

Exemption Concurrence Statement of Basis

Final

**Automotive Coating Facilities
Any City, Idaho**

**July 19, 2010
Updated October 30, 2012**

The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01. et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

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ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AQCR	Air Quality Control Region
Btu	British thermal units
CAS No.	Chemical Abstracts Service registry number
CE	Control Efficiency
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
gal/day	gallons per calendar day
gal/hr	gallons per hour
gal/yr	gallons per consecutive 12 calendar month period
gr	grain (1 lb = 7,000 grains)
HAP	hazardous air pollutants
hr/yr	hours per year
HVLP	high volume, low pressure (applies to paint guns)
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/gal	pounds per gallon
lb/hr	pounds per hour
LPG	Liquefied Petroleum Gas
MMBtu	million British thermal units
MSDS	Material Safety Data Sheet
NAICS	North American Industry Classification System
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NSPS	New Source Performance Standards
PC	permit condition
PM ₁₀	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	parts per million
PTC	permit to construct
PTE	potential to emit
Rules	Rules for the Control of Air Pollution in Idaho
scf	standard cubic feet
SIC	Standard Industrial Classification
SM80	synthetic minor facility with emissions greater than or equal to 80% of a major source threshold
SO ₂	sulfur dioxide
SO _x	sulfur oxides
T/yr	tons per consecutive 12-calendar month period
T2	Tier II operating permit
TAP	toxic air pollutants
TE	Transfer Efficiency
UTM	Universal Transverse Mercator
VOC	volatile organic compounds

FACILITY INFORMATION

Description

This exemption evaluation is for any auto body repair and refinishing facility located in Idaho that has certified to the following:

- The maximum capacity for applying all coating materials, without the effect of any physical or operational limitations, for the operation is 1.25 gallons per day or less (based upon a 24 hour day);
- That HVLP (high volume-low pressure) paint guns are used for all application of coatings at the facility; and
- That no coating materials containing silicon dioxide (CAS #60676-86-0) or kaolin (CAS #1332-58-7) will ever be used at the facility.
- That the maximum heat input for a natural gas or LPG-fired paint booth heater is 3.30 MMBtu/hr.

The facility may be using a paint booth with glass fiber filtration media for control of particulate emissions. However, the PM₁₀ control efficiency of the booth filtration was not considered in the emissions calculations used to obtain the PTC exemption. The process does include the application of coatings via a HVLP gun. This is because the transfer efficiency of the HVLP gun was considered in the emissions calculations used to grant the PTC exemption.

Permitting History

This is for an existing or a proposed new facility that does not have an operating permit and is requesting a PTC exemption concurrence from DEQ. Therefore, there is no permitting history for this facility.

Application Scope

This facility has requested a PTC exemption concurrence.

TECHNICAL ANALYSIS

Emissions Units and Control Devices

Table 1 EMISSIONS UNIT AND CONTROL DEVICE INFORMATION

ID No.	Source Descriptions	Control Equipment Descriptions	Emissions Discharge Point ID No. and/or Description
Automotive Coating Operation	Paint spray booth(s) Paint spray booth heater	HVLP Coating spray gun(s)	PAINT BOOTH EXHAUST STACK

Emissions Inventories

An emission inventory was developed for the automotive coating operations (see Appendix A) associated with this proposed exemption request. Emissions estimates of criteria pollutants were based on worst-case VOC, PM₁₀, and TAPs content for coatings as taken from the Automotive Coatings EI Spreadsheet. Emissions estimates from this coating operation on based upon the Applicant stating that the maximum capacity for applying coatings, without the effect of any physical or operational limitations, is 1.25 gallons per day. In addition, annual emissions are based upon a worst-case assumptions of operation of 365 days per year, no paint booth filters, and all VOC from the coatings becoming airborne, and use of an HVLP paint gun (per the Applicant). Also, the Applicant has stated that no coating materials containing silicon dioxide (CAS 60676-86-0) or kaolin (CAS 1332-58-7) will ever be used at the facility.

