



Missouri Department of dnr.mo.gov

NATURAL RESOURCES

Michael L. Parson, Governor

Carol S. Comer, Director

September 29, 2020

Todd Thomas
Manager of Regulatory Affairs
Elantas PDG, Inc.
5200 North Second Street
St. Louis, Missouri 63147

RE: New Source Review Permit - Project Number: 2020-05-025

Dear Todd Thomas:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. Also, note the special conditions 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.

This permit may include requirements with which you may not be familiar. If you would like the department to meet with you to discuss how to understand and satisfy the requirements contained in this permit, an appointment referred to as a Compliance Assistance Visit (CAV) can be set up with you. To request a CAV, please contact your local regional office or fill out an online request. The regional office contact information can be found at the following website: <http://dnr.mo.gov/regions/>. The online CAV request can be found at <http://dnr.mo.gov/cav/compliance.htm>.

If you were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty 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 administrative hearing commission, whose contact information is: Administrative Hearing Commission, United States Post Office Building, 131 West High Street, Third Floor, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: www.oa.mo.gov/ahc.

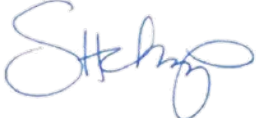


Todd Thomas
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If you have any questions regarding this permit, please do not hesitate to contact Chad Stephenson, at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

A handwritten signature in blue ink, appearing to read 'S. Heckenkamp', is written over the typed name.

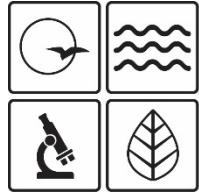
Susan Heckenkamp
New Source Review Unit Chief

SH:sca

Enclosures

c: St. Louis Regional Office
PAMS File: 2020-05-025

Permit Number: 092020-010



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: 092020-010 Project Number: 2020-05-025
Installation Number: 510-0096

Parent Company: Altana AG

Parent Company Address: Abelstr. 45, Wesel, Germany 46483


Installation Name: Elantas PDG, Inc.

Installation Address: 5200 North Second Street, St. Louis, Missouri 63147

Location Information: North St. Louis City

Application for Authority to Construct was made for:
Moving equipment from B4600 to B4500 and replacing older equipment and control devices due to the pending demolition of B4600. 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.



Director or Designee
Department of Natural Resources

September 29, 2020
Effective Date

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 Enforcement and Compliance Section of 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 Enforcement and Compliance Section of the Department's Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available within 30 days of actual startup. Also, you must notify the Department's 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 the permit application and this permit and permit review shall be kept at the installation address and shall be made available to Department's 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 using the contact information below.

Contact Information:
Missouri Department of Natural Resources
Air Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102-0176
(573) 751-4817

The regional office information can be found at the following website:
<http://dnr.mo.gov/regions/>

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 to 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 (3)(E). "Conditions required by permitting authority."

Elantas PDG, Inc.
North St. Louis City County,

1. Control Device Requirement-Fabric Filters
 - A. Elantas PDG, Inc. shall control emissions from the equipment in Table 1 using fabric filters as specified in the permit application.

Table 1: DC-04 and DC-05 Controlled Emission Units

Emission Unit	Control Device ID
DA-110	DC-04
DA-350	DC-04
DA-600	DC-04
Mortar Mixer #1	DC-04
Mortar Mixer #2	DC-04
Rib 500	DC-04
Cowles 45-03	DC-04
Table top mixer	DC-04
DA-5	DC-05
HS-15	DC-05
DA-55	DC-05
DA-220	DC-05
DA-900	DC-05
EM 600	DC-05
Large Dough Mixer	DC-05
QS-800	DC-05

- B. The fabric filters shall be operated and maintained in accordance with the manufacturer's specifications.
- C. The fabric filters 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 Department of Natural Resources' employees may easily observe them.
- D. Replacement filters for the fabric filters 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).

SPECIAL CONDITIONS:

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

- E. Elantas PDG, Inc. shall monitor and record the operating pressure drop across the fabric filters at least once every day. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
- F. Elantas PDG, Inc. shall maintain a copy of the fabric filters manufacturer's performance warranty on site.
- G. Elantas PDG, Inc. shall maintain an operating and maintenance log for the fabric filters 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.

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

Project Number: 2020-05-025
Installation ID Number: 510-0096
Permit Number: 092020-010

Installation Address:
Elantas PDG, Inc.
5200 North Second Street
St. Louis, Missouri 63147

Parent Company:
Altana AG
Abelstr. 45
Wesel, Germany 46483

North St. Louis City County,

REVIEW SUMMARY

- Elantas PDG, Inc. has applied for authority to install fabric filters to control emissions from the weight operations.
- The application was deemed complete on June 23, 2020.
- HAP emissions are expected from the proposed equipment. Refer to emission summary for details.
- 40 CFR Part 63 Subpart HHHHH – *National Emission Standards for Hazardous Air Pollutants: Miscellaneous Coating Manufacturing* applies to the process vessels associated with the project.
- 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.
- This installation is located in St. Louis City, a nonattainment area for the 8-hour ozone standard and an attainment/unclassifiable area for all other criteria pollutants.
- This installation is on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2]. It is listed under number 20, *chemical processing plants*. The installation's major source level is 100 tons per year and fugitive emissions are counted toward major source applicability.
- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.
- Emissions testing is not required for the fabric filters as a part of this permit. Testing may be required as part of other state, federal or applicable rules.

- The installation currently holds a Part 70 State Operating Permit. An update to the Part 70 Operating Permit is required for this installation within one year of issuance of this permit.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

The Elantas PDG, Inc. facility located in north St. Louis, Missouri manufactures specialty polymers and coatings for the electrical and electronics industry, including wire varnish, wire enamel, and potting compounds. Elantas PDG, Inc. currently has a Part 70 Operating Permit being reviewed under Project No. 2017-10-048.

The following New Source Review permits have been issued to Elantas PDG, Inc. from the Air Pollution Control Program.

Table 2: Permit History

Permit Number	Description
94-11-132	Special Case Revision: Tank 31, Reactor 6
94-09-89	Four New Tanks
97-07-077A	New Steam Boiler 25
97-06-066SC	Special Case Permit: Thinning Tank
9801004SC	Nylon Process Tank
9807-039SC	Thinning Tank
00-04-018	Chemical Usage in Tanks
00-04-018F	Chemical Usage
01-11-034	Mixers
03-09-017PM	Metal Parts and Organics
04-04-007	Mixer
04-02-006	Mixer
04-12-024	Mixer
04-04-007	PTE Information
04-12-025	AI Reactor
05-11-011	20,000 Gal Tank
06-01-001	800 Gal Mixing Vessel
042007-012	Four Process Tanks
07-12-027	Process Tanks
08-03-005	Tank
09-05-012	Pressure Drop
122011-010	Boiler
012020-003	Baghouse

PROJECT DESCRIPTION

The installation has applied for authority to construct for moving equipment from Building 4600 (B4600) to Building 4500 (B4500) and replacing older equipment and control devices due to the pending demolition of B4600. B4600 is being demolished in fall 2020. The following changes are being proposed as part of this project:

- Installation of new vessels at B4500 to replace existing vessels in B4600.
 - Cowles Mixer 1 (removed and replaced by HS-15)
 - Cowles Mixer 3 (removed and replaced by DA-220)
 - Cowles Mixer 6 (removed and replaced by DA-55)

- Moving large dough mixer (Compounding Operations Mixer 8) from B4600 to B4500.

- Replacement of three existing fabric filters at B4500 with two new fabric filters.
 - The existing fabric filters at B4500 (BH-45-01, BH-45-02 and BH-45-03) will be removed from service and replaced with two new fabric filters (DC-04 and DC-05).
 - The existing fabric filters (BH-46-01) which controls emissions from equipment at B4600 will also be replaced by the two new fabric filters DC-04 and DC-05 that will be installed at B4500.
 - Installation of piping and ductwork associated with moving equipment from B4600 to B4500.
 - Installation of fugitive components to accommodate the equipment moving from B4600 to B4500 and to integrate existing equipment at B4500.

The Elantas PDG, Inc. is not requesting any changes to throughput or emissions limits for this equipment. There are also no changes requested to the batch size and duration of the products manufactured in the equipment associated with this project. The project's sole purpose is to move equipment from B4600 to B4500 and replace older equipment and control devices due to the pending demolition of B4600.

The facility plans to use Donaldson Torit Ultra-Web Cartridge filters as the dust collectors. The potential flow rate through the new dust collectors and the mixers impacted are summarized in Table 3 below.

Table 3: Building 45 Dust Collector Sizing

DC-4500-04				
Mixer #	Manufacturer	Location	CFM Required	Changes
DA-110	Myers	Building 45	0 CFM shared	Shared with DA-350
DA-350	Myers	Building 45	980 CFM	New snorkel
DA-600	Myers	Building 45	980 CFM	New snorkel
Mortar Mixer #1	Unknown	Building 45	1,350 CFM	Existing wall hood
Mortar Mixer #2	Unknown	Building 45	1,350 CFM	Existing hood
Rib 500	Marion	Building 45	1,350 CFM	New cap
Cowles	45-03	Building 45	980 CFM	Existing snorkel

Table top mixer	Future	Building 45	0 CFM	No snorkel
Total CFM			7,689 CFM	Total CFM with 10% added
DC-4500-05				
Mixer #	Manufacturer	Location	CFM Required	Changes
DA-5	Myers	Building 45	980 CFM	New shared with HS-15
HS-15	Shar	Building 45	0 CFM Shared	New
DA-55	Shar	Building 45	980 CFM	New shared with DA-220
DA-220	Shar	Building 45	0 CFM Shared	New
DA-900	Myers	Building 45	980 CFM	Existing snorkel
EM 600	Hockmeyer	Building 45	980 CFM	Sizing change
Large Dough Mixer	Unknown	Building 45	1,350 CFM	New wall hood
QS-800	Shar	Building 45	980 CFM	Existing snorkel
Total CFM			6,875 CFM	Total CFM with 10% added

Although the installation is replacing control devices and mixers with similar units, the mixers were not previously included in any construction permits because they were installed prior to May 13, 1982 and no federally enforceable condition exists for the control devices. The Elantas PDG, Inc. has requested requiring the control devices as described in Special Condition 1. Throughputs for the relocated and new mixers are not changing; however, the maximum flowrate through the control devices is increasing.

EMISSIONS/CONTROLS EVALUATION

The emissions calculations for this permit are based upon the supplied manufacturer specifications for the dust collectors. According to the manufacturer, the maximum grain-loading for the dust collector air stream is 0.002 gr/scf. The maximum flowrate for the two combined dust collectors is 14,564 scfm. Air Pollution Control Program will accept a maximum grain-loading rate of 0.005 gr/scf without requiring testing. The emissions calculations include the maximum flowrate (14,564 scfm) with the 0.005 gr/scf grain loading. Uncontrolled particulate emissions were not calculated; however, uncontrolled potential emissions would be greater than the insignificance levels found in 10 CSR 10-6.061, Construction Permit Exemptions (3)(A)3.A. The insignificance levels are based upon uncontrolled emissions, whereas, the emissions presented in the application and used for this permit are controlled by a fabric filters. Therefore, a permit

is required for the project to establish a federally enforceable condition for the control devices.

Since particulate emissions are increasing because the maximum flowrate through the control devices is increasing, the three new replacement mixers (HS-15, DA-220, and DA-55) were conservatively not considered like-kind emissions units like those described in 10 CSR 10-6.061, Construction Permit Exemptions (3)(B)3. As such, VOC and HAP emissions used in this analysis for the three new mixing vessels were calculated using guidelines from §63.1257 of Title 40 of the Code of Federal Regulations. The maximum number of batches from the mixers combined per year is 5,000.

Emissions from vapor displacement due to transfer of material were calculated using equation 1 below. The individual HAP partial pressures may be calculated using Raoult's law.

$$E = \frac{(V)}{(R)(T)} \times \sum_{i=1}^n (P_i)(MW_i) \dots\dots\dots(\text{Eq.1})$$

where:

- E* = mass of HAP emitted
- V* = volume of gas displaced from the vessel
- R* = ideal gas law constant
- T* = temperature of the vessel vapor space; absolute
- P_i* = partial pressure of the individual HAP
- MW_i* = molecular weight of the individual HAP
- n* = number of HAP compounds in the emission stream *i* = identifier for a HAP compound

Table 4. Emissions from a Single Vessel by Product

Product	VOC Emissions		HAP Emissions	
	(lb/batch)	(tpy assumes 5,000 batches a year)	(lb/batch)	(tpy assumes 5,000 batches a year)
307552	1.36E-01	3.41E-01	1.29E-01	3.23E-01
307554	8.38E-01	2.09E+00	8.31E-01	2.08E+00
307404	6.16E-02	1.54E-01	6.16E-02	1.54E-01
307272	6.82E-02	1.71E-01	6.67E-02	1.67E-01
314244	6.82E-02	1.71E-01	3.35E-03	8.37E-03

The worst case emission scenario is in the production of Product 307554 and subsequent cleaning with methyl ethyl ketone (MEK). This batch process yields a weighted average VOC and HAP emission rate of 0.838 lb/batch and 0.831 lb/batch respectively. The HAP emission rate indicated here is for combined HAPs. The worst

case individual HAP emission scenario for all HAPs except glycol ethers is also from production of Product 307554. The emission rates calculated in Table 4 are for all process tank at 5,000 batches combined.

Cleaning emissions from the use of MEK was estimated at 2,500 batches per year. The density of MEK was multiplied by the pounds used per batch. AP-42 Section 6.4 estimates about one or two percent of the solvent is lost under well-controlled conditions so VOC emissions were estimated by multiplying the product usage (lbs/year) by two percent product loss.

The following table provides an emissions summary for this project. Existing potential emissions were taken from Construction Permit 102020-003. Existing actual emissions were taken from the installation's 2018 EIQ. Conditioned potential emissions of the application represent the potential of the equipment with fabric filters, assuming continuous operation (8760 hours per year).

Table 5: Emissions Summary (tpy)

Pollutant	Regulatory <i>De Minimis</i> / SMAL Levels	Existing Potential Emissions	Existing Actual Emissions (2018 EIQ)	Conditioned Potential Emissions of the Project
PM	25.0	8.07	N/R	2.73
PM ₁₀	15.0	8.07	2.47	2.73
PM _{2.5}	10.0	8.07	2.47	2.73
SO _x	40.0	30.92	0.02	N/A
NO _x	40.0	108.98	6.83	N/A
VOC	40.0	125.24	6.72	12.17
CO	100.0	42.85	3.86	N/A
HAPs	10.0/25.0	9.28	1.46	2.08

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

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.

APPLICABLE REQUIREMENTS

Elantas PDG, Inc. 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

- *Operating Permits*, 10 CSR 10-6.065
- *Start-Up, Shutdown, and Malfunction Conditions*, 10 CSR 10-6.050
- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
- *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

- 40 CFR Part 63 Subpart HHHHH – *National Emission Standards for Hazardous Air Pollutants: Miscellaneous Coating Manufacturing*

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*, it is recommended that this permit be granted with special conditions.

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated May 15, 2020, received May 18, 2020, designating Altana AG as the owner and operator of the installation.

APPENDIX A

Abbreviations and Acronyms

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