



Air Quality Operating Permit Application Form 3.0: Pollutant Emissions Summary

INSTRUCTIONS:

Section 3.2: Determination of Operating Class

IMPORTANT: Please type or print with black ink. Do NOT use pencil. If you have questions, please contact the Nebraska Department of Environmental Quality (NDEQ), Air Quality Operating Permit Team, at (402) 471-2189 or the Air Quality Permitting Hotline at (877) 834-0474.

You must indicate the class of your source on Form 1.0, Section 1.2. If this is your source's initial operating permit and you aren't sure what classification applies to your source, answer the questions in Form 3.0, Section 3.2, and submit the completed form as part of your operating permit application package. If you are renewing an operating permit and wish to change the class or status of your source, you must also answer the questions and submit the form as part of your application package.

DEFINITIONS, ACRONYMS, AND ABBREVIATIONS:

You will find the following definitions helpful as you work through Form 3.0, Section 3.2.

Actual Emissions – the actual rate of emissions of an air pollutant from the source

Carbon dioxide equivalents (CO₂e) – an amount of greenhouse gases (GHGs) emitted. CO₂e are computed by the sum total of multiplying the mass amount of emissions, in tons per year (tpy), for each of the six greenhouse gases in the pollutant GHGs, by each of the gas's associated global warming potential (see definitions for Greenhouse Gases and Global Warming Potential).

Fugitive Emissions: Emissions that can not reasonably pass through a stack, vent, chimney, or other opening with a similar function

Greenhouse Gases (GHGs) – the air pollutant defined as the aggregate group of six pollutant greenhouse gases, which are carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Greenhouse gases are regulated at a stationary source only when GHGs exceeds 100 tpy on a mass basis and CO₂e exceeds 100,000 tpy.

Greenhouse Warming Potential (GWP) – the ratio of the time-integrated radiative forcing from the instantaneous release of one kilogram of a trace substance relative to that of one kilogram- of a reference gas, i.e., CO₂. The pollutant greenhouse gases (GHGs) is adjusted to calculate CO₂ equivalence using GWPs, which are listed in Table 1 below or can be found in 40 CFR 98, Subpart A, Table A-1, as published at 74 Federal Register 56395 on October 30, 2009.

HAP – Hazardous Air Pollutant

Legal Name – the source name registered with the Nebraska Secretary of State's Office.

Potential Emissions or Potential to Emit (PTE) – maximum capacity of a source to emit a pollutant based on its physical and operational design. Any federally enforceable physical or operational limitation on the capacity of the source to emit one or more pollutants, such as air pollution control equipment, restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, is considered part of the source design.

Source – the manufacturing plant, processing operation, power plant, or other source of air pollutant emissions that is physically located in Nebraska. For purposes of the application and permitting process, the source is the collection of all air pollutant emission points and/or units, including control equipment, located at the source of air pollutant emissions.

ITEMS THAT MUST BE CONSIDERED WHEN DETERMINING THE CLASS OF YOUR SOURCE:

Your first step in determining the class of your source is calculation of potential and actual emissions from your source, that is from all of its emission points. Fugitive emissions are included in the calculation of potential and actual emissions if your source belongs to one or more of the source categories listed in Title



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129, Chapter 2, Section 002, or any other stationary source category that is being regulated by a standard promulgated under Section 111 or 112 of the Federal Clean Air Act as of August 7, 1980.

You may choose to take a federally enforceable permit limitation so that air pollutant emissions from your source are less than those of a major source (as defined in Title 129, Chapter 2). For example, accepting a limit on emissions of one or more pollutants, setting a limit on hours of source operation, limiting annual production, or agreeing to install and operate control equipment can be federally enforceable permit limitations. These limitations must be identified in the operating permit application and included in your emissions calculations.

You have the option of applying for a Class I operating permit for your source even if the actual air emissions are less than the Class I thresholds listed below. A Class I operating permit gives a source increased operational/production flexibility because the source is not limited by the Class I thresholds. However, if you opt for a Class I operating permit your source must pay annual emission fees even if the actual emissions do not exceed the Class I thresholds.

