

# Technical Support Document for Automotive Refinishing Facilities

## General Order of Approval 002 Revision 1 (GO 002R1)

**DRAFT September 11, 2019**



*Serving Island, Skagit & Whatcom Counties*

**A. CONTENTS**

B. INTRODUCTION.....	3
C. PUBLIC INVOLVEMENT .....	5
D. STATE ENVIRONMENTAL POLICY ACT (SEPA) .....	6
E. NWCAA REGISTRATION.....	7
F. COMPLIANCE WITH NWCAA 300.16 CRITERIA.....	7
G. CRITERIA AIR POLLUTION EMISSIONS AND IMPACTS .....	12
H. TOXIC AIR POLLUTANT (TAP) EMISSIONS AND IMPACTS.....	13
I. APPLICATION PROCESSING .....	16
J. GENERAL ORDER APPEAL RIGHTS .....	16
K. CONCLUSION.....	17
L. ACRONYMS AND ABBREVIATIONS .....	18
LIST OF ATTACHMENTS .....	19
• ATTACHMENT 1 – PUBLIC NOTICE.....	19
• ATTACHMENT 2 – MSDS for AXALTA CROMAX PRODUCT LINE.....	19
• ATTACHMENT 3 – AERSCREEN MODELING RESULTS.....	19
• ATTACHMENT 4 – APPLICATION FOR COVERAGE UNDER GO 002R1 .....	19

## B. INTRODUCTION

This technical support document has been updated to reflect Revision 1 of General Order of Approval 002 - Automotive Refinishing Facilities (GO 002R1). The original GO 002 was issued July 14, 2015. This revision follows the procedures set forth in Subsection 300.16 - General Order of Approval of the NWCAA Regulation. In accordance with NWCAA 300.16(A)(3), the revised order applies prospectively and does not automatically apply to facilities covered under the original GO 002.

Revision 1 makes the following changes to the order.

- Adds a reference to NWCAA Section 508 – Spray Coating Operations. This new section of the NWCAA Regulation that became effective May 12, 2019, requiring uniform standards to most spray coating operations within the jurisdiction of the NWCAA. The requirements of Section 508 overlap and supplement those in GO 002R1.
- Allows heated booths to be covered by the General Order by adding a limit on the ethylbenzene content of coatings of 3.6% by weight. The original General Order did not allow heated booths because initial review found that coatings formulated for use in heated booths often exceed 5% by weight ethylbenzene. However, since the original General Order was issued, owners of heated booths have come to NWCAA stating that they can now purchase paints with lower ethylbenzene content. NWCAA's original analysis and the 490 gallon/yr paint limit was based on an ethyl benzene content of 3.6%. Because ethylbenzene continues to be the limiting toxic air pollutant identified in the ambient impact analysis for the General Order, limiting the quantity of coatings to 490 gallons per year and the ethylbenzene content in coating to 3.6% by weight ensures that ambient impacts are acceptable regardless of whether or not the booth is heated.

General Order of Approval 002R1 - Automotive Refinishing Facilities (General Order) allows owners and operators of automotive refinishing facilities a streamlined approach to obtain approval for new paint spray booths. Instead of case-by-case approvals issued under Section 300 – New Source Review of the NWCAA Regulation, automotive refinishers may submit an application for coverage under this General Order. If application review by the agency determines the facility will meet the criteria for coverage, written confirmation of coverage is provided to the applicant in the form of a letter granting coverage. The agency is required to confirm or deny coverage under the General Order within 30 days of receiving a complete application.

This General Order is issued pursuant to Subsection 300.16 of the NWCAA Regulation. NWCAA 300.16 specifies criteria under which the agency issues a General Order of Approval and the administrative method for processing applications for coverage. For this General Order, Section F of this Technical Support Document (TSD) describes how the order complies with the criteria in NWCAA 300.16. Section C of the TSD describes how the NWCAA met the public notice requirements for issuing this General Order as prescribe under 300.16(A)(2). Accordingly, the agency's public notice involvement procedures under Section 305 were followed before issuing General Order 002R1.

