



United States Environmental Protection Agency General Permit or Permit by Rule for New or Modified Minor Sources of Air Pollution in Indian Country

<http://www.epa.gov/air/tribal/tribalnsr.html>

Background Document: Air Quality Permit by Rule for New or Modified True Minor Source Auto Body Repair and Miscellaneous Surface Coating Operations in Indian Country

Version 1.0

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1. Auto Body Repair and Miscellaneous Surface Coating Operations Source Category Definition

An auto body shop repairs, repaints, and/or customizes passenger cars, trucks, vans, motorcycles, and other mobile equipment capable of being driven or drawn on the highway. Miscellaneous surface coating operations involve the spray application of coating to miscellaneous parts and/or products made of metal or plastic, or both. The final Air Quality Permit by Rule for New or Modified True Minor Source Auto Body Repair and Miscellaneous Surface Coating Operations in Indian Country only covers auto body repair and miscellaneous surface coating operations that are located at true minor New Source Review (NSR) sources.

2. Source Category Characterization

Auto body refinishing shops involve cleaning the auto body surface to ensure proper adhesion of the coating, priming and sealing the surface, applying a topcoat, and cleaning of the spray equipment. Coating application equipment includes preparation stations, spray booths, spray guns, and spray gun cleaning equipment. Some facilities are equipped with heating units to heat the air in the drying booth or to maintain a constant shop temperature during cold months.

Miscellaneous surface coating operations are those that involve the spray application of coatings to miscellaneous parts and/or products made of metal or plastic, or combinations of metal and plastic. These activities include:

- Paint stripping for the removal of dried paint (including, but not limited to, paint, enamel, varnish, shellac, and lacquer) from wood, metal, plastic, and other substrates.
- Spray application of coatings to motor vehicles and mobile equipment including operations that are located in stationary structures at fixed locations, and mobile repair and refinishing operations that travel to the customer's location.
- Spray application of coatings to a plastic and/or metal substrate on a part or product, except spray coating applications that meet the definition of facility maintenance or space vehicle.

The pollutants of concern for auto body repair and surface coating operations are volatile organic compounds (VOC) and hazardous air pollutants (HAP) from the use of solvents and coatings. Particulate emissions are also emitted from spray coating operations. Since spray coating operations are normally performed in enclosed spray booths and controlled by dry filters or other equivalent control devices, particulate emissions from spray coating operations are not significant if the spray booths and the associated control devices are operated properly. If a facility contains fuel combustion heating units, there are associated combustion emissions from those units. Coatings processes also include degreasing. Solvent degreasing (or solvent cleaning) is the physical process of using organic solvents to remove grease, fats, oils, wax or soil from various metal, glass, or plastic items. The

types of equipment used in this method are categorized as cold cleaners, open top vapor degreasers, or conveyORIZED degreasers. This Permit by Rule only allows cold cleaners which are batch loaded, non-boiling solvent degreasers, usually providing the simplest and least expensive method of metal cleaning. These maintenance-type cold cleaners are smaller, more numerous, and generally use petroleum solvents as mineral spirits (petroleum distillates and Stoddard solvents). Cold cleaners used in manufacturing operations use a wide variety of solvents, which perform more specialized and higher quality cleaning with about twice the average emission rate of maintenance cold cleaners. Some cold cleaners can serve both purposes.

Cold cleaner operations include spraying, brushing, flushing, and immersion. In a typical maintenance cleaner, dirty parts are cleaned manually by spraying and then soaking in the tank. After cleaning, the parts are either suspended over the tank to drain or are placed on an external rack that routes the drained solvent back into the cleaner. The cover is intended to be closed whenever parts are not being handled in the cleaner. Typical manufacturing cold cleaners vary widely in design, but there are 2 basic tank designs: the simple spray sink and the dip tank. Of these, the dip tank provides more thorough cleaning through immersion, and often is made to improve cleaning efficiency by agitation. Small cold cleaning operations may be numerous in urban areas.

3. State Minor Source Permit Programs

The U.S. Environmental Protection Agency (EPA) researched state government websites for general permits and permits by rule for this source category, examined them for applicability to a permit for Indian Country, and used appropriate elements in the development of the documents and regulations in the Permit by Rule for this source category. State level permits (such as general permits, registrations, permits by rule, etc.) for auto body repair and/or surface coating operations developed by [Maricopa County in Arizona](#) and the States of Florida, [Idaho](#), [Maryland](#), Michigan, [Ohio](#), Oregon, [South Carolina](#), [Texas](#), and [Washington](#) were examined in developing this Permit by Rule. The requirements for the state permitting programs reviewed are summarized in Attachment A. Permits from these states were chosen for examination because of the characteristics they possess:

- Readily available;
- Clear throughput limits; and
- Organization of the regulations followed the typical form for federal NSR permits:
 - Limitations and standards,
 - Monitoring, testing, recordkeeping, and reporting requirements.