Uncontrolled Emissions and Post Project Potential to Emit:

The following table presents the post project uncontrolled emissions as well as the post project potential to emit for criteria pollutants as calculated by DEQ staff using worst-case assumptions. See Appendix A for a detailed presentation of the calculations of these emissions for the emissions unit.

Table 2 POST PROJECT POTENTIAL TO EMIT AND UNCONTROLLED EMISSIONS FOR CRITERIA POLLUTANTS

Emissions Unit	PM ₁₀		SO ₂		NO _x		CO		VOC		Lead	
	lb/hr ^a	T/yr ^b	lb/hr	T/yr								
Point Sources												
Automotive Coating Operation	0.31	1.34	0.00	0.00	0.00	0.00	0.00	0.00	0.87	3.82	0	0
Paint Booth Heater	0.0287	0.126	0.0541	0.237	0.528	2.313	0.304	1.330	0.040	0.173	0.0000020	0.0000088
Post Project Totals	0.34	1.47	0.05	0.24	0.53	2.31	0.30	1.33	0.91	3.99	0.00	0.00

- a) Controlled average emission rate in pounds per hour is a daily average, based on the proposed daily operating schedule and daily limits.
- b) Controlled average emission rate in tons per year is an annual average, based on the proposed annual operating schedule and annual limits.
- c) The post project PTE is the estimated worst-case emissions from either the combustion of natural gas or LPG (DEQ assumption for worst-case emissions).

As demonstrated in the Table above, this facility has an uncontrolled potential to emit for all criteria pollutants emissions less than the Tier I Major Source threshold of 100 T/yr and a controlled potential to emit for all criteria pollutants emissions less than the Tier I operating permit Major Source threshold of 100 T/yr. Therefore, this facility is designated as a minor facility.

Ambient Air Quality Impact Analyses

An ambient air impact analysis is not required for this project because this project is for a permit exempt operation and is not required by IDAPA 58.01.01.223, Exemption Criteria and Reporting Requirements for Toxic Air Pollutant Emissions. This is because maximum TAPs emissions from this source are less than the screening emissions levels identified in IDAPA 58.01.01.585 and 586. In addition, an ambient air quality impact analysis is not required for criteria pollutants for a PTC exemption determination.

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

This exemption concurrence applies to any automotive coating facility located in the State of Idaho. In addition, facility-wide emissions of criteria pollutants are less than the emissions levels that constitute a below regulatory concern determination. Therefore, whether the facility is located in an area classified as in attainment, unclassifiable, or non-attainment is irrelevant in granting a PTC exemption concurrence.

Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201 Permit to Construct Required

The facility’s proposed project meets the permit to construct exemption criteria contained in Sections 220 through 223 of the Rules (see the next Section, General Exemption Criteria for Permit to Construct Exemptions). Therefore, a PTC is not required.

General Exemption Criteria for Permit to Construct Exemptions (IDAPA 58.01.01.220)

IDAPA 58.01.01.220

General Exemption Criteria for Permit to Construct Exemptions

The PTC rules under IDAPA 58.01.01.201 require that “No owner or operator may commence construction or modification of any stationary source, facility, major facility, or major modification without first obtaining a permit to construct from the Department which satisfies the requirements of Sections 200 through 228 unless the source is exempted in any of Sections 220 through 223.” Therefore, it will be determined if the installation of this automotive coating operation is exempt from obtaining a PTC per Sections 220 through 223.

In accordance with IDAPA 58.01.01.220.01.a, the maximum capacity of the source to emit an air pollutant under its physical and operational design without consideration of limitations on emissions such as air pollution control equipment, restrictions on hours of operation and restrictions on the type and amount of material combusted, stored, or processed shall not equal or exceed 100 tons/yr for all regulated air pollutants. As presented previously in Table 2, the proposed project results in uncontrolled potential emissions of less than 100 tons/yr for each regulated air pollutant. Therefore, the project meets the criteria set forth in Section 220 and may be exempt from PTC requirements. In addition, the criteria set forth in Section 221 and 223 must be met to be exempt from PTC requirements.