This General Order applies to automotive refinishing facilities that involve painting automobiles, trucks, and mobile equipment such as trailers. Automotive refinishing

operations are often collocated with auto body repair operations with painting being the final step in the repair process. For the purpose of this permitting action, a paint spray booth and its associated prep station are considered to be the same emissions unit covered under this General Order even though the prep station may be equipped with its own set of filters and stack. The integration of the spray booth and prep station into a single emissions unit allows the product use profile and emissions modelling to be done without separating the two. This is considered a conservative and comprehensive approach. Henceforth, when this technical support document refers to "spray booth", it also refers to the associated prep station without calling out the prep station specifically.

This General Order does not apply to:

- Other types of spray booths such as those used to apply coatings to furniture or boats.
- Aerosol coating products that are packaged in disposable cans (rattle cans). Although aerosol cans use may be found at auto body shops, their PTE is considered to be below de minimis thresholds of NWCAA 300.5. Therefore, their use is not reviewable under Section 300 of the NWCAA Regulation.
- Mobile painting touch-up operations conducted on automobiles and automotive equipment.
- Automotive refinishing facilities located at a Title V air operating permit (AOP) source. This exclusion is codified in NWCAA 300.16(B)(1)(d).
- Spray booths installed at a location where automotive spray coating is prohibited by the city or county.

Spray booths that cannot meet the criteria for coverage under this General Order may apply for case-by-case approval under Section 300 of the NWCAA Regulation by filing a Notice of Construction (NOC) application with the agency.

Coverage under this General Order is granted to each individual paint spray booth and associated prep station. If there are multiple paint spray booths or prep stations at a facility needing coverage, separate applications must be submitted for each set and coverage is granted by the agency separately. However, no more than one application for coverage may be granted at the same facility unless the applications are separated by at least 18 months<sup>1</sup>. This separation in time ensures within reason, that projects are separate capital projects and not parts of a single project. The basis for this separation lies in the fact that this General Order ensures compliance with the acceptable source impact levels (ASIL) of WAC 173-460 for toxic air pollutants for a single spray booth. Simultaneous granting coverage for multiple spray booths and their associated prep stations at a single facility would overlook the requirement to evaluate an increase in air toxics that are part of a single project in aggregate and comparing increases to the ASILs.

This General Order includes conditions under which a spray booth and prep booth may operate. These conditions are summarized below. A detailed discussion of the intent of each condition is included in Section F of this TSD.

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<sup>1</sup> Consistent with US EPA Memo dated June 17, 1993 "Applicability of New Source Review Circumvention Guidance to 3M - Maplewood, Minnesota"

- Spray coating operations must be done in a spray booth or prep booth with at least 3 sides and a ceiling, equipped with exhaust filters that are at least 98% efficient as determined by ASHRAE Method 52.1 and exhausted at least six feet above the highest point of the roof.
- Spray coating must be done using high-volume, low-pressure (HVLP), electrostatic or equivalent spray guns.  
South Coast Air Quality Management District provides equivalency determination letters at: <http://www.aqmd.gov/home/permits/spray-equipment-transfer-efficiency>.
- Total coating and solvent use is limited to 490 gallons per year (12-month rolling average) and must not contain any cadmium, lead, hexavalent chromium (chromate) or manganese and not contain ethylbenzene at a concentration greater than 3.6% by weight.
- Spray gun cleaning must be done in either an enclosed cleaning device or by disassembling the gun and cleaning in a container.
- Solvent containers must remain closed when not in use and solvent soaked materials such as rags must be store in closed containers when not in use.

### C. PUBLIC INVOLVEMENT

Public involvement for GO 002R1 is required under the following NWCAA subsections of the NWCAA Regulation.