The state permits for auto body shops typically have upper VOC-containing material usage thresholds, but these vary by state. The assumptions and methodology for arriving at these throughput limitations are not discussed in the permit application documents. For the 10 state level permits reviewed, the usage limit for VOC-containing material is 6,000 gallons per year or less. Only the permit programs for Idaho and Texas have specific VOC emission limits, which are 25 tons per year (tpy) or less. The permit program for Idaho also has a particulate matter less than ten micrometers (PM₁₀) emission limitation of 0.09 tpy.

In addition to the material usage limit and VOC emission limit, most of the state permit programs reviewed include the requirements for National Emissions Standards for Hazardous Air Pollutants (NESHAP) Subpart HHHHHH ([National Emission Standards for Hazardous Air Pollutants for Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources](#)). Several states have requirements on the type of spray guns to use, the use of control devices for paint booths, and the minimum control efficiency to achieve. These operating requirements are also part of the NESHAP, Subpart HHHHHH requirements. The permit program for Idaho specifically excludes sources which use Methylene Chloride (MeCl) as a paint remover. The purpose of this

exclusion is to simplify the permit language since NESHAP, Subpart HHHHHH has a long list of requirements for auto body shops that use MeCl. In addition, the state programs for Maricopa County, Arizona and Maryland have VOC content limits for different type of VOC-containing materials (such as different types of coatings and solvents). The requirements are lengthy and are not listed in Attachment A.

4. Requirements for Permits by Rule

4.1 Documents for Permits by Rule

The EPA developed a standardized set of permit documents in support of the Permit by Rule for auto body repair and miscellaneous surface coating operations. These consist of the following documents:

- Questionnaire: Assists the facility owner or operator in determining whether they are eligible for the Permit by Rule;
- Screening Processes for Threatened and Endangered Species and Historic Properties: For the permits by rule, we have separated the screening processes from the Notification of Coverage Forms and created a separate document, “Procedures to Address Threatened and Endangered Species and Historic Properties for New or Modified True Minor Sources in Indian Country Seeking Air Quality Permits by Rule”;
- Notification for Coverage under the Permit by Rule: States the criteria for qualification, gathers information on the source, facility location, and source contact, requests technical information on the facility, the facility’s actual emissions for those sources undergoing modifications, and requests that the source certify they will comply with the requirements, which are included in the rule for auto body repair and miscellaneous surface coating operations at 40 CFR 49.162;
- Instructions: Guides the applicant in filling out the Notification of Coverage under the Permit by Rule;
- Air Quality Permit by Rule, Terms and Conditions: Contains the requirements and regulations with which the source must comply. The emission limitations, monitoring, recordkeeping and reporting requirements are in the permit, including requirements for sources located in nonattainment areas. (Note that all of the requirements and regulations with which the source must comply in a permit by rule are included in the rulemaking action the EPA has taken for this source category at 40 CFR 49.162.); and
- Potential to Emit (PTE) Calculator Spreadsheet: Allows applicants to calculate their PTE, based on owner inputs of the specific equipment present at their source, assuming continuous operation throughout the year. The PTE Calculator spreadsheet generates potential emissions, based on these inputs. The spreadsheet illustrates the correlation between equipment, raw material throughput, and emissions.

4.2 Exemption and Qualification for Permit by Rule

Facilities applying for the Permit by Rule must meet the following criteria:

- Must be a true minor NSR source; and
- Be able to comply with the emissions limitations established for the Permit by Rule.

New facilities with a PTE (or modifications to existing facilities with an emissions increase) lower than the minor NSR thresholds specified in the provisions of the Federal Indian Country Minor NSR Rule at 40 CFR 49.153 are exempt from the minor NSR program. The minor NSR thresholds are listed in Table 1 below. Facilities applying

for the Permit by Rule may calculate their PTE using the PTE calculator provided to determine if their project is below these thresholds and, thus, exempt from the minor NSR program.