IDAPA 58.01.01.221

Category I Exemption Criteria

In accordance with IDAPA 58.01.01.221.01, the maximum capacity of a source to emit an air pollutant under its physical and operational design considering limitations on emissions such as air pollution control equipment, restrictions on hours of operation and restrictions on the type and amount of material combusted, stored or processed shall be less than ten percent (10%) of the significant emission rates set out in the definition of significant at Section 006. The following table compares the post-project facility-wide annual criteria pollutant emissions to 10% of the significance threshold listed in IDAPA 58.01.01.006.104 in order to determine if the project may qualify for a Category I exemption.

Table 3 PTE FOR CRITERIA POLLUTANTS COMPARED TO THE SIGNIFICANCE THRESHOLDS

Pollutant	PTE (T/yr)	10% of the Significance Threshold (T/yr)	Exceeds 10% of the Significance Threshold?
PM ₁₀	1.47	1.5	No
SO ₂	0.24	4.0	No
NO _x	2.31	4.0	No
CO	1.33	10.0	No
VOC	3.99	4.0	No

As presented in the Table above each criteria pollutant emissions rate for the proposed project is less than 10% of the respective significant emission rate listed in IDAPA 58.01.01.006.104 and are therefore below regulatory concern. Therefore, the installation of automotive coating operation meets the requirements of 221.01 and may qualify for a Category I exemption.

In accordance with IDAPA 58.01.01.221.02, the source shall have potential emissions that are less than one percent (1%) of the applicable radionuclides standard in 40 CFR Part 61, Subpart H. The proposed project is for an automotive coating operation and does not result in emissions of radionuclides.

In accordance with IDAPA 58.01.01.221.03, the source shall comply with Section 223, Exemption Criteria and Reporting Requirements for Toxic Air Pollutant Emissions (TAPs).

In accordance with IDAPA 58.01.01.221.04, the source shall have potential emissions that are less than twenty-five (25) pounds per year of mercury. Fugitive emissions shall not be included in the calculation of potential mercury emissions. No paints analyzed by DEQ staff were found to contain mercury (see Automotive Coatings EI Exemption spreadsheet).

IDAPA 58.01.01.223

Exemption Criteria and Reporting Requirements for Toxic Air Pollutant Emissions (TAPs)

In accordance with IDAPA 58.01.01.223.02, the source qualifies for a Level I Exemption if the uncontrolled emission rate (refer to Section 210) for all toxic air pollutants shall be less than or equal to all applicable screening emission levels listed in Sections 585 and 586; or the uncontrolled ambient concentration (refer to Section 210) for all toxic air pollutants at the point of compliance shall be less than or equal to all applicable acceptable ambient concentrations listed in Sections 585 and 586.

Section 210 defines that the uncontrolled emissions rate of a toxic air pollutant from a source or modification is calculated using the maximum capacity of the source or modification under its physical and operational design without the effect of any physical or operational limitations.

- Examples of physical and operational design include but are not limited to: the amount of time equipment operates during batch operations and the quantity of raw materials utilized in a batch process.
- Examples of physical or operational limitations include but are not limited to: shortened hours of operation, use of control equipment, and restrictions on production which are less than design capacity.

For this exemption concurrence the Applicant has stated that the maximum physical and operational design of their automotive coating operation, without the effect of any physical or operational limitations, for painting is 1.25 gallons per day for all materials used. Using the maximum use of 1.25 gallons per day and the DEQ Automotive Coatings EI Exemption spreadsheet the worst-case post-project facility-wide annual uncontrolled emission rate for all toxic air pollutants (TAPs) emitted by the source was determined.

The following table compares the post-project facility-wide annual uncontrolled emission rate for all toxic air pollutants (TAPs) emitted by the source to all applicable screening levels listed in Section 585 and 586 in order to determine if the project may qualify for a Category I exemption.