#### *305.2 Actions Subject to a Mandatory Public Comment Period*

*A) The NWCAA shall provide public notice and a public comment period in accordance with NWCAA 305.3, before approving or denying any of the following types of applications or other actions:*

....

*(9) The original issuance and any revisions to a General Order of Approval issued under NWCAA 300.16.*

....

#### *305.3 Public Comment Period*

*If required, a public comment period shall be initiated through publication of a legal notice in a local newspaper. The public comment period shall be initiated only after the NWCAA has made a preliminary determination. The cost of providing legal notice shall be borne by the applicant. Public notice of any NOC application requiring a public comment period shall include the following:*

*(A) The NOC application and any written preliminary determination by the NWCAA shall be available on the NWCAA's internet website, excluding any confidential information as provided in Section 114 of this Regulation. In addition, the NOC application and any written determination shall be made available for public inspection in at least one location near the proposed project. The NWCAA's written preliminary determination shall include the conclusions, determinations and pertinent supporting information from the NWCAA's analysis of the effect of the proposed project on air quality.*

*(B) Publication of a legal notice in a newspaper of general circulation in the area of the proposed project which provides each of the following:*

- (1) Name, location and a brief description of the project;*
- (2) Location of documents made available for public inspection;*
- (3) The deadline for submitting written comments;*
- (4) A statement that any person, interested governmental agency, group, or the applicant may request a public hearing;*
- (5) A statement that a public hearing may be held if the NWCAA determines within a 30-day period that significant public interest exists;*
- (6) The date of the close of the public comment period in the event of a public hearing;*

*(C) Notice to the US Environmental Protection Agency Region 10 Regional Administrator.*

#### *305.4 Extent of Public Comment Period*

*The public comment period shall be the 30-day period following the date the public notice is first published, unless a public hearing is held. If a public hearing is held, the public comment period shall extend through the hearing date and thereafter for such period, as specified in the notice of public hearing.*

The agency took the following action to meet the requirements for public involvement.

- A public notice of the agency's preliminary determination to issue the GO 002R1 was posted to the NWCAA website on September 25, 2019 for a period of no less than 30 days ending on October 30, 2019. This posting included the public notice (Attachment 1), draft General Order 002R1 and associated Technical Support Document.
- The public notice was published in the Bellingham Herald, in the Skagit Valley Herald, and in the Whidbey News-Times on September 25, 2019.
- The US EPA Region 10 Administrator was send a copy of the public notice on September 25, 2019.
- A copy of the docket containing the public notice, draft General Order 002R1 and associated Technical Support Document was maintained at the NWCAA office.
- A public hearing was not scheduled because no comments were received during the public comment period.

#### **D. STATE ENVIRONMENTAL POLICY ACT (SEPA)**

Revision 1 of GO 002 is considered a reissuance of a license regulating activities at new and modified automotive refinishing facilities. State Environmental Policy Act (SEPA) review under NWCAA Section 155 is not required because this is an administrative revision to an existing approval order that will not result in a material change to the order, that is, change that is relevant and significant. Accordingly, the SEPA exemption under NWCAA 155.2(A) is being exercised that references the following state SEPA regulation.

WAC 197-11-800. Categorical exemptions.

(13) Business and other regulatory licenses. The following business and other regulatory licenses are exempt:

(i) The renewal or reissuance of a license regulating any present activity or structure so long as no material changes are involved.

## **E. NWCAA REGISTRATION**

The source registration program under Section 320 of the NWCAA Regulation requires non-Title V sources to register with the agency and pay annual registration fees. Registration of automotive refinishing operations is required under one or more of the following.