Table 1: Minor NSR Thresholds in 40 CFR 49.153

Pollutant	Attainment Area	Nonattainment Area
Carbon Monoxide (CO)	10 tpy	5 tpy
Particulate Matter (PM)	10 tpy	5 tpy
PM ₁₀	5 tpy	1 tpy
PM _{2.5}	3 tpy	0.6 tpy
Sulfur Dioxide (SO ₂)	10 tpy	5 tpy
Nitrogen Oxides (NO _x)	10 tpy	5 tpy
VOC	5 tpy	2 tpy

Under EPA policy, only true minor NSR sources qualify for the Permit by Rule. Therefore, facilities will be required to compare their PTE to the NSR major source thresholds to determine if they qualify for the Permit by Rule. The NSR major source threshold for attainment areas is 250 tpy for any criteria pollutant. The NSR major source thresholds for nonattainment areas are summarized in Table 2 below:

Table 2: NSR Major Source Thresholds for Nonattainment Areas

Pollutant	Nonattainment Classification	NSR Major Source Threshold
Ozone	Marginal	100 tpy of VOC or NO _x
	Moderate	100 tpy of VOC or NO _x
	Serious	50 tpy of VOC or NO _x
	Severe	25 tpy of VOC or NO _x
	Extreme	10 tpy of VOC or NO _x
PM ₁₀	Moderate	100 tpy
	Serious	70 tpy
CO	Moderate	100 tpy
	Serious	50 tpy
SO ₂ , NO ₂ , PM _{2.5}	No nonattainment classification	100 tpy

If the facility’s PTE is above the NSR major source threshold of 250 tpy, or above the applicable nonattainment area thresholds listed in Table 2 (for any pollutant for which the area in which the source is locating or modifying is designated nonattainment), then the facility does not qualify for the Permit by Rule. The following documents are available to assist sources in the screening and application process:

- Questionnaire;
- Notification for Coverage under the Permit by Rule;
- Instructions for the Notification for Coverage under the Permit by Rule; and
- PTE calculator.

For facilities not exempt from the minor NSR program and having a PTE below the NSR major source thresholds, the facilities will further evaluate if they meet the throughput limits and operating requirements established in this Permit by Rule. The specific requirements for the Permit by Rule are discussed in Sections 4.3, and 4.4. The emissions associated with the throughput limits are lower than the NSR major source thresholds and were derived as described below in Section 5.

4.3 Specific Permit Requirements for Permits by Rule

The terms and conditions of the Permit by Rule are based on the required permit content and analyses in the Federal Indian Country Minor NSR Rule. The required permit content is listed in 40 CFR 49.155(a) – *What information must my permit include?* Below we describe the basis for the permit conditions.

40 CFR 49.155(a)(1) – General Requirements

The rule establishes general requirements that each permit must identify: the effective date of the permit; the date by which the owner/operator must commence construction in order for the permit to remain valid; the emission units subject to the permit and their associated emission limitations; and monitoring, recordkeeping, and reporting requirements to assure compliance with the emission limitations. The Permit by Rule contains all of this required information, except for the emission units subject to the permit. Because of the nature of permits by rule we believe it is more appropriate to identify the emission units covered by the Permit by Rule in the Notification of Coverage. Each permit contains a separate section that specifically identifies the emission limitations and standards, monitoring and testing, recordkeeping, and reporting and notification requirements. The General Terms and Conditions in the Permit by Rule are a standardized set of boilerplate conditions included with permits by rule.

40 CFR 49.155(a)(2) – Emission Limitations

The permit must contain the emission limitations determined by the reviewing authority under 40 CFR 49.154(c) for each affected emissions unit. 40 CFR 49.154(c) – *How will the reviewing authority determine the emission limitations that will be required in my permit?* – identifies the case-by-case control technology review that must be used by the reviewing authority to determine the appropriate level of control. In carrying out the case-by-case control technology review, the reviewing authority must consider the following factors:

1. Local air quality conditions;
2. Typical control technology or other emission reduction measures used by similar sources in surrounding areas;
3. Anticipated economic growth in the area; and
4. Cost-effective emission reduction alternatives.

In addition, the reviewing authority must require a numerical limit on the quantity, rate or concentration of emissions for each regulated NSR pollutant emitted by each affected emissions unit, for which such a limit is technically feasible. The emission limitation required may also be included as pollution prevention techniques, design standards, equipment standards, work practices, operational standards or any combination thereof. However, the emission limitations must assure that each affected emission unit will comply with all requirements of 40 CFR parts 60, 61, and 63, as well as any federal or tribal implementation plans that apply to the unit. Finally, the emission limitations required may not rely on a stack height that exceeds good engineering practice or any other dispersion technique, except as allowed by 40 CFR 51.118(b). To address the requirements for establishing emission limitations the following considerations were used for setting the limits in the Permit by Rule for auto body repair and miscellaneous coating operations:

1. Local air quality conditions – To address this requirement, the Permit by Rule sets more stringent requirements on material consumption, coating VOC content, and degreaser solvent VOC content for sources locating or located in ozone nonattainment areas.

2. Typical control technology or other emission reduction measures used by similar sources in surrounding areas – For sources locating in attainment areas we looked at the control requirements specified by 40 CFR parts 60, 61 and 63. These regulations establish minimum technology and emission limitations that must be met nationally and also meet the requirements of 40 CFR 49.154(c)(4) to ensure compliance with parts 60, 61, and 63. For this Permit by Rule we considered regulations that apply to the equipment at auto body repair and miscellaneous surface coating operations:

- 40 CFR 63 Subpart HHHHHH – National Emission Standards for Hazardous Air Pollutants for Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources;
- 40 CFR 63 Subpart T – National Emission Standards for Halogenated Solvents;
- 40 CFR 59 Subpart B – National Volatile Organic Compound Emission Standards for Automobile Refinishing;
- South Coast Air Quality Management District (AQMD) Rule 1122 – Solvent Degreasers;
- South Coast AQMD Rule 1151 – Motor Vehicle and Mobile Equipment Non Assembly Line Coating Operations; and
- State permit examples.

These regulations cover emissions from facilities that spray apply coatings on automobiles and other mobile equipment as well as facilities that spray apply coatings that contain certain HAPs onto metal, plastic, and composite substrates. 40 CFR 63 Subpart T and South Coast AQMD Rule 1122 cover solvent metal degreasing operations, which are often located at auto body repair and other surface coating operations. For this Permit by Rule, we assumed that only batch-loaded cold cleaning degreasers were used at these types of facilities.

Review of the regulations resulted in permit conditions requiring that all spray application of coatings must be done using high efficiency spray guns in a spray booth controlled by exhaust filters. The requirements for cold solvent degreasing include several work practice standards to ensure VOC emissions are minimized, including: keeping the degreaser cover closed at all times, except during parts entry and removal; the degreaser should be free of cracks, holes and other defects; all waste solvents shall be properly stored and identified in sealed containers; and solvent flow shall be directed downward.

List of requirements in 40 CFR 63 Subpart HHHHHH included in the Permit by Rule:

- 40 CFR 63.11173(e)(1) – requirements to have certified painters;
- 40 CFR 63.11173(e)(2) – requirements for spray booths;
- 40 CFR 63.11173(e)(3) and (4) – requirements for spray guns;
- 40 CFR 63.11177(a) – records of certification for each painter;
- 40 CFR 63.11177(b) – records of spray booth filter efficiency; and
- 40 CFR 63.11177(c) – records of spray gun transfer efficiency.

3. Anticipated economic growth in the area – The reviewing authority may consider anticipated economic growth when determining whether coverage under the Permit by Rule is justifiable. Considering, however, that the Permit by Rule sets emission standards that are consistent with what is required for coating operations across the country in both attainment and non-attainment areas, we expect that this will rarely be a factor.

4. Cost-effective emission reduction alternatives – The Permit by Rule sets emission standards that are consistent with what is required for coating operations across the country, based on the ozone attainment status where the source is locating. As such, the chosen technologies are considered widely available and consideration of more cost-effective alternatives is not necessary at this time. We intend to periodically review technology costs in the future to determine when more stringent, cost-effective technologies become widely available.

40 CFR 49.155(a)(3) – Monitoring Requirements

The Permit by Rule must include monitoring that is sufficient to assure compliance with the emission limitations that apply to the source. The Permit by Rule requires monitoring for overspray and to assure that pressure drop across the exhaust filters does not exceed manufacturers' recommendations. The Permit by Rule also requires solvent degreasers to be inspected for leaks and cracks prior to use.

40 CFR 49.155(a)(4) – Recordkeeping Requirements

The Permit by Rule must include recordkeeping that is sufficient to assure compliance with the emission limitations and monitoring requirements, including certain statements listed in 40 CFR 49.155(a)(4)(i) and (ii). In addition to the recordkeeping requirements in 40 CFR 49.155(a)(4)(i), the Permit by Rule also requires records of the amount of VOC-containing materials used, monitored pressure drop across the exhaust filters, and documentation verifying that spray guns and exhaust filters meet the requirements of the permit. Recordkeeping requirements for solvent degreasers include written maintenance and operating procedures, a log of actions taken to repair each degreaser, records of the VOC content of for each solvent used, and records of solvent consumption.