Class I thresholds:

- Five (5) tons/year of lead
- Ten (10) tons/year of any single hazardous air pollutant (other than lead)
- Twenty-Five (25) tons/year of any combination of HAPs
- One hundred (100) tons/year on a mass basis of greenhouse gases (GHGs) and 100,000 tons/year of carbon dioxide equivalents (CO₂e)
- One-hundred (100) tons/year of any other regulated air pollutant

IMPORTANT POINTS CONCERNING GHGs AND CLASSIFICATIONS:

At the present time, sources only have two permitting choices when their potential emissions equal, or exceed, the Class I thresholds for GHGs. Because the NDEQ did not establish a state operating permit program for GHGs, there is no GHGs criterion below which they can be considered a Low Emitter. With that, sources with potential emissions that exceed the criteria for GHGs are required to obtain a Class I permit, however, they have the option to apply for, and receive, a synthetic minor Class II permit.



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Table 1 — Global Warming Potentials

[100-Year Time Horizon]

Name	CAS No.	Chemical formula	Global warming potential (100 yr.)
Carbon dioxide	124-38-9	CO ₂	1
Methane	74-82-8	CH ₄	21
Nitrous oxide	10024-97-2	N ₂ O	310
HFC-23	75-46-7	CHF ₃	11,700
HFC-32	75-10-5	CH ₂ F ₂	650
HFC-41	593-53-3	CH ₃ F	150
HFC-125	354-33-6	C ₂ HF ₅	2,800
HFC-134	359-35-3	C ₂ H ₂ F ₄	1,000
HFC-134a	811-97-2	CH ₂ FCF ₃	1,300
HFC-143	430-66-0	C ₂ H ₃ F ₃	300
HFC-143a	420-46-2	C ₂ H ₃ F ₃	3,800
HFC-152	624-72-6	CH ₂ FCH ₂ F	53
HFC-152a	75-37-6	CH ₃ CHF ₂	140
HFC-161	353-36-6	CH ₃ CH ₂ F	12
HFC-227ea	431-89-0	C ₃ HF ₇	2,900
HFC-236cb	677-56-5	CH ₂ FCF ₂ CF ₃	1,340
HFC-236ea	431-63-0	CHF ₂ CHFCF ₃	1,370
HFC-236fa	690-39-1	C ₃ H ₂ F ₆	6,300
HFC-245ca	679-86-7	C ₃ H ₃ F ₅	560
HFC-245fa	460-73-1	CHF ₂ CH ₂ CF ₃	1,030



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Name	CAS No.	Chemical formula	Global warming potential (100 yr.)
HFC-365mfc	406-58-6	CH3CF2CH2CF3	794
HFC-43-10mee	138495-42-8	CF3CFHCFHCF2CF3	1,300
Sulfur hexafluoride	2551-62-4	SF6	23,900
Trifluoromethyl sulphur pentafluoride	373-80-8	SF5CF3	17,700
Nitrogen trifluoride	7783-54-2	NF3	17,200
PFC-14 (Perfluoromethane)	75-73-0	CF4	6,500
PFC-116 (Perfluoroethane)	76-16-4	C2F6	9,200
PFC-218 (Perfluoropropane)	76-19-7	C3F8	7,000
Perfluorocyclopropane	931-91-9	C-C3F6	17,340
PFC-3-1-10 (Perfluorobutane)	355-25-9	C4F10	7,000
Perfluorocyclobutane	115-25-3	C-C4F8	8,700
PFC-4-1-12 (Perfluoropentane)	678-26-2	C5F12	7,500
PFC-5-1-14 (Perfluorohexane)	355-42-0	C6F14	7,400
PFC-9-1-18	306-94-5	C10F18	7,500
HCFE-235da2 (Isoflurane)	26675-46-7	CHF2OCHCICF3	350
HFE-43-10pccc (H-Galden 1040x)	E1730133	CHF2OCF2OC2F4OCHF2	1,870
HFE-125	3822-68-2	CHF2OCF3	14,900
HFE-134	1691-17-4	CHF2OCHF2	6,320
HFE-143a	421-14-7	CH3OCF3	756
HFE-227ea	2356-62-9	CF3CHFOCF3	1,540
HFE-236ca12 (HG-10)	78522-47-1	CHF2OCF2OCHF2	2,800
HFE-236ea2 (Desflurane)	57041-67-5	CHF2OCHF3	989