### **NWCAA 320.5(A) Source Categories**

*Any affected source subject to a National Emission Standard for Hazardous Air Pollutants for Source Categories (NESHAP) under 40 CFR Part 63.*

*Any source that is subject to an Order of Approval or has been confirmed to be covered by a General Order of Approval by the NWCAA.*

*Any source with a facility-wide uncontrolled potential to emit emission rate of one or more pollutants equal to or greater than the registered source exemption emission rates as specified in WAC 173-400-102(5) or the Small Quantity Emission Rates (SQER) for Toxic Air Pollutants as specified in chapter 173-460 WAC.*

### **NWCAA 320.5(B) Source Types**

*Surface coating operations, including coating of motor vehicles, mobile equipment, boats, ships, metal, cans, pressure sensitive tape, labels, coils, wood, plastic, rubber, glass, paper and other substrates.*

### **NWCAA 320.5(C) Equipment classification list.**

*Particulate control equipment having a rated capacity greater than or equal to 2,000 cfm including, but not limited to:*

*(7) Mat or panel filter*

*(13) Water curtain*

## **F. COMPLIANCE WITH NWCAA 300.16 CRITERIA**

General Order 002R1 is issued pursuant to Subsection 300.16 of the NWCAA Regulation. NWCAA 300.16(A)(1)(a) through (f) lists specific term and condition criteria that must be met, as appropriate, in issuing the general order. Each criteria and how General Order 002R1 addresses that criteria is described below.

### (a) Emissions limitations and/or control requirements based on Best Available Control Technology (BACT) and/or BACT for Toxic Air Pollutants (T-BACT);

Best available control technology (BACT) are reflected in the requirements of the General Order as described below.

- Spray coating operations must be conducted using high volume-low pressure (HVLP), electrostatic, or equivalent transfer efficiency spray guns.



The agency has determined this is BACT for PM over a long history of permitting spray coating operations. Good gun transfer efficiency minimizes overspray and maximizes the amount of solids applied to the automotive part.

- All spray coating activities must be done in a spray booth comprised of at least three sides and a ceiling that captures and exhausts all overspray through a particulate filter system that discharges vertically and at least six feet above the highest point of the roof.

This ensures proper capture and control of particulate emissions. It also ensures that all emissions are discharged in a vertical orientation and at a significant height above the ground to ensure good air pollution dispersion to minimize impacts to the ambient air. This is consistent with the agency's common permitting practices.

- The dry filter system must be at least 98% efficient at controlling emissions consistent with the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Method 52.1.

The 98% control efficiency requirement is consistent with orders of approval issued by the NWCAA for spray coating operations as BACT to control PM from spray coating operations that do not use coatings containing hexavalent chromium.

- Use of coatings and solvents is limited to a total of 490 gallons in any 12-month period, and coatings used are limited to 3.6% ethylbenzene by weight.

These two limits keep the facility from exceeding the ASIL for ethylbenzene. See Sections G and H of this TSD for toxic air pollutant emission rates and their impact on the ambient air. Cromax thinners/solvents may have an ethylbenzene content higher than 3.6%. However, use rates of thinners/solvents are relatively low compared to coating use rates at a facility, and it is assumed that the overall weighted average ethylbenzene content will remain below 3.6%.

- Solvents and coatings used at the facility must not contain cadmium, lead, hexavalent chromium (chromate) or manganese.

The agency has determined that solvents and coatings are reasonably available for use by automotive refinishers that do not contain these metallic toxic air pollutants. The Cromax coatings profile used in this analysis does not contain any metals. The metals prohibition in this General Order ensures that the dry filter control efficiency of 98% is appropriate BACT for non-chromated spray coating operations because the agency has historically determined<sup>2</sup> that BACT is a more stringent level of control. See the TSD for GO 002 issued July 14, 2015 for a detailed write-up on the history of metals used in coatings and their regulation.

- Good housekeeping including cleaning spray guns in an enclosed cleaning device, or disassembled and cleaning in a container, and keeping solvent containers closed and keeping solvent laden material in closed containers.

The agency has determined that these good housekeeping practices representing BACT for volatile air pollutants.