40 CFR 49.155(a)(5) – Reporting Requirements

The Permit by Rule includes the reporting requirements listed in 40 CFR 49.155(a)(5)(i) and (ii) related to annual reports and reporting of deviations.

40 CFR 49.155(a)(6) – Severability Clause

The Permit by Rule includes a severability clause to ensure the continued validity of the other portions of the permit in the event of a challenge to a portion of the permit.

40 CFR 49.155(a)(7) – Additional Provisions

The Permit by Rule contains the additional provision required for each permit. These conditions are found in the General Provisions of the Permit by Rule.

4.3.1 Requirements for Sources Located in Nonattainment Areas

There are additional requirements for sources located in nonattainment areas that go beyond those found in the NESHAP requirements. Since there are several tribes located in nonattainment areas for ozone, additional requirements to reduce/control the VOC emissions (precursor for ozone) from the auto body repair and miscellaneous surface coating operations located in these areas are necessary. In order to develop the additional requirements for auto body repair and miscellaneous surface coating operations located in ozone nonattainment areas, the South Coast AQMD Rule for Motor Vehicle and Mobile Equipment Non Assembly Line Coating Operations ([South Coast AQMD Rule 1151](#)) and National Volatile Organic Compound Emission Standards for Consumer and Commercial Products ([40 CFR 59, Subpart B](#)) have been reviewed. Both rules include VOC content limitations for the coating applied. The comparison of the VOC content limits established in these two rules is summarized in Table 3 below:

Table 3: VOC Content Limits in 40 CFR 59, Subpart B and in CA Rule 1151

COATING	VOC Content Limit (grams/liter)		VOC Content Limit (pounds/gallon)	
	40 CFR 59, Subpart B	CA Rule 1151	40 CFR 59, Subpart B	CA Rule 1151
Adhesion Promoter	--	540	--	4.5
Clear Coating	--	250	--	2.1
Color Coating	--	420	--	3.5
Pretreatment	780	660	6.5	5.5
Primer	580	250	4.8	2.1
Primer Sealer	550	--	4.6	--
Single-Stage Coating	--	340	--	2.8
Temporary Protective Coating	--	60	--	0.5
Topcoats				
General	600	--	5.0	--
Multi-Colored	680	680	5.7	5.7
Multi-Stage	630	--	5.2	--
Truck Bed Liner Coating	--	310	--	2.6
Underbody Coating	--	430	--	3.6
Uniform Finish Coating	--	540	--	4.5
Specialty Coating	840	--	7.0	--
Any other coating type		250		2.1

The Permit by Rule includes the VOC content limitations for coatings applied at auto body repair and miscellaneous surface coating operations located in serious, severe, or extreme ozone nonattainment areas as the additional requirements for the facilities located in nonattainment areas. The most stringent VOC content limits in Table 3 are selected as the VOC content limits and are included in this Permit by Rule. Compliance with the VOC limits shall be based on VOC content, including any VOC material added to the original coating supplied by the manufacturer, as applied, less water and exempt compounds.

4.4 Information on Completing Screening Processes Prior to Submitting a Notification of Coverage under the Permit by Rule

Prior to seeking coverage under this Permit by Rule, sources must obtain confirmation from the EPA that the source has satisfactorily completed the screening processes specified for the Endangered Species Act and the National Historic Preservation Act. The document entitled "Procedures to Address Threatened and Endangered Species and Historic Properties for New or Modified True Minor Sources in Indian Country Seeking Air Quality Permits by Rule" contains the EPA's guidance to assist sources in completing these processes.

5. Emission Limitations¹ and Surrogate Throughput Limits

5.1 Developing the Surrogate Limits and Limitations

The EPA developed VOC-containing material usage emission limitations as a surrogate for establishing ton per year emission limitations for sources in both attainment areas and nonattainment areas. The material usage limits in the Permit by Rule reflect the emission rates listed in Table 4. The selected emission rate for sources located in attainment areas is consistent with state programs. The selected emission rate for sources located in nonattainment areas is suggested by the EPA.

Table 4: Emission Rates used to Determine Emission Limitations for Auto Body Repair and Miscellaneous Surface Coating Operations

Pollutant of Concern	Ozone Nonattainment Areas	Ozone Attainment, Unclassifiable or Attainment/Unclassifiable Areas	Source of Emissions
VOC	7 tpy	25 tpy	Coating Operations and Fuel Combustion Units

The Permit by Rule includes the throughput limits listed in Table 5 below as surrogates for the ton per year emission rates listed in Table 4 for auto body shops located in ozone nonattainment and ozone attainment areas. The EPA developed the VOC-containing material usage limits for sources in both attainment and nonattainment areas based on (1) the emission rates in Table 4 and (2) assumptions about the equipment configuration at a typical source.

Table 5: Surrogate Throughput Emission Limitations for Auto Body Repair and Miscellaneous Surface Coating Operations

Throughput Limit	Ozone Nonattainment Areas	Ozone Attainment, Unclassifiable or Attainment/Unclassifiable Areas
Annual VOC-Containing Material Usage*	900 gallons/year	5,000 gallons/year
Annual Solvent Usage for Degreasers	500 gallons/year	500 gallons/year

*This includes coatings, thinners, and clean-up solvents.

5.2 Emission Limitations

Two considerations form the basis for the upper eligibility limitations for the Permit by Rule:

1. Are there any EPA regulation-based emission limitations?
2. Where do state programs establish eligibility limits?

¹ The definition of emission limitation used in this Background Document is the one provided in the Federal Indian Country NSR rule (described in Section 4.3) and includes requirements established by the reviewing authority that relate to the operation of a source, which allows for the use of production throughput limits.

5.2.1 EPA Regulation-Based Emissions Limitations

There are no specific EPA regulation-based emissions limitations for auto body repair and miscellaneous surface coating operations. In general, facilities in attainment areas with a PTE of any criteria pollutant equal or greater than 250 tpy are NSR major sources. Facilities with a PTE of any criteria pollutant equal to or greater than 100 tpy or HAP emissions greater than 10 tpy for a single HAP and 25 tpy for total HAPs are subject to Title V operating permit program. However, most auto body repair and miscellaneous surface coating operations have actual emissions for criteria pollutants much less than 100 tpy. While the NSR major source thresholds do not specifically limit the emissions from a particular source, they do prevent a source from being eligible for a permit by rule. Similarly, we have limited eligibility for the Permit by Rule to area sources of HAP emissions, so that we did not have to evaluate and determine the emission limitations that would assure compliance with the requirements in 40 CFR part 63 for major sources of HAP emissions.

5.2.2 State Program Limitations

The EPA researched auto body shop permits developed by the Maricopa County in Arizona and the states of Idaho, Maryland, Ohio, South Carolina, Texas and Washington, and the requirements for each state program are summarized in Attachment A. Based on the search results listed in Attachment A, the EPA set emission limitations using throughput limits as surrogates for the Permit by Rule at a limit equivalent to VOC emissions of 25 tpy or less. The VOC tpy values in Table 4 for the facilities located in attainment areas is within the emissions limit range listed in Attachment A for the state programs reviewed.

5.3 Calculating the Throughput Limits

The EPA determined the VOC-containing material usage emission limitations by calculating the annual usage rates that would be equivalent to the ton per year emissions rates selected in Table 4. VOC is mainly emitted from the use of coatings and solvents at auto body repair and miscellaneous surface coating operations but is also emitted from combustion units (such as the heaters used for drying booths) and cold cleaning degreasers. The following assumptions are adopted for this calculation:

- The VOC content of all the VOC-containing materials (including coatings, thinners, and clean-up solvents) is assumed to be 8.34 lbs/gal (worst case scenario);
- Only natural gas, propane, and butane are used in the fuel combustion units at the affected facilities;
- The total heat input capacity of all the fuel combustion units at the affected facilities is 10 MMBtu/hour. Based on the emissions factors in [AP-42](#) for combustion units, the VOC emissions from the combustion units are 0.48 tpy; and
- Only batch-loaded cold cleaning degreasers are used with an assumed maximum solvent density of 11 lb/gal, except in serious, severe, or extreme ozone non-attainment areas. In serious, severe, or extreme ozone non-attainment areas, only batch-loaded cold cleaning degreasers are used with an assumed VOC content of 25 g/L.

Attachment B contains example calculations showing how VOC-containing material usage limits in Table 5 correspond to the VOC emission rates in both ozone attainment and ozone nonattainment areas as shown in Table 4.

References:

2008 National Emission Inventory Data, U.S. Environmental Protection Agency.

<http://www.epa.gov/ttn/chief/net/2008inventory.html>

40 CFR 49.151 – 40 CFR 49.165, Federal Minor New Source Review (NSR) Program in Indian Country.

[http://ecfr.gpoaccess.gov/cgi/t/text/text-](http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=ffc06a883374e41e6772cd842b1ac2d4&tpl=/ecfrbrowse/Title40/40cfr49_main_02.tpl)

[idx?c=ecfr&sid=ffc06a883374e41e6772cd842b1ac2d4&tpl=/ecfrbrowse/Title40/40cfr49_main_02.tpl](http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=ffc06a883374e41e6772cd842b1ac2d4&tpl=/ecfrbrowse/Title40/40cfr49_main_02.tpl)

40 CFR Part 59, Subpart B, National Volatile Organic Compound Emission Standards for Automobile Refinish Coatings.

[http://ecfr.gpoaccess.gov/cgi/t/text/text-](http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=55c8b19a0d5b8277e006dec3f335f5fb&rqn=div6&view=text&node=40:5.0.1.1.7.2&idno=40)

[idx?c=ecfr&sid=55c8b19a0d5b8277e006dec3f335f5fb&rqn=div6&view=text&node=40:5.0.1.1.7.2&idno=40](http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=55c8b19a0d5b8277e006dec3f335f5fb&rqn=div6&view=text&node=40:5.0.1.1.7.2&idno=40)

40 CFR Part 63, Subpart HHHHHH, National Emission Standards for Hazardous Air Pollutants for Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources.

[http://ecfr.gpoaccess.gov/cgi/t/text/text-](http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=ffc06a883374e41e6772cd842b1ac2d4&rqn=div6&view=text&node=40:14.0.1.1.1.21&idno=40)

[idx?c=ecfr&sid=ffc06a883374e41e6772cd842b1ac2d4&rqn=div6&view=text&node=40:14.0.1.1.1.21&idno=40](http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=ffc06a883374e41e6772cd842b1ac2d4&rqn=div6&view=text&node=40:14.0.1.1.1.21&idno=40)

AP 42, Fifth Edition, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, U.S. Environmental Protection Agency.

<http://www.epa.gov/ttn/chief/ap42/>

South Coast Air Quality Rule 1151- Motor Vehicle and Mobile Equipment Non Assembly Line Coating Operations.

<http://www.aqmd.gov/rules/reg/reg11/r1151.pdf>

Attachment A – Summary of the State Permitting Programs for Auto Body Shops

State	Permit Type	Emission Limit	VOC-containing Materials (Solvent & Coating) Usage Limit	Other Limitations	Weblink
AZ- Maricopa County	General Permit	N/A	< 500 gallons/month < 6,000 gallons/year	VOC content < 1.4 lbs/gallon for cleaning solvents; VOC content limit for each type of coating; and Paint booth heater capacity < 10 MMBtu/hour for NG fired units and < 5.9 MMBtu/hour for LPG fired units.	http://www.maricopa.gov/aa/divisions/permit_engineering/docs/pdf/Body_Shop_General_Permit_Conditions.pdf
AZ- Maricopa County	General Permit	NA	< 4,500 gallons/year < 375 gallons/month	Spray coating equipment in a booth with 3 sides, filtering system, HVLP guns, and requirements for degreasers.	http://www.maricopa.gov/aa/divisions/permit_engineering/docs/pdf/Surface%20Coating%20Operations%20General%20Permit.pdf
FL	Permit by Rule	NA	< 44 lbs/day	NA	http://www.dep.state.fl.us/air/rules/fac/62-210_bookmarked.pdf#nameddest=SurfaceCoating
ID	General Permit to Construct	VOC < 12.26 tpy PM10 < 0.09 tpy	< 4 gallons/day	No MeCl as a paint remover; Operating requirements for spray coating operation, paint booths, and dry filters; and NESHAP, Subpart HHHHHH.	http://www.deq.idaho.gov/permitting/air-quality-permitting/permit-to-construct/automotive-coating-operations.aspx
MD	General Permit to Construct	N/A	< 400 gallons/year	VOC content limits for various materials; Equal or less than 2 paint booths; and NESHAP, Subpart HHHHHH Requirements.	http://www.mde.state.md.us/programs/Permits/AirManagementPermits/AirQualityGeneralPermit/Documents/00_Autobody_Package.pdf

