrifuge, and a dryer/cooler system. Since emissions associated with EP-18 were previously routed through the catalytic oxidizer, it was assumed that the PM<sub>10</sub> was consumed in the oxidizer. In the case where ethanol is used in the batch process, the oxidizer is bypassed and thus the PM<sub>10</sub> emissions associated with the product dryer are emitted. PM<sub>10</sub> emissions from EP-18 will be controlled by a fabric

filter dust collector.

The proposed increase in production rates will also increase the usage of ethanol. BioKyowa has based ethanol emissions on the maximum number of batches that can be produced per year. Ethanol usage is estimated to be 14,400 gallons per year. Ethanol, which is a VOC, will be emitted through EP-18 and EP-43. (The catalytic oxidizer on EP-18 will only be used when methanol is used in the process.) Ethanol is used in the centrifugation process and it is assumed that 100% of the ethanol used will be emitted. It is also assumed that the emissions are emitted equally between EPs 18 and 43.

It is also expected that usage of HCl from Plant 2 HCl Storage Tank (EP-23) and Plant 2 HCl Day Tank (EP-37) will also increase due to increased throughput. HCl usage is based on the existing potential to emit plus the scaled amount from increased throughput. The maximum annual throughputs for HCl usage is approximately 9,220 and 7,130 tons for EP-23 and EP-37, respectively.

The methanol emissions and carbon black usage associated with Plant 2 were limited in 122002-002 and 122002-002A. These emission limitations have been reestablished in this permit. All other equipment and controls as described in Permit No. 122002-002 and 12002-002A will remain the same unless noted above.

Since this project involves a modification which results in increased throughput of the line, the potential emissions of the project included the total potential emissions of emission units affected by the modification as well as the new equipment. Typically, in the event of a modification, a potential minus actuals calculation is used to determine the project's potential emissions. However, a potential minus actuals test was not needed in this case since potential emissions from the production line and boilers for all pollutants and HAPS were determined to be below their respective de minimis levels and Screen Modeling Action Levels (SMAL) and the potential minus actuals tests does not change the type of review needed for this permit.

BioKyowa is also planning an increase in production capacity in Plant 1. However, the increase in capacity is due to increased utilization; there are no modifications associated with Plant 1. Since Plant 1 has already been permitted at their potential to emit and the proposed throughput increase will not increase the potentials, these emissions have not been included in the project's emissions.

BioKyowa has requested that the production throughputs and the process flow diagrams submitted in this application to be treated as confidential. The company believes that the information identified as "Confidential" has competitive value since access to data would put the company at a competitive disadvantage.

## EMISSIONS/CONTROLS EVALUATION

The emission factors used in this analysis for the boilers (EP-44 through EP-47) were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 1.4, *Natural Gas Combustion* (7/98). Low NO<sub>x</sub> burners are being used on the boilers to control NO<sub>x</sub> emissions. Estimated NO<sub>x</sub> control per AP-42 is 50%. Potential PM<sub>10</sub> emissions from the aftercooler will be controlled using a fabric filter dust collector (EP-48). The emissions associated with this emission point are based upon the maximum design outlet grain loading of 0.008 grains per dry standard cubic foot (gr/dscf) and maximum air flow rate of 2,400 cubic feet per minute (cfm). Potential PM<sub>10</sub> emissions from the centrifugation process will be controlled using a fabric filter dust collector (EP-18). The emissions associated with this emission point are based upon the maximum design outlet grain loading of 0.006 gr/dscf and maximum air flow rate of 4,650 cubic feet per minute. Potential emissions for ethanol in EP-18 and EP-43 are based on an estimated usage of 14,400 gallons per year with 100% of the ethanol emissions being emitted. A special condition was included to limit ethanol usage and an analysis will be done to verify the amount of ethanol actually being emitted.

Emission factors and control efficiencies for all of the other equipment and controls will be as described in Permit No. 122002-002 unless otherwise noted above.

Potential emissions of the application represent the potential of the new equipment as well the total potential emissions of equipment affected by the modification, assuming continuous operation (8760 hours per year). The following table provides an emissions summary for this project.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions (Note 1)	Existing Actual Emissions (2007 EIQ)	Potential Emissions of the Application (Note 2)	New Installation Conditioned Potential
PM <sub>10</sub>	15.0	47.0	3.24	4.34	N/A
SO <sub>x</sub>	40.0	<250	1.79	0.12	N/A
NO <sub>x</sub>	40.0	161.4	10.5	9.93	N/A
VOC	40.0	33.8	7.12	55.45	N/A
CO	100.0	62.8	19.09	16.68	N/A
HAPs	10.0/25.0	18.9	0.25	1.47	N/A
Methanol	10.0	<10.0	N/D	<10	N/A
Hydrogen Chloride	10.0	1.24	N/D	1.47	N/A

N/A = Not Applicable; N/D = Not Determined

Note 1: Existing potential emissions takes into account the installation conditioned potential emissions given in Permit Nos. 1099-021 and 122002-002A. The existing potential emissions with the removal of the dual-fired boiler (EP-01) have not been determined. However, SO<sub>2</sub> emissions are now less than major levels as a result.