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<sup>2</sup> See Munson Boat OAC 1102 issued September 26, 2011 requiring dry filters meeting the aerospace MACT requirements of 40 CFR 63 Subpart GG.



(b) Operational restrictions, such as:

- (i) Criteria related to the physical size of the source or emissions unit(s) covered;
- (ii) Criteria related to raw materials and fuels used;
- (iii) Criteria related to allowed or prohibited locations; and
- (iv) Other similar criteria as determined by the NWCAA;

Operational restrictions in General Order include;

- Limiting coating and solvent use to 490 gallons in any consecutive 12-month period
- Limiting the coating concentration of coating to 3.6% ethylbenzene by weight.

Both of these operational restrictions ensure that toxic air pollutants are emitted at acceptable levels as prescribed under Chapter 173-460 WAC.

(c) Monitoring, reporting, and recordkeeping requirements to ensure compliance with the applicable emission limits and/or control requirements;

The general order includes the following monitoring, reporting, and recordkeeping provisions.

- Periodic monitoring of the pressure drop across the filter bank and visual checks for gaps in the filter bank.

Monitoring ensures that the filter bank it is being properly operated and maintained.

- Records of filter bank monitoring inspections, purchase records for filters, copies of manufacturer data sheets for all coatings and solvents used, and coating and solvent use rate records.

These records are used to demonstrate that the facility is being operated and maintained in accordance with the conditions of the General Order.

- Reporting to the agency of the spray booth startup date.

This ensures the facility has commenced construction and has begun operation in a timely manner after obtaining coverage under the General Order. It also notifies the agency staff that the facility is operating so that a compliance inspection can be scheduled.

(d) Initial and periodic emission testing requirements;

There are no periodic testing requirements in the General Order due to the size and emission characteristics of automotive spray coating operations.

(e) Compliance with WAC 173-400-112, NWCAA 300.9(B), and 300.9(C), as applicable;

- WAC 173-400-112 prescribes requirements for new source review for those sources located in non-attainment areas with regard to National Ambient Air Quality Standards (NAAQS).

There are no non-attainment areas within the jurisdiction of the NWCAA

- NWCAA 300.9(C) requires a toxic air pollutant review be performed under Chapter 173-460 WAC as referenced under WAC 173-400-110(2)(d).

A review of toxic air pollutant emissions and their impacts on the ambient air is included in Sections G and H of this technical support document (TSD).

- NWCAA 300.9(B) requires the following.

(1) Comply with all applicable New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP), National Emission Standards for Hazardous Air Pollutants for source categories (NESHAP), emission standards adopted under chapter 70.94 RCW and all applicable NWCAA emission standards.

The only federal rule that applies to automotive refinishing facilities is 40 CFR 63 Subpart HHHHHH - National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources. The General Order has been written consistent with the requirements of Subpart HHHHHH.

There are no state air pollution regulations specific to automotive refinishing operations.

The only NWCAA rule specifically applicable to automotive refinishing facilities is Section 508 that effects most spray coating operations of which automotive is a subset. The General Order has been written consistent with the requirements of Subpart HHHHHH.

The NWCAA Regulations has general provisions that are applicable to automotive spray coating operations. These include a visible emissions limit of 20% opacity as determined by Method 9A [NWCAA Section 451) and a particulate limit of 0.10 grain/dry standard cubic foot from the spray booth exhaust [NWCAA Section 455). Spray coating operations controlled as required under the General Order are inherently low emitting particulate sources that meet these requirements by a substantial margin. Refer to Section G of this TSD for an estimate of particulate emissions.

The NWCAA Regulation includes a general nuisance provisions under Sections 530 and 535. These rules prohibit emissions that are detrimental to persons or property, including odors that adversely impact the use and enjoyment of property. There is a potential for odorous compounds to be emitted from automotive refinishing operations.

A review of the NWCAA Stratus compliance database for the last five calendar years (2014-2018) found that of the 1424 odor complaints received by the agency, one was related to an automotive refinisher (State Street Auto Body). NWCAA investigation found that the facility was using poor emission collection and control systems that would not have been allowed under this General Order.