State	Permit Type	Emission Limit	VOC-containing Materials (Solvent & Coating) Usage Limit	Other Limitations	Weblink
MI	General Permit to Install	< 2,000 lbs/month < 10 tpy per coating line and 30 tpy total		HVLP guns, dry filters or water curtain.	http://michigan.gov/documents/deq/deq-ess-caap-factsheet-surfacecoating_209039_7.pdf
OH	Permit by Rule	N/A	< 3,000 gallons/year	< 50 jobs/week; and Use of HVLP or electrostatic spray guns.	http://epa.ohio.gov/portals/27/pbr/PB_RAUTOBODY.pdf
OR	General Permit	< 39 tpy	Presumed compliance with 39 tpy limit if usage less than 2,500 gallons/year	Spray booth with at least three sides, filters with 98% capture efficiency, HVLP guns, and training requirements.	http://www.deq.state.or.us/aq/permit/acdp/general/aggp027.pdf
SC	Registration	N/A	< 3,100 gallons/year	NESHAP, Subpart HHHHHH.	http://www.scdhec.gov/environment/baq/Permitting/RegistrationPermits/auto_body_shop.asp
TX	Permit by Rule	VOC < 25 tpy	< 320 gallons/month for top coats; < 175 gallons/month for primers/primer surface; and < 50 gallons/month for each of cleanup solvents, wipe solvents, precoat pretreatment, sealers, and specialty coatings.	Operating requirements for spray coating operations and paint booths.	http://www.tceq.texas.gov/permitting/air/permitbyrule/subchapter-s/auto_body.html

State	Permit Type	Emission Limit	VOC-containing Materials (Solvent & Coating) Usage Limit	Other Limitations	Weblink
WA	General Order	N/A	< 950 gallons/year	Use HVLP or equivalent spray applications; and 98% capture efficiency for filters.	http://apps.ecy.wa.gov/permithandbook/permitdetail.asp?id=129

**Attachment B:
Emissions Calculations for VOC-Containing Material Usage Limits**

Assumptions:

- (1) The VOC content of all the VOC-containing materials (including coatings, thinners, and clean-up solvents) is assumed to be 8.34 lbs/gal (worst case scenario);
- (2) Only natural gas, propane, and butane are used in the fuel combustion units at the affected facilities;
- (3) The total heat input capacity of all the fuel combustion units at the affected facilities is 10 MMBtu/hour; and
- (4) Only batch-loaded cold cleaning degreasers are used.

(1) VOC-containing Material Usage Limit for Ozone Attainment, Unclassifiable or Attainment/Unclassifiable Areas: 5,000 gallons per year (see Table 5)

VOC Emissions from Surface Coating Operations

= Annual VOC-containing material usage limit x VOC content x lbs to tons conversion
= 5,000 gallons/year x 8.34 lbs/gallon x 1 ton/2,000 lbs
= 20.85 tpy

VOC Emissions from Combustion Units

= Maximum heat capacity of the combustion units x fuel heat content x emission factor x 8,760 hours/year x lbs to tons conversion
= 10 MMBtu/hour x (1 kgal/91.5 MMBtu) x 1 (lb/kgal) x 8,760 hours/year x 1 ton/2,000 lbs
= 0.48 tpy

(Note: Emission factor is for propane combustion, which is the worst case scenario among using natural gas, propane, and butane)

VOC Emissions from Cold Cleaning Degreasers

= Maximum solvent density x annual solvent usage x lbs to tons conversion
= 11 lbs/gallon x 500 gallons x 1 ton/2,000 lbs
= 2.75 tpy

Total VOC Emissions from the Affected Auto Body Shop

= VOC emissions from surface coating operations and VOC emissions from combustion units and VOC emissions from cold cleaning degreasers
= 20.85 tpy + 0.48 tpy + 2.75 tpy
= 24.1 tpy

(2) **VOC-containing Material Usage Limit for Ozone Nonattainment Areas:** 900 gallons per year (see Table 5)

VOC Emissions from Surface Coating Operations

= Annual VOC-containing material usage limit x VOC content
= 900 gallons/year x 8.34 lbs/gallon x 1 ton/2,000 lbs
= 3.75 tpy

VOC Emissions from Combustion Units

= Maximum heat capacity of the combustion units x fuel heat content x emission factor x 8,760 hours/year x lbs to tons conversion
= 10 MMBtu/hour x (1 kgal/91.5 MMBtu) x 1 (lb/kgal) x 8,760 hours/year x 1 ton/2,000 lbs
= 0.48 tpy

(Note: Emission factor is for propane combustion, which is the worst case scenario among using natural gas, propane, and butane)

VOC Emissions from Cold Cleaning Degreasers

= Maximum VOC content x grams to lbs conversion x gallons to liters conversion 1 liter/3.78 gallons x annual solvent usage x lbs to tons conversion
= 25 gram/liter x 1 lb/454 grams x 1 liter/3.78 gallons x 500 gallons/year x 1 ton/2,000 lbs
= 0.004 tpy

Total VOC Emissions from the Affected Auto Body Shop

= VOC emissions from surface coating operations and VOC emissions from combustion units and VOC emissions from cold cleaning degreasers
= 3.75 tpy + 0.48 tpy + 0.004
= 4.23 tpy