Table 4 CONTROLLED HOURLY TAP EMISSIONS SUMMARY POTENTIAL TO EMIT

Toxic Air Pollutant (TAP)	PTE 24-hour Average ^a (lb/hr)	Screening Level, EL (lb/hr) ^a	% of EL
1,2,4 trimethyl benzene	0.054	8.2	0.7%
acetone	0.148	119	0.1%
aluminum	0.150	0.667	22.5%
amyl acetate	0.0054	35.3	0.0%
antimony and compounds	0.030	0.033	90.9%
barium	0.0035	0.033	10.6%
butyl acetate	0.38	47.3	0.8%
carbon black	0.03	0.23	13.0%
chromium III	0.009	0.033	27.3%
cyclohexane	0.0042	47.3	0.0%
disobutyl ketone	0.027	9.67	0.3%
dipropylene glycol methyl ether	0.065	40	0.2%
ethyl 3-ethoxy propionate	0.107	N/A	N/A
ethyl acetate	0.079	93.3	0.1%
ethyl alcohol	0.006	125	0.0%
ethyl benzene	0.045	29	0.2%
ethylene glycol monobutyl ether acetate	0.195	1.6	12.2%
heptane	0.0067	109	0.0%

Table 4 CONTROLLED HOURLY TAP EMISSIONS SUMMARY POTENTIAL TO EMIT (continued)

Toxic Air Pollutant (TAP)	PTE 24-hour Average ^a (lb/hr)	Screening Level, EL (lb/hr) ^a	% of EL
hexamethylene diisocyanate	6.4E-04	0.002	32.0%
isobutyl acetate	0.024	46.7	0.1%
isobutyl alcohol	0.114	10	1.1%
isophorone diisocyanate	8.06E-4	0.006	13.4%
isopropyl alcohol	0.214	65.3	0.3%
kaolin	0.181	0.133	136.1%
magnesium carbonate	0.019	0.667	2.8%
methyl acetate	0.107	1.667	6.4%
methyl amyl ketone	0.46	15.7	2.9%
MEK	0.089	39.3	0.2%
methyl isoamyl ketone	0.0253	16	0.2%
methyl isobutyl ketone	0.093	13.7	0.7%
methyl isobutyl ketone	0.058	13.7	0.4%
methyl propyl ketone	0.051	46.7	0.1%
1-methoxy-2-proanol acetate	0.103	24	0.4%
mica	0.0018	0.2	0.9%
naphthalene	0.0059	3.33	0.2%
n-butyl alcohol	0.354	10	3.5%
n-hexane	0.008	12	0.1%
naphthalene	0.172	3.33	5.2%
phosphoric acid	0.037	0.067	55.2%
propionic acid	0.0049	2	0.2%
propylene glycol monomethyl ether acetate	0.071	24	0.3%
silica	0.021	0.667	3.1%
silica gel	0.018	0.667	2.7%
amorphous silica	0.077	0.667	11.5%
silicon dioxide	0.038	0.0067	567.2%
stoddard solvent	0.217	35	0.6%
styrene	0.185	6.67	2.8%
toluene	0.141	25	0.6%
VM&P naphtha	0.071	91.3	0.1%
xylene	0.164	29	0.6%

a. A worst-case was assumed that all emissions occur for a 24-hour average only.

As presented in the table above and based upon the coating use limits proposed by the applicant, except for kaolin and silicon dioxide, all TAPs are below the applicable screening levels listed in Section 585 and 586 (see Automotive Coatings EI Exemption spreadsheet). Therefore, in accordance with IDAPA 58.01.01.220.02 the Applicant will need to keep daily material use records to prove that the facility qualifies for this exemption and that no coatings containing kaolin or silicon dioxide will not be used at the facility. In addition, to maintain the exemption the facility will need to keep track of all coating materials used at the facility. For this exemption concurrence request the Applicant has stated that the maximum physical and operational design of their automotive coating operation, without the effect of any physical or operational limitations, is 1.25 gallons per day for all coating materials combined. Therefore, this project does meet the criteria set forth in Sections 220 through 223 and a PTC is not required.