The General Order requires specific control and ventilation practices consistent with best available control technology (BACT). These include capturing coating overspray in a booth and exhausting six feet above the roofline. If an odor complaint is received on an automobile refinisher operating under this General Order, the agency can ensure

that BACT is being employed as required by the order as a first line of action to resolve the problem.

(2) Employ Best Available Control Technology (BACT).

A discussion of BACT was addressed earlier in this section under NWCAA 300.16(A)(1)(a)

(3) Allowable emissions will not cause or contribute to a violation of any ambient air quality standard. In addition, if located in a nonattainment area, allowable emissions will not violate the requirements for reasonable further progress established by the State Implementation Plan (SIP). If NWCAA has reason to be concerned that the construction or modification would cause or contribute to a violation of a NAAQS, NWCAA may require modeling using the guideline models and procedures of Appendix W of 40 CFR Part 51 as referenced in NWCAA 104.2. Written approval from the EPA must be obtained for any modification to or substitution for a guideline model.

There are no areas within the jurisdiction of the NWCAA that are considered nonattainment areas. Refer to Section G of this TSD for an ambient impact analysis for facilities granted coverage under this General Order.

(4) Comply with the applicable requirements of NWCAA Section 305.

Refer to Section C of this TSD for details on the public involvement process followed under NWCAA Section 305 prior to issuing this General Order.

(5) Comply with the applicable requirements of WAC 173-400-200 and 173-400-205.

WAC 173-400-200 entitled "Creditable stack height and dispersion techniques", prohibits the use of dispersion techniques or excess stack height to meet ambient air quality standards or PSD increment limitations. The configuration of an automotive spray booth approved under this General Order is in compliance with these requirements.

WAC 173-400-205 entitled "Adjustment for atmospheric conditions" prohibits varying emissions according to atmospheric conditions or ambient concentrations of that pollutant, except as directed during air pollution episode. The configuration of an automotive spray booth approved under this General Order is in compliance with this requirement.

(6) All fees required under NWCAA 324.2 have been paid.

The application includes the fees required for coverage under the General Order.

(f) Compliance with 40 CFR Parts 60, 61, 62, and 63; emission standards adopted under chapter 70.94 RCW; and all applicable NWCAA emission standards.

Compliance with federal, state and NWCAA air quality rules is also required under NWCAA 300.9(B). See the discussion under NWCAA 300.9(B) above for details.

(g) The application and approval process to obtain coverage under the specific General Order of Approval.

The application for the General Order is clear with regard to what is needed to approve coverage.

## G. CRITERIA AIR POLLUTION EMISSIONS AND IMPACTS

The following calculations estimate the potential to emit (PTE) from an automotive spray coating operation that uses 490 gallons per year of coatings or solvents. This is the maximum use rate allowable under the General Order. A product density of 11.54 lb/gallon is used that is the maximum found in Cromax line (Attachment 2) which is from primer Cromax 7704S. Assumptions in the emission estimates are conservative and overestimate the emission rates. Only PM is considered controlled with BACT as required under the general order.

### Particulate Matter (PM)

#### Uncontrolled PM

Assumptions: Annual paint use: 490 gal/year (*conservative as paint since solvents have no solids*)

Coating density: 11.54 lb/gal (*conservatively high*)

Coating solids: 40%

Annual PM emissions:

$$490 \frac{\text{gallons}}{\text{year}} \times 11.54 \frac{\text{lb}}{\text{gallon}} \times 0.40 \frac{\text{lb PM}}{\text{lb paint}} \times \frac{\text{ton}}{2000 \text{ lb}} \text{lb} = 1.13 \frac{\text{tons}}{\text{year}} \text{PM}$$

#### Controlled PM

Assumptions: Annual paint use: 490 gal/year (*conservative as paint since solvents have no solids*)