Note 2: Potential emissions of the application are based upon potential emissions from the four new boilers and all sources associated with Plant 2 even though much of the equipment in Plant 2 is existing emissions.

## PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of all pollutants are below de minimis levels.

## APPLICABLE REQUIREMENTS

BioKyowa, Incorporated Main Production Facility 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 your installation, please consult your operating permit.

### GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110  
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required June 1 for the previous year's emissions.
- *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 10-3.090

### SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400
- *New Source Performance Regulations*, 10 CSR 10-6.070 – *New Source Performance Standards (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Units*, 40 CFR Part 60, Subpart Dc.
- *Restriction of Emission of Sulfur Compounds*, 10 CSR 10-6.260
- *Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating*, 10 CSR 10-3.060

## STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (6), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

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Susan Heckenkamp  
Environmental Engineer

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Date

## PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated June 27, 2008, received June 30, 2008, designating Kyowa Hakko Kogyo, Ltd. as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Southeast Regional Office Site Survey, dated July 9, 2008.

## Attachment A - Methanol Compliance Worksheet

BioKyowa, Inc. Main Production Facility  
 Cape Girardeau County, S28, T18N, R13E  
 Project Number: 2002-01-083  
 Installation ID Number: 031-0064  
 Permit Number:

This sheet covers the period from \_\_\_\_\_ to \_\_\_\_\_.  
 (month, year) (month, year)

Column A	Column B	Column C	Column D	Column E	Column F
Process	Amount of Material Produced (tons) (Note 1)	Methanol Emission Factor (Note 2)	Emission Factor Units	Control Efficiency (percent)	Controlled Methanol Emissions (tons) (Note 4)
BFK Methanol Process (EP-18)		21.82	pound methanol per ton of material produced	96	
Methanol Storage Tanks (EP-19) Note 3)		.2618	pound methanol per ton of material produced		
Methanol Wastewater Treatment (EP-28)		1.1781	pound methanol per ton of material produced		
Total Methanol Emissions for the Month (Note 5)					
12-Month Methanol Emissions Total From Previous Months Worksheet (Note 6)					
Monthly Methanol Emission Total From Previous Years Worksheet (Note 7)					
Current 12-Month Total Methanol Emissions (Note 8)					

Note 1: Amount of material produced which used methanol during the production.

Note 2: Emission factors were on a product batch weighing 25.25 tons.

Note 3: Methanol emissions from the storage tanks are controlled using a scrubber with mist eliminator. The control efficiency is taken into account in the emission factor.

$$(\text{Column B})(\text{Column C}) \left( 1 - \left( \frac{\text{Column E}}{100} \right) \right)$$

Note 4: \_\_\_\_\_  
 2000

Note 5: Sum of methanol emissions for the month.

Note 6: Running 12-month total of methanol emissions from previous month's worksheet.

Note 7: Methanol emissions reported for this month in the last calendar year.

Note 8: Amount reported for Note 6 minus amount reported for Note 7 plus amount reported for Note 5, not to exceed 10.0 tons for any consecutive 12-month period.

**Attachment B – Daily Carbon Black Compliance Worksheet**

BioKyowa, Inc. Main Production Facility  
Cape Girardeau County, S28, T18N, R13E  
Project Number: 2002-01-083  
Installation ID Number: 031-0064  
Permit Number:

Date	Amount of Carbon Black Used (Note 1)	Date	Amount of Carbon Black Used (Note 1)

Note 1: Amount of Carbon black used in any consecutive 24-hour period can not exceed 1,500 pounds.



Mr. Bruce Blankenship  
QC Safety and Environmental Manager  
BioKyowa, Incorporated Main Production Facility  
P.O. Box 1550  
Cape Girardeau, MO 63702

RE: New Source Review Permit - Project Number: 2008-06-075

Dear Mr. Blankenship:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files.

Operation in accordance with these conditions, your new source review permit application and with your amended operating permit is necessary for continued compliance.

The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact Susan Heckenkamp, at the departments' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

**AIR POLLUTION CONTROL PROGRAM**

Kendall B. Hale  
New Source Review Unit Chief

KBH:shl

Enclosures

c: Southeast Regional Office  
PAMS File: 2008-06-075

Permit Number: