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ENVIRONMENT
& HEALTH

Air Quality Permitting Department
Arizona Department of Environmental Quality
1110 West Washington Street
Phoenix, AZ 85007

APPLICATION TO REVISE AIR QUALITY CONTROL PERMIT NO. 97526
LINDE GAS & EQUIPMENT, INC. (KINGMAN, AZ)

November 15, 2024

Ramboll Americas
Engineering Solutions, Inc.
2200 Powell Street
Suite 700
Emeryville, CA 94608
USA

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www.ramboll.com

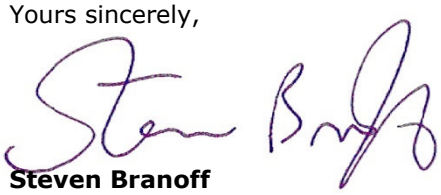
To Whom it May Concern:

Enclosed please find an application submitted for the modification of the Air Quality Control Permit issued for the Linde Gas & Equipment, Inc. ("Linde") facility located in Kingman, Arizona. This application is for the modification of Linde's permit to include a proposed air pollution control device to be installed in addition to an existing nitrogen dioxide (NO_2) transfill process system. It includes descriptions of the processes and control equipment and is presented as a significant permit revision.

Included with the application are two appendices in Attachment 2 that include confidential business information that is not to be made publicly available and thus a notice of confidentiality, and two versions of the application—one public and one confidential, have been accordingly provided.

We appreciate your assistance on this application. If you have any questions or comments, please contact me at (415) 796-1942 or contact Linde's Christian Ramirez at (928) 718-8245.

Yours sincerely,



Steven Branoff

Principal

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sbranoff@ramboll.com

Enclosures: Attachment 1 – Application Forms
Attachment 2 – Application Supplement
Attachment 3 – Emissions Calculations (Electronic File)

cc: Christian Ramirez, Linde Gas & Equipment, Inc.

ATTACHMENT 1
Application Forms

SECTION 3.1

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Air Quality Division

1110 West Washington • Phoenix, AZ 85007 • Phone: (602) 771-2338

STANDARD CLASS II PERMIT APPLICATION FORM

(As required by A.R.S. § 49-426, and Chapter 2, Article 3, Arizona Administrative Code)

1. Permit to be issued to (Business license name of organization that is to receive permit):
   Linde Gas & Equipment, Inc

2. Mailing Address: P.O. Box 6157
   City: Kingman State: AZ ZIP: 86401

3. Name (or names) of Responsible Official: Robert Sena
   Phone: (928)718-8254 Fax: (928)753-9707 Email: robert.sena@linde.com

4. Facility Manager/Contact Person and Title: Robert Sena/Plant Manager
   Phone: (928)718-8254 Fax: (928)753-9707 Email: robert.sena@linde.com

5. Facility Name: Linde Gas & Equipment, Inc. Kingman Facility
   Facility Location/Address (Current/Proposed): 3426 W Griffith Road
   City: Kingman County: Mojave ZIP: 86401
   Indian Reservation (if applicable, which one):
   Latitude/Longitude, Elevation: 35° 01' 40" N / 114° 08' 36" W, 730 m

6. General Nature of Business: Chemical Synthesis and Repackaging Facility

7. Type of Organization:
   ☑ Corporation ☐ Individual Owner ☐ Partnership ☐ Government Entity ☐ LLC
   ☐ Other

8. Permit Application Basis: ☐ New Source ☑ Revision ☐ Renewal of Existing Permit
   For renewal or modification, include existing permit number (and exp. date): #97526, exp. date 5/29/2028
   Date of Commencement of Construction or Modification: TBD
   Primary Standard Industrial Classification Code: 5169

9. I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by ADEQ as public record. I also attest that I am in compliance with the applicable requirements of the Permit and will continue to comply with such requirements and any future requirements that become effective during the life of the Permit. I will present a certification of compliance to ADEQ no less than annually and more frequently if specified by ADEQ. I further state that

I will assume responsibility for the construction, modification, or operation of the source in accordance with Arizona Administrative Code, Title 18, Chapter 2 and any permit issued thereof.

Signature of Responsible Official: _____

Printed Name of Signer/Official Title: Robert Sena / Plant Manager

Date: 11/20/2024 Telephone Number: (928) 718-8524

Section 3.5 - Equipment List

Type of Equipment	Maximum Rated Capacity [1]	Make	Model	Serial Number	Date of Manufacture	Equipment ID Number
NO2 Transfill Scrubber	4,888 gal	Purafil	EGS-FOC-1	1040630	2023	NTS-1
NO2 Transfill Scrubber Blower	5,000 scfm	Hartzell-FLOW	A41-1-243-FA-33FGFCS3	2321259-1-AA	2023	NTS-1

[1} For generator sets, enter the maximum rated capacity of the engine rather than the maximum rated capacity of the generator.

All relevant equipment utilized at the facility should be included in the equipment list. Please complete all fields.
The date of manufacture must be included in order to determine applicability of regulations.
Indicate the units (tons/hour, horsepower, etc.) when recording the maximum rated capacity.
Make additional copies of this form if necessary.
***Submit photographs of the faceplates for all engines listed above.**
***If an engine is certified, please also include a copy of the engine certification with the application.**
***For any newly added equipment, include a copy of the specification sheet.**
***These documents will be used to verify equipment information and determine applicable regulations.**

SECTION 3.6 - EMISSION SOURCE FORM

					USE THIS SECTION FOR MODIFICATIONS ONLY		
Emission Point		Regulated Air Pollutant Name	PTE		PTE AFTER MODIFICATION		CHANGE IN PTE
Number	Name		lbs/hr	tons/yr	lbs/hr	tons/yr	tons/yr
NTS-1	NO2 Transfill Scrubber	NOx	0	0	0.25	1.1	1.1

****Submit emission calculations spreadsheet with your application****

SECTION 5.0 -APPLICATION ADMINISTRATIVE COMPLETENESS CHECKLIST

	REQUIREMENT	MEETS REQUIREMENTS			COMMENT
		YES	NO	N/A	
1	Has the standard application form been completed?	X			
2	Has the responsible official signed the standard application form?	X			
3	Has a process description been provided?	X			
4	Are the facility's emissions documented with all appropriate supporting information?	X			
5	Is the facility subject to Minor NSR requirements? If the answer is "YES" , answer 6a, 6b and 6c as applicable. If the answer is "NO", skip to 7.		X		
6.a	If the facility chooses to implement RACT, is the RACT determination included for the affected pollutants for all affected emission units?			X	
6.b	If the facility chooses to demonstrate compliance with NAAQS by screen modeling, is the modeling analysis included?			X	
6.c	If refined modeling has been conducted, is a comprehensive modeling report along with all modeling files included?			X	
7	Does the application include an equipment list with the type, name, make, model, serial number, maximum rated capacity, and date of manufacture?	X			
8	Does the application include an identification and description of Pollution Controls? (if applicable)	X			
9	For any application component claimed as confidential, are the requirements of AR.S. 49-432 and A.A.C. R18-2-305 addressed?	X			
10	For any current non-compliance issue, is a compliance schedule attached?			X	
11	For minor permit revision that will make a modification upon submittal of application, has a suggested draft permit been attached?			X	

ATTACHMENT 2
Application Supplement

Air Permit Modification Application

Prepared for:
Linde Gas & Equipment, Inc.
Kingman, AZ

Prepared by:
Ramboll Americas Engineering Solutions, Inc.
San Francisco, CA

Date:
November 2024

Project Number:
1940105992

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Acronyms and Abbreviations

AAC	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
hr	hour
in. w.g.	inches of water gauge
lb	pound
lb-mol	pound mole
min	minute
N_2	nitrogen gas
NO_2	nitrogen dioxide
N_2O_4	dinitrogen tetroxide
NO_X	oxides of nitrogen
NSR	New Source Review
O&M	operations and maintenance
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
ppm	parts per million
PTE	potential to emit
scf	standard cubic feet
scfm	standard cubic feet per minute
SO_2	sulfur dioxide
VOC	volatile organic compound

1 Introduction

1.1 General Description

The Kingman, Arizona, Linde Gas & Equipment, Inc. facility (hereafter "Facility") manufactures arsine and phosphine and fills, processes, tests, and warehouses gaseous products used by the semiconductor industry and other industries. The general location of the Facility is identified in **Figure 1**.

1.2 Purpose of Permit Application

The Facility currently operates under Permit No. 97526 which expires on May 29, 2028. The purpose of this application is to modify Linde's permit to include a proposed air pollution control device to be installed as part of the Facility's existing nitrogen dioxide (NO_2) transfill process.

1.3 Organization of Permit Application

This application is organized as follows: In **Section 2**, the application identifies the process operations performed at the Facility and provides the required information corresponding to Item D in Section 3.2 of the ADEQ Standard Class II Permit Application (*dated September 7, 2022*).[1] In **Section 3**, the application provides a description of the processes involved in this permit modification application. In **Section 4**, the application makes a determination regarding minor New Source Review (NSR) applicability. In **Section 5**, the application includes a listing of all insignificant activities at the Facility. Finally, this application includes appendices containing a process flow diagram depicting the NO_2 transfill process (including the proposed scrubber), as well as technical specifications for the scrubber. Due to the nature of this information, a **Notice of Confidentiality** is being made to protect this information in those appendices. The process depicted in the diagram and the scrubber specifications must remain confidential as they contribute to Linde's competitive position relative to other companies in the commercial gases industry. Making this information public would be detrimental to Linde's business by allowing competitors to unfairly gain valuable information regarding Linde's technical practices.

[1] No alternate operating scenarios or exemptions are proposed. Thus, the application does not address Items C and F, respectively.

2 Process Descriptions

2.1 Nitrogen Dioxide Transfill

Process Description:

This process is primarily utilized for maintenance purposes and involves the management of products containing nitrogen dioxide (NO_2) and dinitrogen tetroxide (N_2O_4). Upon receipt and periodically thereafter, packages containing NO_2 are placed in an enclosure to inspect for potential leaks. Should the package pass the inspection without any leaks detected, the maintenance process is deemed complete. However, if a leak is discovered, then the operator connects the package to a set of manifolds and prepares to perform a transfill. During the transfill process, nitrogen gas (N_2) is used as a push gas to transfer the NO_2 and N_2O_4 from the original package to an empty one. Additional N_2 is used to purge the container and system of any residual NO_2 and N_2O_4. Any remaining gas that does not transfer to the empty package would be diverted to the proposed scrubber. A process flow diagram is included in **Appendix A**.

This inspection process is conducted whenever packages arrive and/or leave the facility. Additionally, any empty packages returned to the Facility are connected to the system to remove residual NO_2 and N_2O_4 contents from the containers. This residual gas would also be sent to the proposed scrubber. This process is expected to occur approximately 8 hours per day and 180 days per year.

The proposed scrubber has a maximum rated capacity of 4,888 gallons and will be equipped with a blower having a total exhaust capacity of 5,000 standard cubic feet per minute (scfm). Additionally, it is designed to accommodate 20,100 lbs of media. A drawing with the scrubber size and specifications, along with a brochure showing the specifications for the exhaust filter media is included in **Appendix B**.

Process Rates and Emission Estimates:

To estimate the potential hourly emissions of NO_2 from the scrubber, the proposed gas flow rate (made up of gas from the scrubber outlet and a stream of dilution air) of 5,000 scfm was multiplied by the scrubber exhaust guarantee (6.5 parts per million [ppm] of NO_2). This value was then divided by the standard molar volume of a gas (359 standard cubic feet per pound-mole of NO_2 [scf/lb-mol NO_2]) to determine the molar flow rate of NO_2. This quantity was then multiplied by the molar mass of NO_2 (46 pounds per pound-mole NO_2 [lb/lb-mol NO_2]) to convert it to a mass flow rate. Finally, the mass flow was converted from pounds per minute to pounds per hour. To estimate the annual emissions of NO_2 from the scrubber, it was assumed that the scrubber would operate at a maximum of 8,760 hours per year. The hourly emission rate was multiplied by these operation hours and days, then converted from pounds to tons using a factor of 2,000 pounds per ton.

Total Estimated Hourly NO_2 Emissions (Controlled with Scrubber)

- (5,000 scf/min) x (6.5 ppm NO_2) / 10^6 ppm / (359 scf/lb-mol NO_2) x (46 lb/lb-mol NO_2) * (60 min/hr) = 0.25 lb/hr NO_2

Total Estimated Annual NO_2 Emissions (Controlled with Scrubber)

- (0.25 lb/hr NO_2) x (8,760 hr/yr) / (2000 lb/ton) = 1.1 ton/year NO_2

3 Control Equipment Descriptions

3.1 Description of Control Equipment

This section contains a description of the proposed control equipment for the NO_2 transfill process. See process description in **Section 2** for details.

3.1.1 NO_2 Transfill Process Scrubber

This scrubber system is designed to control NO_2 and N_2O_4 emissions during the transfill process and during the final purge of the empty containers following the transfill process.

Equipment	Manufacturer	Description
Scrubber and vessel	Purafil	Fiberglass vessel with a capacity of 4,888 gallons, containing 20,100 lbs of Purafil SP Media.
Blower	Hartzell Air Movement	A blower with a capacity of 5,000 standard cubic feet per minute.

Proposed text changes to the Facility's current permit as well as proposed updates to the Facility's Operations and Maintenance (O&M) Plan are included in **Appendix C**.

4 Citation and Description of Applicable Requirements

4.1 Minor New Source Review Applicability Assessment

The ADEQ Standard Class II Permit Application (*dated September 7, 2022*) requires a minor new source review (NSR) applicability determination, whereby if a modified source has an increase in the potential to emit of a regulated minor NSR pollutant greater than or equal to the permitting exemption threshold, then that regulated minor NSR pollutant is subject to minor NSR requirements. Under the ADEQ Standard Class II Permit Application, a "regulated minor NSR pollutant" is any pollutant (or its precursors) for which a national ambient air quality standard has been promulgated. The following precursors are emitted at the Facility:

- VOCs and NOx as precursors to ozone
- NOx and sulfur dioxide (SO_2) as precursors to particulate matter less than 2.5 microns in diameter ($PM_{2.5}$)

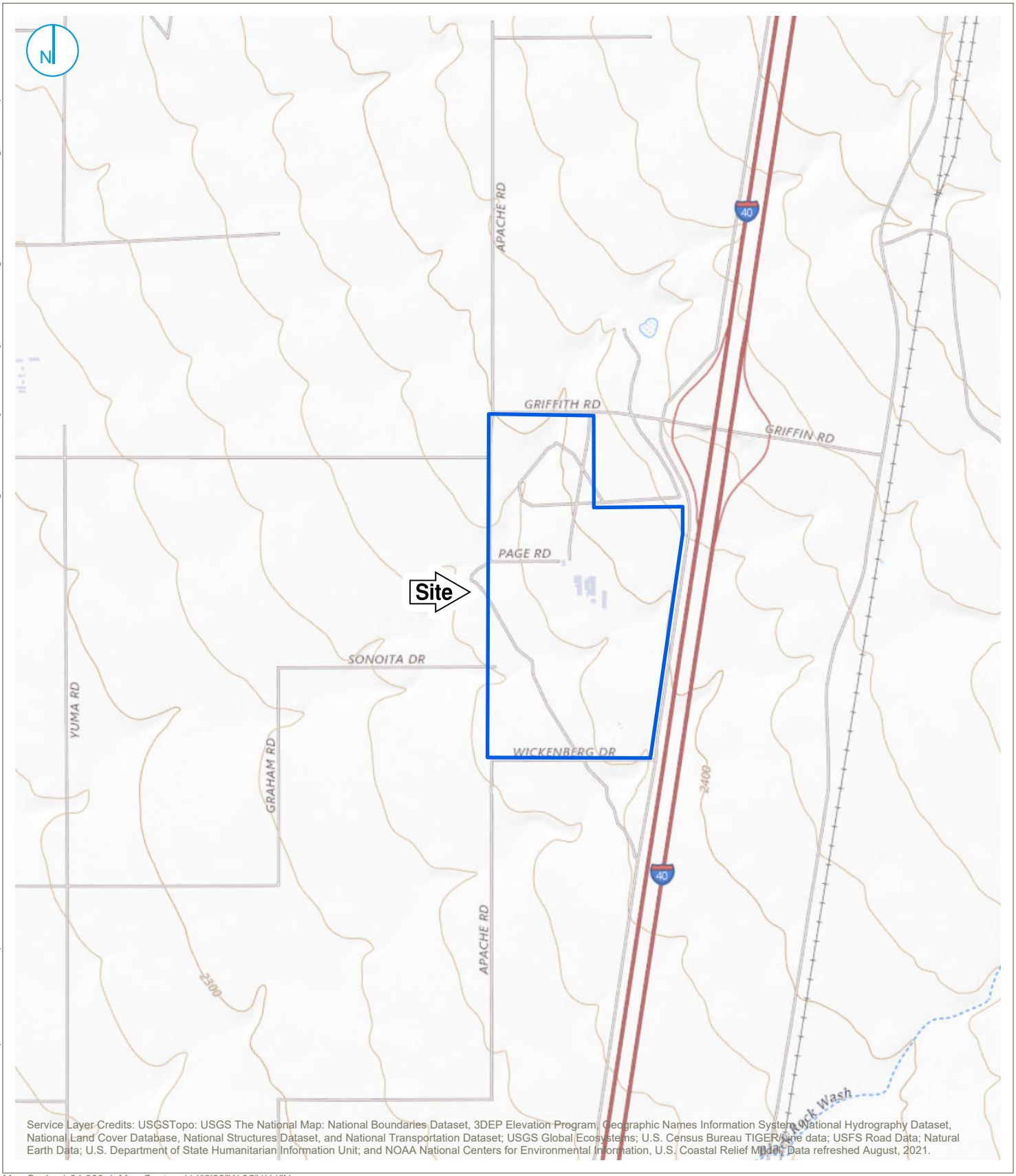
The permit modification proposed by this application would increase the potential to emit of one regulated minor NSR pollutant, NOx. The total increase in PTE of 0.18 tons per year is less than the permitting exemption threshold for NOx of 20 tons per year. Thus, minor NSR requirements will not apply.

5 Insignificant Activities

The following is a list of activities identified as “insignificant” as defined in the AAC R18-2-101(68) that take place at the Facility.

- Diesel fuel storage tanks associated with on-site emergency generators [AAC R18-2-101(68)(a)(i)]
- Internal combustion equipment for emergency replacement and engine-driven water pumps [AAC R18-2-101(68)(b)]
- Site maintenance including housekeeping activities [AAC R18-2-101(68)(d)(i)] and architectural painting and associated surface preparation [AAC R18-2-101(68)(d)(iv)]
- Laboratory operations [AAC R18-2-101(68)(e)(i)]
- General office activities, such a paper shredding, copying, and photographic activities [AAC R18-2-101(68)(f)(i)]
- Use of consumer products in the same manner as normal consumer use [AAC R18-2-101(68)(f)(ii)]

Figures



C:\Users\JDKing\Ramboll\Melody Kneale - Projects\Praxair\Kingman, AZ\Praxair - Kingman,AZ.aprx\1 - Site Location

PROJECT: 169000XXXX | DATED: 9/7/2021 | DESIGNER: JDKING

Map Scale: 1:24,000 | Map Center: 114°8'22"W 35°1'41"N

Facility Boundary

KEY MAP (not to scale)

0 1,000 2,000 Feet

SITE LOCATION

Linde Gas & Equipment, Inc.
3426 West Griffith Road
Kingman, Arizona

FIGURE 01

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.

A RAMBOLL COMPANY

RAMBOLL

Appendix A: Process Flow Diagram

Notice of Confidentiality: Contains Confidential Business Information - Not to be Made Available in Public Records

Appendix B-1: Scrubber Specifications

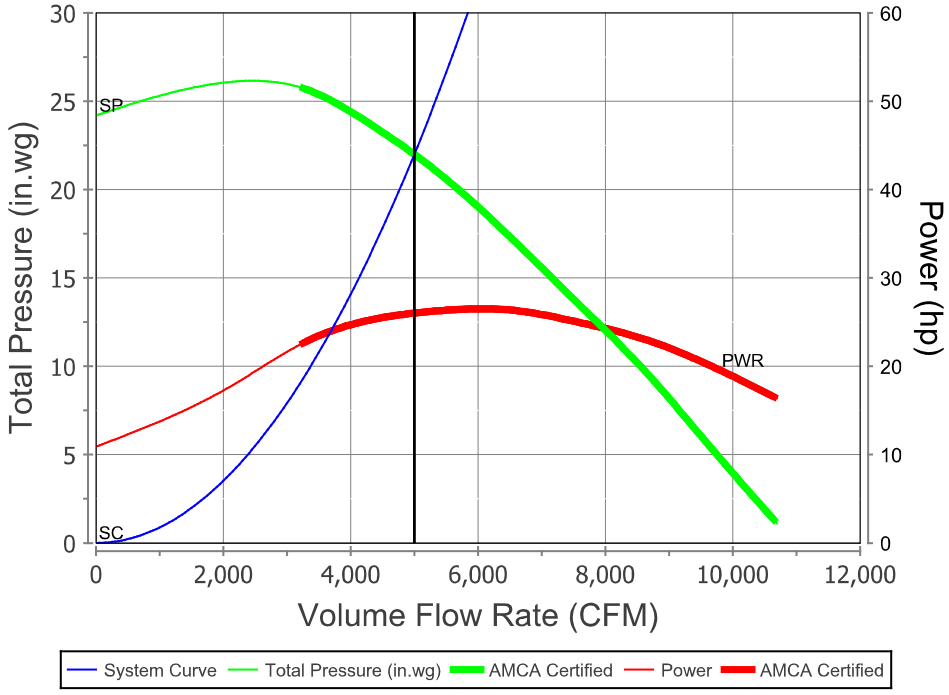
Hartzell Since 1875
AIR MOVEMENT

Quality • Value • Commitment

Fan Tag#:

Hartzell-FLOW™ v1.0.18 / February 2019

A41-1-243FA-33FGFCS3



Vol Flow Rate	5000
Pressure	22
Density (lbs/ft³)	0.075
Oper. Temp. (°F)	70
Fan RPM	3342
Max Safe RPM	3461
Operating Power	26.026
Standard Power	26.026
Static Efficiency	0.665
Outlet Velocity (fpm)	1984
Fan Efficiency Grade (FEG)	FEG71

Discharge Sound Power Levels referred to 10^-12 watts							
1	2	3	4	5	6	7	8
112	112	106	101	101	100	95	91

Radiated Sound Power Levels referred to 10^-12 watts							
1	2	3	4	5	6	7	8
108	105	96	90	89	87	82	78
Radiated Sound is not AMCA Licensed							

Hartzell Air Movement certifies that the model shown is licensed to bear the AMCA Seal.
The ratings shown are based on tests and procedures performed in accordance with AMCA publication 211 and AMCA publication 311 and comply with the requirements of the AMCA Certified Ratings Program.
Power rating BHP excludes transmission losses.
Performance certified is for Installation Type D: Ducted Inlet, Ducted Outlet.
AMCA Licensed for Sound and Air Performance.
Performance ratings do not include the effects of appurtenances (Accessories).
Sound ratings are based on sound level data obtained in accordance with AMCA Standard 300. The sound power level ratings shown are in decibels, referred to 10^-12 watts, calculated per AMCA Standard 301. Fan Outlet Sound Testing. Values shown are for outlet Lwo sound power levels for:
Installation Type D: Ducted Inlet, Ducted Outlet.
Ratings include the effects of duct end correction.

Discharge Sound Pressure = 95 dBA @ 5ft

Radiated Sound Pressure = 84 dBA @ 5ft

Discharge Sound Power = 107 LwA

Radiated Sound Power = 96 LwA

The A-weighted sound pressure level (dBA) is based on Hartzell Laboratory sound power tests, and is calculated in accordance with AMCA standard 303.

The FEG, dBA, LwA and radiated values are not AMCA International Licensed.

The calculation assumes a free field condition with a directivity factor for hemi-spherical radiation (Q=2).

The installed sound pressure levels are influenced by the installation and acoustic environment, and cannot be guaranteed. Use of this estimate level along for field acceptability test is not recommended.

Although the calculation can be done for any stated distance, the free field does not start until 20 to 50 ft from the equipment in most installations.

Contact Hartzell Air Movement for more information concerning dBA values.

BALDOR · RELIANCE

Product Information Packet

EM4110T

40HP,1775RPM,3PH,60HZ,324T,1254M,TEFC,F1

Part Detail

Revision:	Y	**Status:**	PRD/A	**Change #:**		**Proprietary:**	No
Type:	AC	**Elec. Spec:**	12WGY276	**CD Diagram:**	CD0180	**Mfg Plant:**	
Mech. Spec:	12H13	**Layout:**	12LYH013	**Poles:**	04	**Created Date:**	05-06-2010
Base:	RG	**Eff. Date:**	07-14-2021	**Leads:**	9#8		

Specs

Catalog Number:	EM4110T	**Heater Indicator:**	No Heater
Enclosure:	TEFC	**Insulation Class:**	F
Frame:	324T	**Inverter Code:**	Inverter Ready
Frame Material:	Iron	**KVA Code:**	H
Output @ Frequency:	40.000 HP @ 60 HZ	**Lifting Lugs:**	Standard Lifting Lugs
Synchronous Speed @ Frequency:	1800 RPM @ 60 HZ	**Locked Bearing Indicator:**	Locked Bearing
Voltage @ Frequency:	460.0 V @ 60 HZ	**Motor Lead Quantity/Wire Size:**	9 @ 8 AWG
	230.0 V @ 60 HZ	**Motor Lead Exit:**	Ko Box
XP Class and Group:	None	**Motor Lead Termination:**	Flying Leads
XP Division:	Not Applicable	**Motor Type:**	1254M
Agency Approvals:	UR	**Mounting Arrangement:**	F1
	CSA EEV	**Power Factor:**	82
	CSA	**Product Family:**	General Purpose
Auxillary Box:	No Auxillary Box	**Pulley End Bearing Type:**	Ball
Auxillary Box Lead Termination:	None	**Pulley Face Code:**	Standard
Base Indicator:	Rigid	**Pulley Shaft Indicator:**	Standard
Bearing Grease Type:	Polyrex EM (-20F +300F)	**Rodent Screen:**	None
Blower:	None	**Shaft Extension Location:**	Pulley End

Current @ Voltage:	102.000 A @ 208.0 V
	48.000 A @ 460.0 V
	96.000 A @ 230.0 V
Design Code:	A
Drip Cover:	No Drip Cover
Duty Rating:	CONT
Electrically Isolated Bearing:	Not Electrically Isolated
Feedback Device:	NO FEEDBACK
Front Face Code:	Standard
Front Shaft Indicator:	None

Shaft Ground Indicator:	No Shaft Grounding
Shaft Rotation:	Reversible
Shaft Slinger Indicator:	Shaft Slinger
Speed Code:	Single Speed
Motor Standards:	NEMA
Starting Method:	Direct on line
Thermal Device - Bearing:	None
Thermal Device - Winding:	None
Vibration Sensor Indicator:	No Vibration Sensor
Winding Thermal 1:	None
Winding Thermal 2:	None

Nameplate NP3443LUA

CAT.NO.	EM4110T			**CUST. P/N**				**ENCL**	TEFC
SPEC.	12H013Y276	**CC**	010A	**FRAME**	324T			**SER.NO.**	
HP	40			**CLASS**	F	**HZ**	60		
R.P.M.	1775			**PH.**	3	**DES.**	A		
VOLTS	230/460			**CODE**	H	**ODE BRG**	6311	**DE BRG**	6312
AMPS	96/48			**USABLE AT 208V**	102				
RATING	40C AMB-CONT			**NEMA NOM. EFF.**	94.1			**GREASE**	POLYREX EM
P.F.	82	**SER.F.**	1.15	**CT6-60H(10:1)VT3-60H(20:1**					
USABLE AT	50Hz 40HP 190/380V 114/57A			SF1.0					
VOLTS		**AMPS**		**MAX. SPACE HEATER TEMP.**					

Parts List

Part Number	Description	Quantity
SA194430	SA 12H013Y276	1.000 EA
RA182017	RA 12H013Y276	1.000 EA
09FN3001B03SP	EXTERNAL FAN, PLASTIC (COMES W/SCREW FRO	1.000 EA
10CB3001	CONDUIT BOX CAST W/2.500 LEAD HOLE	1.000 EA
09GS1000SP	GASKET-CONDUIT BOX, 1/16 THICK LEXIDE	1.000 EA
10XN3118K12	5/16-18 X .75 GRADE 5, ZINC PLATED	4.000 EA
HW1001A31	LOCKWASHER 5/16, ZINC PLT.591 OD, .319 I	4.000 EA
WD1000B25	GND LUG, BURNDY L125HP OR T&B L125HP-BB	1.000 EA
19XW3118G08	.31-18X.50,HEX WSHR HD,TAPTITE 2,GREEN	1.000 EA
12EP1107A05	FR ENDPLATE, MACH	1.000 EA
HA3400A13	STUD, 1/2-13 X 7" WELKER	4.000 EA
HW1001A50	LOCKWASHER 1/2, ZINC PLT,.879 OD, .509 I	4.000 EA
HW4600B41	V-RING SLINGER 2.125 X 2.880 X 0.280	1.000 EA
HW5100A13	W4627-047 WVY WSHER	1.000 EA
12EP1106A01	PU ENDPLATE, MACH	1.000 EA
10XN3118K40	5/16-18 X 2.25" HEX HD, GRADE 5	2.000 EA
HW1001A31	LOCKWASHER 5/16, ZINC PLT.591 OD, .319 I	2.000 EA
10XN3118K40	5/16-18 X 2.50" HEX HD, GRADE 5	4.000 EA
HW1001A31	LOCKWASHER 5/16, ZINC PLT.591 OD, .319 I	4.000 EA
10XN5013K28	1/2-13 X 1.75 HEX HEAD MACH SCREW,GRAD	4.000 EA
HW1001A50	LOCKWASHER 1/2, ZINC PLT,.879 OD, .509 I	4.000 EA
12FH1002SP	FAN COVER, CAST	1.000 EA
XY5013A12	NUT,1/2-13,HEX,STEEL,ZINCPLATED	4.000 EA
HW1001A50	LOCKWASHER 1/2, ZINC PLT,.879 OD, .509 I	4.000 EA

Parts List (continued)

Part Number	Description	Quantity
10CB3500SP	CONDUIT BOX LID, CAST	1.000 EA
10GS1000SP	GASKET, CONDUIT BOX LID	1.000 EA
51XW2520A12	.25-20 X .75, TAPTITE II, HEX WSHR SLTD	4.000 EA
HW2501H33	KEY, 1/2 SQ X 3.875	1.000 EA
LB1115N	LABEL,LIFTING DEVICE (ON ROLLS)	1.000 EA
MN416A01	TAG-INSTAL-MAINT no wire (1200/bx) 1/21	1.000 EA
HW4500A21	1618BALEMITE FITTING 825 UNIVERSAL	1.000 EA
HA4017A01	1/8 X 4 GREASE EXT (F/S)	1.000 EA
HW4500A17	317400 ALEMITE GREASE RELIEF	1.000 EA
HA4054	SHORT T-DRAIN FITTING, .125" N.P.T.	1.000 EA
HA4051A00	PLASTIC CAP FOR GREASE FITTING	1.000 EA
MJ1000A02	GREASE, MOBIL POLYREX EM - 124047	0.200 LB
HW4500A03	GREASE FITTING, .125 NPT 1610(ALEMITE) 8	1.000 EA
HW4500A17	317400 ALEMITE GREASE RELIEF	1.000 EA
HA4054	SHORT T-DRAIN FITTING, .125" N.P.T.	1.000 EA
HA4051A00	PLASTIC CAP FOR GREASE FITTING	1.000 EA
HW2500A25	WOODRUFF KEY USA #1008 #BLOW CARBON STEE	1.000 EA
51XB1214A20	12-14X1.25 HXWSSLD SERTYB	1.000 EA
MG1000Y03	MUNSELL 2.53Y 6.70/ 4.60, GLOSS 20,	0.080 GA
85XU0407S04	4X1/4 U DRIVE PIN STAINLESS	4.000 EA
LB1119N	WARNING LABEL	1.000 EA
LC0181	CONNECTION LABEL	1.000 EA
NP3443LUA	SS SUPER-E UL CSA-EEV PREM CC	1.000 EA
12PA1000	PACKAGING GROUP PRINT PK1024A07	1.000 EA

PE-0000013	ZRTG PE ASSEMBLY	1.000 EA
FE-0000022	ZRTG FE ASSEMBLY	1.000 EA

Accessories

Part Number	Description	Multiplier
12-1105	C FACE KIT	A8
12EP1501A03SP	D-FLANGE KIT	A8

AC Induction Motor Performance Data
Record # 31673
Typical performance - not guaranteed values

Winding: 12WGY276-R001 **Type:** 1254M **Enclosure:** TEFC

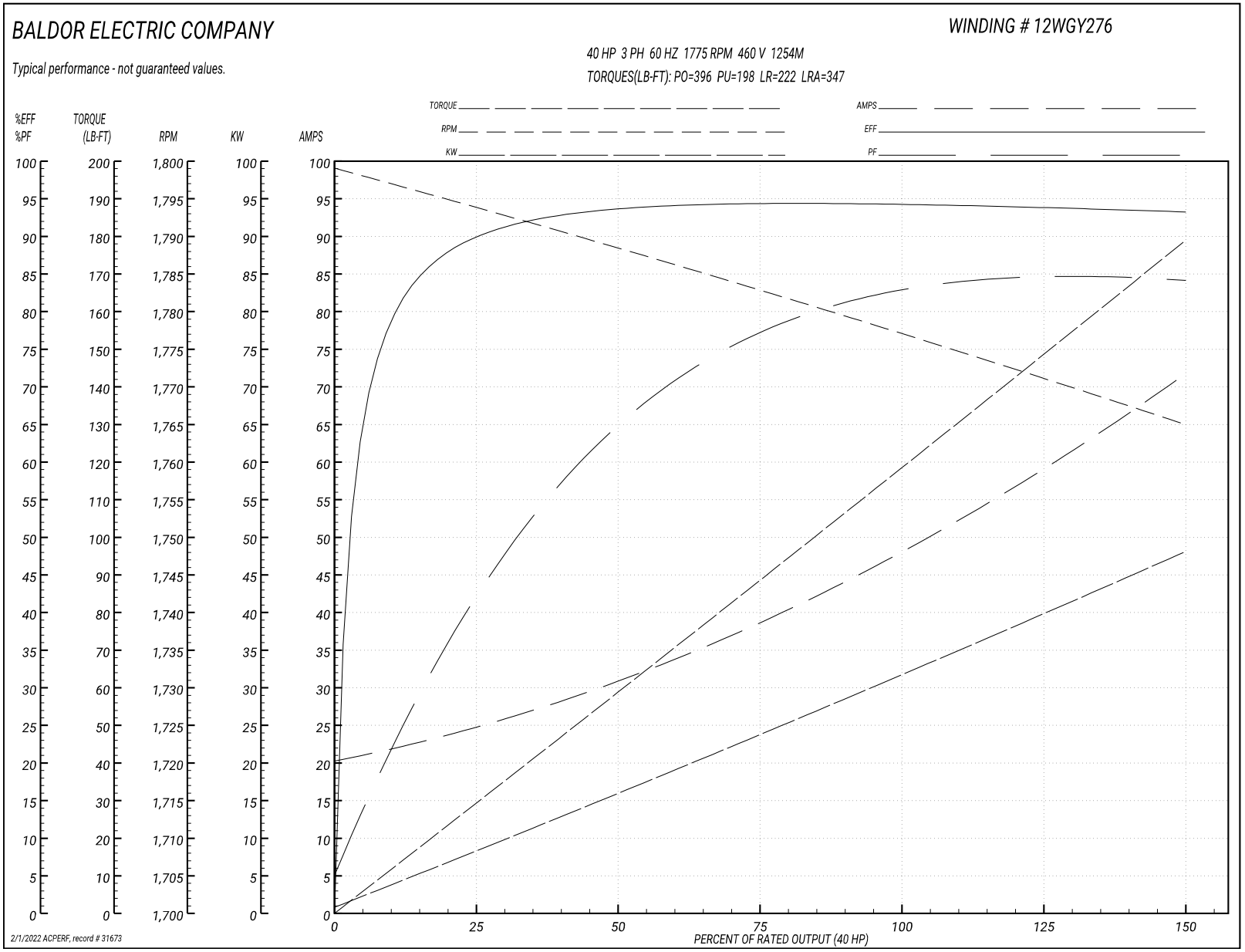
Nameplate Data		
Rated Output (HP)		40
Volts		230/460
Full Load Amps		96/48
R.P.M.		1775
Hz	60 **Phase**	3
NEMA Design Code	A **KVA Code**	H
Service Factor (S.F.)		1.15
NEMA Nom. Eff.	94.1 **Power Factor**	82
Rating - Duty		40C AMB-CONT
S.F. Amps		

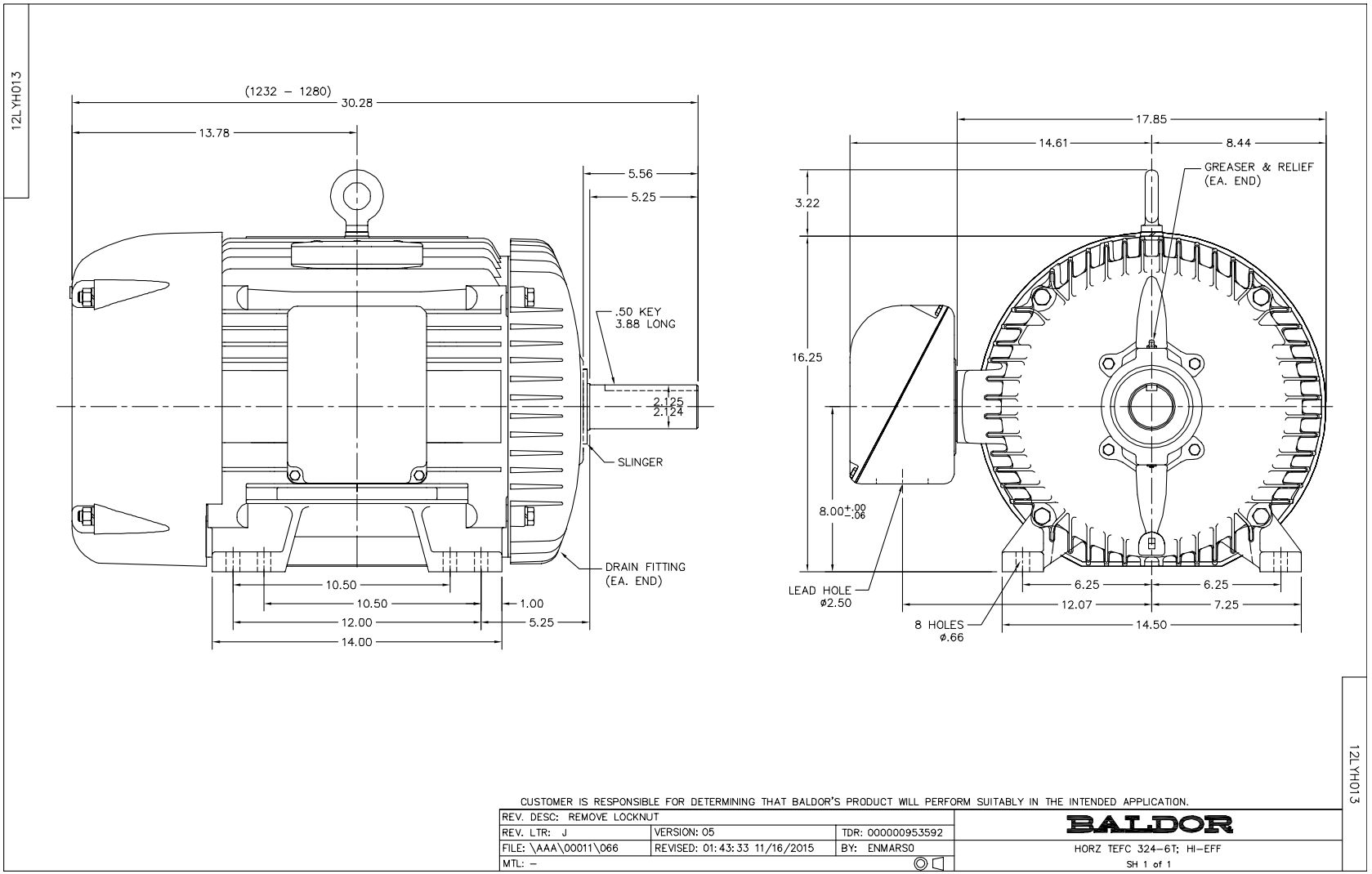
460 V, 60 Hz: High Voltage Connection	
Full Load Torque	119 LB-FT
Start Configuration	direct on line
Breakdown Torque	396 LB-FT
Pull-up Torque	198 LB-FT
Locked-rotor Torque	222 LB-FT
Starting Current	347 A
No-load Current	21.03 A
Line-line Res. @ 25ºC	0.139 Ω
Temp. Rise @ Rated Load	54°C
Temp. Rise @ S.F. Load	66°C
Locked-rotor Power Factor	27.1
Rotor inertia	7.19 lb-ft²

Load Characteristics 460 V, 60 Hz, 40 HP

% of Rated Load	25	50	75	100	125	150	S.F.
Power Factor	45	67	77	82	84	85	83
Efficiency	89.8	93.4	94.1	94.4	93.9	93.1	94.1
Speed	1794	1788	1783	1777	1771	1765	1773
Line amperes	23.93	30.4	39.12	48.68	59.71	71.22	55.3

Performance Graph at 460V, 60Hz, 40.0HP Typical performance - Not guaranteed values




12LYH013
(1232 – 1280)
30.28
13.78
5.56
5.25
.50 KEY
3.88 LONG
2.125
2.124
SLINGER
DRAIN FITTING
(EA. END)
10.50
10.50
1.00
12.00
5.25
14.00
17.85
14.61
8.44
GREASER & RELIEF
(EA. END)
3.22
16.25
8.00 +.00 -.06
LEAD HOLE
ø2.50
8 HOLES
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14.50
12LYH013
CUSTOMER IS RESPONSIBLE FOR DETERMINING THAT BALDOR'S PRODUCT WILL PERFORM SUITABLY IN THE INTENDED APPLICATION.
REV. DESC: REMOVE LOCKNUT
REV. LTR: J
VERSION: 05
TDR: 000000953592
FILE: \AAA\00011\066
REVISED: 01:43:33 11/16/2015
BY: ENMARSO
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BALDOR
HORZ TEFC 324–6T; HI–EFF
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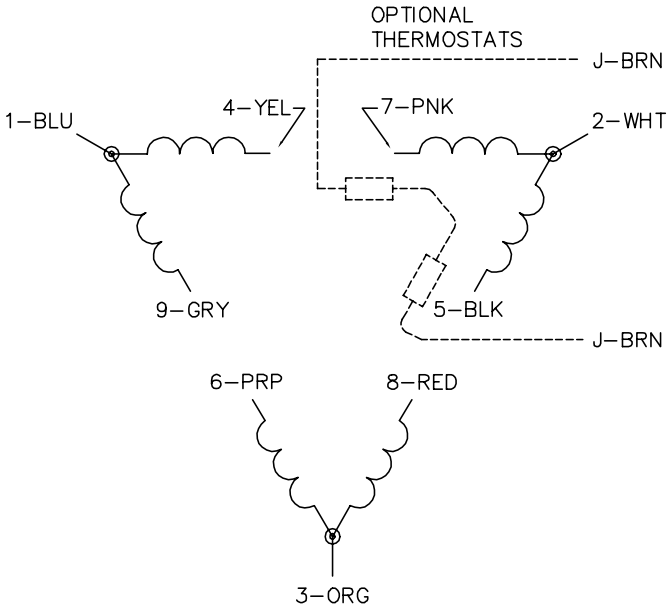

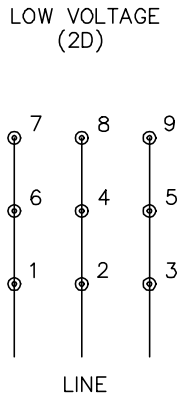

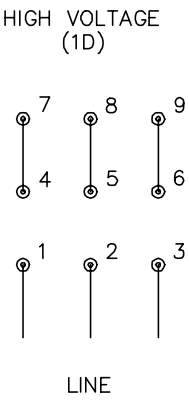

NOTES:

1. INTERCHANGE ANY TWO LINE LEADS TO REVERSE ROTATION.
2. OPTIONAL THERMOSTATS ARE PROVIDED WHEN SPECIFIED.
3. ACTUAL NUMBER OF INTERNAL PARALLEL CIRCUITS MAY BE A MULTIPLE OF THOSE SHOWN ABOVE.
4. LEAD COLORS ARE OPTIONAL. LEADS MUST ALWAYS BE NUMBERED AS SHOWN.

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REV. DESC: ADD CLASS CONN00000007		
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FILE: \AAA\00005\148	REVISED: 10:25:29 02/19/2019	BY: ENBRIR0
MTL: –		

BALDOR - RELIANCE®

3PH, DV, 9 LEADS, DELTA CONNECTION

SH 1 of 1

Marketing maintained PDF of MN416:

http://www.baldor.com/support/Literature/Load.ashx/MN416?ManNumber=MN416

Product Bulletin for
Purafil SP Media

Quality Control
Each lot of Purafil SP media is thoroughly tested prior to shipment according to the procedures described in Purafil's ISO 9001 Quality Systems Manual. This testing includes but is not limited to: bulk density, sodium permanganate content, moisture content, crush strength, and abrasion.

Media Life Analysis
Samples of Purafil SP media should be sent on a regular basis to the Purafil laboratories for testing to determine remaining media life. This provides for scheduled maintenance, avoids downtime, and assures ongoing protection for processes, products, and personnel.

Disposal
Purafil SP media should be disposed of according to local, state, and federal guidelines.

Purafil SP media is UL classified for flammability.

Purafil® SP Media

Safety Data Sheet

according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

SECTION 1: Identification of the substance or mixture and of the supplier

1.1. Product identifier

Trade name : Purafil® SP Media

Product code : PUR-001

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use : Dry granular medium for use in gas-phase air filtration

Restrictions of use : Only use for the intended purpose.

: The product is not intended to remove dangerous particulates or biological agents.

: The product is not intended to purify water.

1.3. Details of the supplier of the safety data sheet

Manufacturer : Purafil, Inc.
2654 Weaver Way
Doraville, Georgia 30340 USA
Tel: +1-770-662-8545, +1-800-222-6367 (toll-free within the USA & Canada)
Fax: +1-770-263-6922
www.purafil.com

1.4. Emergency telephone number

CHEMTREC : For Hazardous Materials [or Dangerous Goods] Incident
Spill, Leak, Fire, Exposure, or Accident
Call CHEMTREC Day or Night
Within USA and Canada: 1-800-424-9300 CCN723586
Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

Purafil, Inc. : +1-770-662-8545, +1-800-222-6367 (toll-free within the USA and Canada)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Skin Irrit. 2 H315

Eye Irrit. 2A H319

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :

GHS07

Signal word (GHS-US) : Warning

Hazard statements (GHS-US) : H315 - Causes skin irritation

: H319 - Causes serious eye irritation

Precautionary statements (GHS-US) : P264 - Wash hands thoroughly after handling

: P280 - Wear eye protection, protective clothing, protective gloves

: P302+P352 - If on skin: Wash with plenty of water

: P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

: P332+P313 - If skin irritation occurs: Get medical advice/attention

: P337+P313 - If eye irritation persists: get medical advice/attention

: P362 - Take off contaminated clothing and wash before reuse

2.3. Other hazards

May cause respiratory irritation.

Special danger of slipping by leaking/spilling product.

The components in this mixture do not meet the criteria for classification as PBT or vPvB.

2.4. Unknown acute toxicity (GHS-US)

No data available.

SECTION 3: Composition/information on ingredients

Name	Product identifier	%	GHS-US classification
Aluminum oxide (Al_2O_3)	(CAS No) 1344-28-1	45 - 60	Not classified
Sodium bicarbonate ($NaHCO_3$)	(CAS No) 144-55-8	10 - 20	Not classified
Sodium permanganate ($NaMnO_4$)	(CAS No) 10101-50-5	8 - 16	Ox. Sol. 2, H272 Acute Tox. 4 (Oral) H302; Skin Corr. 1B, H314

SECTION 4: First aid measures

4.1. Description of first aid measures

General information : First aider: Pay attention to self-protection!

After inhalation : Provide fresh air. In case of respiratory tract irritation, consult a physician.

After contact with skin : After contact with skin, wash immediately with water and soap. Change contaminated clothing. If the product contacts the skin with water, it may leave a stain of insoluble products on the skin. This stain will be washed away/rubbed off over a period of time (hours to days). If skin irritation or rash occurs: Get medical advice/attention.

After contact with eyes : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Consult an ophthalmologist.

After ingestion : If swallowed, rinse mouth with water (only if the person is conscious). Call a physician immediately.

4.2. Most important symptoms and effects, both acute and delayed

: Following inhalation: Coughing, asthmatic complaints. Repeated and prolonged contact may aggravate asthma and dermatitis.
: After skin contact: Irritation and reddening. Skin rashes.
: Following eye contact: Irritation and reddening. Causes serious eye irritation.
: After ingestion: May cause irritation of the gastrointestinal mucosa, abdominal pain, vomiting and diarrhea.

4.3. Indication of any immediate medical attention and special treatment needed

: Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Coordinate firefighting measures to the fire surroundings.

Unsuitable extinguishing media : None known.

5.2. Special hazards arising from the substance or mixture

: The material is not combustible. When involved in a fire, the sodium permanganate component may release corrosive fumes.
: Contains an oxidizing substance (sodium permanganate). The product is considered to have no oxidizing properties and it should be classified as "not oxidizing" and "Not Division 5.1" following UN Handbook. A test according to UN Handbook 34.4.1 and GHS was performed and confirms this statement.
: Explosive dust-air mixtures may form.

5.3. Advice for firefighters

: Wear a self-contained breathing apparatus and chemical protective clothing.

5.4. Additional information

: Suppress gases/vapors/mists with water spray jet.
: Contaminated firefighting water must be collected separately. Do not allow to enter into surface water or drains.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

: Provide adequate ventilation. Avoid generation of dust. Do not breathe dust. Avoid contact with skin, eyes and clothes. Wear personal protection equipment.

6.2. Environmental precautions

: Do not allow to enter into surface water or drains. If contacted by water, the sodium permanganate may leach out and the water may turn pink to purple in color. Sodium bisulfite will clarify the water, but will give off sulfur dioxide vapors and should only be used in well ventilated areas.

6.3. Methods and material for containment and cleaning up

: Pick up dry. Take up mechanically. Avoid generation of dust. Treat the recovered material as prescribed in the section on waste disposal.

6.4. Reference to other sections

: Protection measures in accordance with section 8.
: Disposal in accordance with section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling : Avoid generation of dust. Use air conveying (vacuum) for bulk removal. If manual handling is used for transfer (from vessel, slingbags, boxes, or pails), use mechanical ventilation or other measures to remove airborne dust.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels : Store only in original container. Keep container tightly closed in a cool, well-ventilated place.
: Protect from water and exposure to contaminated air (gaseous, particulate, and aerosol contaminated), otherwise the product may be rendered useless.

Further information on storage conditions : Recommended packaging materials:
- Corrugated double wall boxes with plastic liners.
- Injection molded polystyrene pails and lids including a neoprene seal.

7.3. Specific end use(s)

: Dry granular medium for use in gas-phase air filtration.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Aluminum oxide (1344-28-1)		
OSHA	OSHA PEL (TWA) (mg/m³)	15 mg/m³ (total dust) 5 mg/m³ (respirable fraction)

8.2. Exposure controls

Appropriate engineering controls : If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe dust.

Protective and hygiene measures : Remove contaminated, saturated clothing immediately. After work, wash hands and face.
: When using, do not eat or drink.

Eye and face protection : Tightly fitting safety glasses with side shields.

Hand protection : Protect skin by using skin protective cream.
: Wear suitable gloves.
Suitable material: NR (natural rubber (India rubber, caoutchouc), natural latex).
Thickness of glove material: >= 0.1 mm
Penetration time (maximum wearing period): >480 Min.
The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances.

Skin protection : Full cover clothing covering arms and legs.

Respiratory protection : In exceptional situations (e.g., accidental release of substances, occupational exposure limit is exceeded) the wearing of respiratory protection is required. Observe the wear time limits.
: Dust mask: NIOSH N95; identification color: white

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state (appearance)	:	Solid, roughly spherical pellets or granules, 1/16 - ¼" (1.6 – 6.4 mm) in diameter
Color	:	Pink to purple (violet)
Odor	:	No specific odor
Odor threshold	:	No data available
pH	:	ca. 6.3
Changes in the physical state		
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	No data available
Flash point	:	No data available
Evaporation rate	:	No data available
Flammability		
Solid	:	No data available
Upper/lower flammability	:	No data available
Explosive properties		
Lower explosion limit	:	No data available
Upper explosion limit	:	No data available
Ignition temperature	:	No data available
Auto-ignition temperature		
Solid	:	No data available
Decomposition temperature	:	No data available
Oxidizing properties	:	The product is considered to have no oxidizing properties and it should be classified as "not oxidizing" and "Not Division 5.1" following UN Handbook. A test according to UN Handbook 34.4.1 and GHS was performed and confirms this statement.
Vapor pressure	:	No data available
Vapor density	:	No data available
Relative density	:	ca. 50 lb/ft^3, 0.8000 g/cc, 800 kg/m^3
Water Solubility	:	Partially soluble
Solubility in other solvents	:	No data available
Soluble in	:	Concentrated acids, alkalis
Partition coefficient		
n-octanol/water	:	No data available
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available

9.2. Other information

: No data available.

SECTION 10: Stability and reactivity

10.1. Reactivity

: No dangerous reactivity under normal conditions.

10.2. Chemical stability

: The product is stable under regular conditions.

10.3. Possibility of hazardous reactions

: May occur in contact with: acids, strong oxidizing agents.

10.4. Conditions to avoid

: Liquid water, moisture. Heat sources, open flames and other ignition sources.

10.5. Incompatible materials

: Acids, strong oxidizing agents.

10.6. Hazardous decomposition products

: Sodium permanganate may liberate corrosive fumes if involved in a fire. Carbon monoxide and carbon dioxide may be generated during combustion of this material.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Aluminum oxide (1344-28-1)	
LD_{50} oral rat	> 5,000 mg/kg

Sodium permanganate (10101-50-5)	
ATE US (oral)	500.000 mg/kg bodyweight

Sodium bicarbonate (144-55-8)	
LD_{50} oral rat	4,220 mg/kg
ATE US (oral)	4,220.000 mg/kg bodyweight

Acute toxicity : Based on available data, the classification criteria are not met.

Irritation and corrosivity : Causes serious eye irritation.
: Causes skin irritation.
: The classification was made based on available test data.
: The test item is considered non-corrosive (Corrositex-Test following OECD Guideline 435). The in vitro experiment (OECD Guideline 439 - EPISKIN model) reveals, that the product is an irritant (GHS: Skin Irrit. 2). For skin irritant substances it can be assumed that they also cause eye irritation (GHS: Eye Irrit. 2A).

Sensitizing effects : Based on available data, the classification criteria are not met.

STOT-single exposure : Based on available data, the classification criteria are not met.

Severe effects after repeated or prolonged exposure : Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction : Based on available data, the classification criteria are not met.