Coating density: 11.54 lb/gal (*conservatively high*)

Coating solids: 40%

Spray transfer efficiency: 65%

Filter efficiency: 98%

Annual PM emissions:

$$490 \frac{\text{gallons}}{\text{year}} \times 11.54 \frac{\text{lb}}{\text{gallon}} \times 0.40 \frac{\text{lb PM}}{\text{lb paint}} \times (1 - 0.65) \times (1 - 0.98) = 16 \frac{\text{lb}}{\text{year}} \text{PM}$$

### Volatile Organic Compounds (VOC)

Assumptions: Annual solvent use: 490 gal/year (*conservative as solvents have no solids*)

Solvent density: 11.54 lb/gal (*conservatively high*)

100% of solvent is VOC

Annual VOC emissions:

$$490 \frac{\text{gallons}}{\text{year}} \times 11.54 \frac{\text{lb}}{\text{gallon}} \times \frac{\text{ton}}{2000 \text{ lb}} = 2.8 \text{ tons per year VOC}$$

### Hazardous Air Pollutants (HAP)

Conservative Assumptions: All VOCs are HAPs.

Annual HAP emissions: 2.8 tons per year

### Regulatory analysis based on emission rates of criteria air pollutants.

- Uncontrolled emissions of PM and VOC exceed NWCAA NSR thresholds of 0.75 tpy PM and 2.0 tpy VOC, respectively. Therefore, both are under NSR in accordance with the NSR de minimis thresholds under NWCAA 300.4.
- The highest PTE is VOC at 2.8 tpy. This is less than the Title V threshold of 100 tpy and the AOP program does not apply if this is a single source.
- The worst-case HAP emission rate is 2.8 tpy and less than the 10 tpy of a single HAP, and 25 tpy of a combination of HAPs threshold for Title V program and the major source MACT program do not apply if this is a single source.

## H. TOXIC AIR POLLUTANT (TAP) EMISSIONS AND IMPACTS

During new source review, toxic air pollutants must be reviewed in accordance with Chapter WAC 173-460 WAC – Controls for Sources of Toxic Air Pollutants. Table1 estimates the potential to emit (PTE) for each TAP and demonstrates that ambient impacts for automotive refinishing operations granted coverage under this General order are in compliance with WAC 173-460. The PTE is estimated based on the following permit restrictions.

- Limits the combined coating and solvent use rate to 490 gallons per year.
- Limits the ethylbenzene content of coating to 3.6% by weight.
- Prohibits the use coatings the contain hexavalent chromium (Cr VI), lead (Pb), cadmium (Cd) and manganese (Mg).

The limit on coating and solvent use rate and the limit on the ethylbenzene content of coating ensures that the ambient impact of ethylbenzene does not exceed the acceptable source impact level (ASIL) as prescribed under WAC 173-460. The prohibition on metals in coatings is considered BACT and not emission estimates are provided for the metal TAPs.

A materials use profile provided by Axalta Technical Specialist, Jeff Beaupre (Attachment 2)<sup>3</sup> was analyzed for TAPs. The profile represents a full array of the most popular automotive refinishing materials that a typical small to mid-sized auto refinisher would use in the

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<sup>3</sup> The SDS for the two clearcoats in the Cromax product profile were updated during GO 002R1 (revision 1). The ethylbenzene content in these clearcoats remains unchanged at 3.6%.

Cromax line. The Cromax line is a popular line offered by Axalta that is tailored to automotive refinishers. It does not include any products for marine, aviation or heavy duty truck refinishers.

The materials profile was analyzed by identifying all TAPs in each product using their material safety data sheet (MSDS). The product with the highest TAP in percent by weight (%) was used to calculate TAP emission rates at the permitted 490 gallons per year use rate. The analysis found that the TAP of most concern emitted is ethylbenzene. It also found that of all the products types in the Cromax line (i.e., cleaner, surface preparation, plastics, etch-primer, primer-filler, primer-surfacer, primer-sealer, sealer, topcoat, basecoat, clearcoat, blender, miscellaneous, additive and matting agent); clearcoats have the highest proportion of TAPs compared to other product types.