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Name	CAS No.	Chemical formula	Global warming potential (100 yr.)
HFE-236fa	20193-67-3	CF ₃ CH ₂ OCF ₃	487
HFE-245cb2	22410-44-2	CH ₃ OCF ₂ CF ₃	708
HFE-245fa1	84011-15-4	CHF ₂ CH ₂ OCF ₃	286
HFE-245fa2	1885-48-9	CHF ₂ OCH ₂ CF ₃	659
HFE-254cb2	425-88-7	CH ₃ OCF ₂ CHF ₂	359
HFE-263fb2	460-43-5	CF ₃ CH ₂ OCH ₃	11
HFE-329mcc2	67490-36-2	CF ₃ CF ₂ OCF ₂ CHF ₂	919
HFE-338mcf2	156053-88-2	CF ₃ CF ₂ OCH ₂ CF ₃	552
HFE-338pcc13 (HG-01)	188690-78-0	CHF ₂ OCF ₂ CF ₂ OCHF ₂	1,500
HFE-347mcc3	28523-86-6	CH ₃ OCF ₂ CF ₂ CF ₃	575
HFE-347mcf2	E1730135	CF ₃ CF ₂ OCH ₂ CHF ₂	374
HFE-347pcf2	406-78-0	CHF ₂ CF ₂ OCH ₂ CF ₃	580
HFE-356mec3	382-34-3	CH ₃ OCF ₂ CHF ₂ CF ₃	101
HFE-356pcc3	160620-20-2	CH ₃ OCF ₂ CF ₂ CHF ₂	110
HFE-356pcf2	E1730137	CHF ₂ CH ₂ OCF ₂ CHF ₂	265
HFE-356pcf3	35042-99-0	CHF ₂ OCH ₂ CF ₂ CHF ₂	502
HFE-365mcf3	378-16-5	CF ₃ CF ₂ CH ₂ OCH ₃	11
HFE-374pc2	512-51-6	CH ₃ CH ₂ OCF ₂ CHF ₂	557
HFE-449sl (HFE-7100) Chemical blend	163702-07-6 163702-08-7	C ₄ F ₉ OCH ₃ (CF ₃) ₂ CF ₂ OCH ₃	297
HFE-569sf2 (HFE-7200) Chemical blend	163702-05-4 163702-06-5	C ₄ F ₉ OC ₂ H ₅ (CF ₃) ₂ CF ₂ OC ₂ H ₅	59
Sevoflurane	28523-86-6	CH ₂ FOCH(CF ₃) ₂	345



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Name	CAS No.	Chemical formula	Global warming potential (100 yr.)
HFE-356mm1	13171-18-1	(CF ₃) ₂ CHOCH ₃	27
HFE-338mmz1	26103-08-2	CHF ₂ OCH(CF ₃) ₂	380
(Octafluorotetramethylene)hydroxymethyl group	NA	X-(CF ₂) ₄ CH(OH)-X	73
HFE-347mmy1	22052-84-2	CH ₃ OCF(CF ₃) ₂	343
Bis(trifluoromethyl)-methanol	920-66-1	(CF ₃) ₂ CHOH	195
2,2,3,3,3-pentafluoropropanol	422-05-9	CF ₃ CF ₂ CH ₂ OH	42
PFPME	NA	CF ₃ OCF(CF ₃)CF ₂ OCF ₂ OCF ₃	10,300