In accordance with IDAPA 58.01.01.223.05, *Annual Report for Toxic Air Pollutant Exemption*, commencing on May 1, 1996, and annually thereafter, the owner or operator of a source claiming a Level I, II, or III exemption shall submit a certified report for the previous calendar year to the Department for each Level I, II, or III exemption determination. The report shall be labeled “Toxic Air Pollutant Exemption Report” and shall state the date construction has or will commence and shall include copies of all exemption determinations completed by the owner or operator for each Level I, II, and III exemption. For those years in which no other exemption determinations are claimed, the annual report does not need to be submitted. As this is a Level I exemption concurrence request the source is required to submit this report. Since the source qualifies for this exemption by meeting the applicable screening levels listed in Section 585 and 586 as determined by the Automotive Coatings EI Exemption spreadsheet, DEQ has determined that this requirement of the Rule has been met.

The “Record Retention” requirements of Section 220.02 apply, and a copy of the relevant parts of this rule is shown below:

“The owner or operator of the source...shall maintain documentation on site which shall identify the exemption determined to apply to the source and verify that the source qualifies for the identified exemption. The records and documentation shall be kept for a period of time not less than five years from the date the exemption determination has been made or for the life of the source for which the exemption has been determined to apply, whichever is greater, or until such time as a PTC or operating permit is issued which covers the operation of the source. The owner or operator shall submit the documentation to the Department upon request.”

Therefore, the Applicant will be required to maintain records of coating use at this facility for five years or for the life of the source for which this exemption is claimed, whichever is greater, and shall present the records to DEQ representatives upon request.

NSPS Applicability (40 CFR 60)

The facility is not subject to any NSPS requirements.

NESHAP Applicability (40 CFR 61)

The facility is not subject to any NESHAP requirements in 40 CFR 61.

MACT Applicability (40 CFR 63)

40 CFR 63, Subpart HHHHHH

**National Emission Standards for Hazardous Air Pollutants:
Paint Stripping and Miscellaneous Surface Coating
Operations at Area Sources**

This facility may be subject to the requirements of Subpart HHHHHH. However, the State of Idaho is not currently delegated to administer this subpart. In addition, the facility will be required to maintain documentation of compliance with Subpart HHHHHH per 40 CFR 63.11170 (a)(2) as required by this regulation. The facility will be notified of their responsibility in DEQ’s exemption concurrence letter.

PUBLIC REVIEW

Fees

Per Section 224.01, PTC application and processing fees do not apply to this project because it is for a PTC exemption applicability determination.

Public Comment Opportunity/Public Comment

PTC public comment requirements do not apply to a project that is exempt from PTC requirements.

APPENDIX A – EMISSIONS INVENTORIES

Coating Operation Emissions Calculations:

Emissions estimates from this coating operation on based upon the Applicant stating that the maximum capacity for applying coatings, without the effect of any physical or operational limitations, is 1.25 gallons per day. In addition, annual emissions are based upon a worst-case assumptions of operation of 365 days per year, no paint booth filters, and all VOC from the coatings becoming airborne, and use of an HVLP paint gun (per the Applicant). Also, the Applicant has stated that no coating materials containing silicon dioxide (CAS 60676-86-0) or kaolin (CAS 1332-58-7) will ever be used at the facility.

Table A.1 POST PROJECT HOURLY AND ANNUAL PM₁₀ POTENTIAL TO EMIT FOR THE AUTOMOTIVE COATING OPERATION

Coating Material	Daily Coating Use ¹ (gal/day)	Annual Coating Use ² (gal/yr)	Density ³ (lb/gal)	Paint Spray Gun TE (%)	Booth Particulate Filters CE (%) ⁴	Hourly PM ₁₀ Emissions (lb-PM ₁₀ /hr)	Annual PM ₁₀ Emissions (T-PM ₁₀ /yr)
Pre-treatment wash primer, primer, topcoat, clear, reducer, and hardener combined	1.25	456.25	16.76	65	0	0.31	1.34

- ¹ – Daily coating use was determined by using the Applicant’s stated material use.
- ² – Annual coating use is assumed to be daily coating use multiplied by 365 days per year (DEQ assumption for worst-case emissions).
- ³ – The density of the paint was assumed to be the highest available using the DEQ Automotive Coatings EI Exemption spreadsheet (DEQ assumption for worst-case emissions).
- ⁴ – No filter control efficiency was assumed (DEQ assumption for worst-case PM₁₀ emissions).

Table A.2 POST PROJECT HOURLY AND ANNUAL VOC POTENTIAL TO EMIT FOR THE AUTOMOTIVE COATING OPERATION

Coating Material	Daily Coating Use ¹ (gal/day)	Annual Coating Use ² (gal/yr)	VOC Content ³ (lb-VOC/gal)	Hourly VOC Emissions (lb-VOC/hr)	Annual VOC Emissions ³ (T-VOC/yr)
Pre-treatment wash primer, primer, topcoat, clear, reducer, and hardener combined	1.25	456.25	16.76	0.87	3.82

- ¹ – Daily coating use was determined by using the Applicant’s stated material use.
- ² – Annual coating use is assumed to be daily coating use multiplied by 365 days per year (DEQ assumption for worst-case emissions).
- ³ – The VOC content of the paint is assumed to be 100% VOC (DEQ assumption for worst-case emissions).

Coating Operation Uncontrolled Emissions Calculations:

There were no add-on controls used in determining annual PM₁₀ (the gun transfer efficiency is used to determine the amount of paint being atomized into the air and is not a add-on control) and VOC emissions. Therefore, uncontrolled annual emissions for PM₁₀ and VOC are the same as calculated above.

Paint Booth Heater Emissions Calculations:

Table A.3 PAINT BOOTH HEATER POST PROJECT HOURLY AND ANNUAL POTENTIAL TO EMIT FOR CRITERIA POLLUTANTS WHEN COMBUSTING NATURAL GAS

Emissions Unit	Rated Heat Input (MMBtu/hr)	Annual Hours of Operation (hrs/yr)	Criteria Pollutant	Emissions Factors (lb/MMBtu) ¹	Hourly Emissions (lb/hr)	Annual Emissions (T/yr)
Paint Booth Heater	3.30	8,760	PM ₁₀	0.0076	0.0251	0.110
			SO ₂	0.0006	0.0020	0.009
			NO _x	0.094	0.310	1.359
			CO	0.040	0.132	0.578
			VOC	0.0055	0.018	0.079
			Pb	0.0000005	0.0000017	0.0000072

¹ – Based on AP-42 Table 1.4-2 (7/98) for PM₁₀, SO₂, VOC, and Pb and AP-42 Table 1.4-1 (7/98) for NO_x and CO with a heat content of natural gas of 1,000 Btu/scf.

Uncontrolled emissions are equal to controlled emissions since they were calculated as a full-time operation of 8,760 hrs/yr.

Table A.4 PAINT BOOTH HEATER POST PROJECT HOURLY AND ANNUAL POTENTIAL TO EMIT FOR CRITERIA POLLUTANTS WHEN COMBUSTING LIQUIFIED PETROLEUM GAS (LPG)

Emissions Unit	Rated Heat Input (MMBtu/hr)	Annual Hours of Operation (hrs/yr)	Criteria Pollutant	Emissions Factors (lb/MMBtu) ¹	Hourly Emissions (lb/hr)	Annual Emissions (T/yr)
Paint Booth Heater	3.30	8,760	PM ₁₀	0.0087	0.0287	0.126
			SO ₂	0.0164	0.0541	0.237
			NO _x	0.16	0.528	2.313
			CO	0.092	0.304	1.330
			VOC	0.012	0.040	0.173

¹ – Based on AP-42 Table 1.5-1 (7/08) for PM₁₀, SO₂ (see calculation as follows), NO_x, CO, and VOC.

LPG Combustion SO₂ Emission Factor Calculation:

Sulfur EF = 0.10 S lb/1,000 gal, with S in grain/100scf (AP-42, Table 1.5-1, 10/96)

Sulfur EF = 0.10 x (15 grain/100 scf) = 1.5 lb/1,000 gal Note: 15 grain/100 scf for LPG is a worst-case assumption for sulfur content of the fuel.

Sulfur EF = 1.5 lb/1,000 gal ÷ 0.0915 MMBtu/gal

Sulfur EF = 0.0164 lb-SO₂/MMBtu

Uncontrolled emissions are equal to controlled emissions since they were calculated as a full-time operation of 8,760 hrs/yr.