Aspiration hazard : Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity

Acute Daphnia toxicity : EC_{50}: <1,0 mg/L (Exposure time 48h; Species: Daphnia magna)
OECD Guideline 202

Algae toxicity : ErC_{50}: 10-100 mg/L (Exposure time 72h; Species: Desmodesmus subspicatus)
OECD Guideline 201

12.2. Persistence and degradability

: No data available.

12.3. Bioaccumulative potential

: No data available.

12.4. Mobility in soil

: No data available.

12.5. Results of PBT and vPvB assessment

: The components in this mixture do not meet the criteria for classification as PBT or vPvB.

12.6. Other adverse effects

: No data available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Advice on disposal : Waste disposal should be in accordance with existing federal, state, and local environmental control regulations. Spent media that has removed toxic chemicals should be examined for specific hazards. Spilled product may be recovered for use if it has not come in contact with liquid, changed color, or been exposed to significant amounts of gaseous contaminants.

Disposal of residues/unused products : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to an approved waste disposal plant. Avoid release to the environment.

Disposal of packaging : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to an approved waste disposal plant. Avoid release to the environment.

SECTION 14: Transport information

14.1. Land transport (DOT)

UN number	: None on finished product.
UN proper shipping name	: Not regulated.
Transport hazard classes	: None on finished product.
Packing group	: None on finished product.
Marine pollutant	: No

14.2. Water transport (IMDG / IMO)

UN number	: None on finished product.
UN proper shipping name	: Not regulated.
Transport hazard classes	: None on finished product.
Packing group	: None on finished product.
Marine pollutant	: No

14.3. Air transport (IATA / ICAO)

UN number	: None on finished product.
UN proper shipping name	: Not regulated.
Transport hazard classes	: None on finished product.
Packing group	: None on finished product.
Marine pollutant	: No

14.4. Environmental hazards

Environmentally hazardous	: No

14.5. Special precautions for user

: No special precautions known.

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Aluminum oxide (1344-28-1)	
Listed on United States SARA Section 313	
SARA Section 313 - Emission Reporting	1.0 % (fibrous forms)

15.2. International regulations

CANADA

Aluminum oxide (1344-28-1)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria

Sodium permanganate (10101-50-5)	
Listed on the Canadian NDSL (Non-Domestic Substances List)	
WHMIS Classification	Class C - Oxidizing Material Class E - Corrosive Material

Sodium bicarbonate (144-55-8)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria

EU-Regulations

Aluminum oxide (1344-28-1)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Sodium permanganate (10101-50-5)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Sodium bicarbonate (144-55-8)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

15.2.2. National regulations

Aluminum oxide (1344-28-1)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Canadian IDL (Ingredient Disclosure List)

Sodium permanganate (10101-50-5)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed on INSQ (Mexican national Inventory of Chemical Substances)

Sodium bicarbonate (144-55-8)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer and/or reproductive harm.

SECTION 16: Other information

Abbreviations and acronyms

ACGIH: American Conference Of Governmental Industrial Hygienists
ATE: acute toxicity estimate
CAS: Chemical Abstracts Service
CLP: Classification, Labeling, Packaging
DOT: United States Department of Transportation
DNEL: Derived No Effect Level
EC_{50}: median effective concentration for immobilization
ErC_{50}: effective concentration of a substance that causes 50% reduction in growth rate
GHS: Globally Harmonized System of Classification and Labeling of Chemicals
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
IMDG: International Maritime Code for Dangerous Goods
IMO: International Maritime Organization
LC_{50}: Lethal concentration, 50% of test population
OECD: Organization for Economic Co-operation and Development
LD_{50}: Lethal dose, 50% of test population
PNEC: Predicted No Effect Concentration
STOT: Specific Target Organ Toxicity
TLV: Threshold Limiting Value
TWA-TLV: Threshold Limit Value for the Time Weighted Average 8 hour day (ACGIH Standard)

Full text of H-statements:

Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Eye Irrit. 2A	Serious eye damage/eye irritation, Category 2A
Ox. Sol. 2	Oxidizing Solids, Category 2
Skin Corr. 1B	Skin corrosion/irritation Category 1B
Skin Irrit. 2	Skin corrosion/irritation Category 2
H302	Harmful if swallowed
H315	Causes skin irritation
H319	Causes serious eye irritation

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

Appendix B-2: Scrubber Specifications

Notice of Confidentiality: Contains Confidential Business Information - Not to be Made Available in Public Records

Appendix C: Proposed Changes to Existing Permit

Proposed updates to ATTACHMENT "B": SPECIFIC CONDITIONS:

New Section:

C. Recordkeeping and Reporting Requirements

1. Deviations from the following Attachment "B" permit conditions shall be promptly reported in accordance with Condition XII.B.2 of Attachment "A":
[A.A.C. R18-2-306.A.5.b]

…

n. Condition II.D.2.l of Attachment "B".

New Section:

D. HAPs and Gaseous Emissions

…

2. Air Pollution Control Requirements

…

l. NO_2 Transfill Scrubber

The Permittee shall operate and maintain *the NO_2 Transfill Scrubber to capture and destroy emissions of nitrogen dioxide in a manner consistent with good air pollution control practices*.

[A.A.C. R18-2-306.A.2 and -331.A.3.d and e]

[Material permit conditions are indicated by underlines and italics]

Proposed updates to ATTACHMENT "C": OPERATIONS AND MAINTENANCE PLAN:

New Section:

XIII. TRANSFILL SCRUBBER

A. The following process parameters shall be monitored and recorded on a process log at the intervals listed below, on days when NO_2 or N_2O_4 is being processed or NO_2 or N_2O_4 is being vented to the control system:

[A.A.C. R18-2-306.A.3.c]

1. Differential pressure, in inches of water gauge, shall be recorded at least once every month;

B. The Permittee shall maintain records of all maintenance activities in a log that identifies the date, time and description of the maintenance activity, as well as a reason for the maintenance activity that was performed.

[A.A.C. R18-2-306.A.3.c]

C. The Permittee shall replace the media as needed or as recommended based on vendor analysis.

D. The Permittee shall calibrate the stack gas monitor's sensor every 6 months.

E. The Permittee shall test the stack gas monitor alarm's sensor every month.

F. Operating Parameter Setpoints

Operating parameters listed in Condition XIII.A above shall be kept within the values listed in Table C-8 below.

Table C-8: Operating Parameters

	Scrubber Differential Pressure (in. w.g.)
Max	24 in. w,g.
Min	20 in. w.g.

[A.A.C. R18-2-306.A.3.c]

G. Excursions

1. An excursion is defined as:

   a. Any NO_2 concentration of greater than 6.5 ppm;

   b. Any scrubber differential pressure greater than 24 psig or less than 20 psig.

2. Upon detection of an excursion, the Permittee shall restore operation of the equipment to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include:

[A.A.C. R18-2-306.A.3.c]

a. Minimizing the period of any startup, shutdown, or malfunction; and

b. Taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of the excursion. Such actions may include:

(1) Initial inspection and evaluation;

(2) Recording that operations returned to normal without operator action; or

(3) Any necessary follow-up actions to return operations to within the parameters listed in Table C-8 above.

3. The Permittee shall submit reports of all excursions along with the compliance certifications required by Section VII of Attachment "A." The reports shall include, at a minimum, the following:

[A.A.C. R18-2-306.A.3.c]

a. Summary information on the number, duration and cause (including unknown cause, if applicable) of the excursion, and the corrective actions taken; and

b. Summary information on the number, duration and cause (including unknown cause, if applicable) for monitoring downtime incidents (other than downtime associated with zero and span or other calibration checks, if applicable).

Proposed updates to ATTACHMENT "D": EQUIPMENT LIST:

EQUIPMENT TYPE	MAX. CAPACITY	MAKE	MODEL	INSTALLATION/ MFG. DATE	EQUIPMENT ID NUMBER	A.A.C. / NSPS / NESHAP
NO_2 Transfill Scrubber	4,888 gal 5,000 scfm blower	Purafil	EGS-FOC-1	TBD	NTS-1	A.A.C. R18-2-730

ATTACHMENT 3
Emissions Calculations (Electronic File)