Table 1 provides a summary of the Cromax profile, listing the product that contains the highest content of each TAP. The table calculates the emission rate for each TAP based on the 490 gallon per year limit in the General Order.

**TABLE 1 – TAP Emissions at 490 Gallons per Year.**

GO limit in gallon/year: 490		Product							
Common Name	CAS #	Cromax Product	Product Type	TAP Content	Product Density	GO	-460 aver period	-460 SQER	GO
				% by wt	lb/gal	lb/aver period	lb/aver period	% SQER	
Cumene	98-82-8	G2-7779S	Clearcoat	0.20%	7.69	0.0289	24-hr	52.6	0.05%
Ethylbenzene	100-41-4	HC-7776S	Clearcoat	3.60%	7.55	133.1820	year	76.8	173.41%
Isopropyl Alcohol	67-63-0	7175S	Basemaker	15.00%	6.65	4.6869	1-hr	7.01	66.86%
Methyl Ethyl Ketone	78-93-3	7160S	Basemaker	26.00%	6.61	3.2300	24-hr	657	0.49%
Methyl Isobutyl Ketone	108-10-1	HC-7776S	Clearcoat	7.50%	7.55	1.0642	24-hr	394	0.27%
m-Xylene	108-38-3	HC-7776S	Clearcoat	14.00%	7.55	1.9866	24-hr	29	6.85%
o-Xylene	95-47-6	HC-7776S	Clearcoat	14.00%	7.55	1.9866	24-hr	29	6.85%
p-Xylene	106-42-3	HC-7776S	Clearcoat	14.00%	7.55	1.9866	24-hr	29	6.85%
Toluene	108-88-3	7160S	Basemaker	14.00%	6.61	1.7392	24-hr	657	0.26%

The analysis shows that ethylbenzene is the TAP of greatest concern, and that ethylbenzene is the limiting compound in determining product use rates authorized by the General Order. The highest ethylbenzene content of any Cromax product in the profile is clearcoat HC-7776S with 3.6% by weight ethylbenzene.

To ensure that there are no products in the Cromax line that should be considered in the TAP analysis, and that were not part of the profile submitted by Axalta, all products

available in containers of one gallon<sup>4</sup> or more were reviewed for their ethylbenzene content. The review found that all offered Cromax products have an ethylbenzene content equal to or less than 3.6% by weight with the exception of hyper-curing clearcoat product G2-4500S that has an ethylbenzene content of 5.3%. Hyper-curing clearcoats are formulated with a relatively high ethylbenzene content to facilitate quick drying in heated spray booths.

The original GO 002 prohibited heated booths because of the likelihood that coatings with an ethylbenzene content greater than 3.6% would be used. Under GO 002R1, the prohibition on heated booths was removed and replaced with a 3.6% by weight limit on the ethylbenzene content of all coatings used. If GO 002R1 is used to cover a heated booth, hyper-curing formulations with an ethylbenzene content greater than 3.6% is not allowed. Nonetheless, heated booths will speed the drying time for coatings compared to non-heated booths when using standard coating with no more than 3.6% ethylbenzene are applied.

All of the products in the Cromax line and currently offered by Axalta are available on the Axalta website. The lack of availability on the Axalta website indicates that a product is discontinued. Discontinued products continue to have MSDS available on the Axalta website. Many of these discontinued products contain ethylbenzene at concentrations greater than the 3.6% permitted limit. However, because these products have been discontinued, they are not expected to be in use or available for purchase by automotive refinishers that apply for coverage under this General Order.

Based on a review of Axalta's discontinued products, it is apparent that the content of ethylbenzene in the Cromax product line has been reduced over time and it is assumed that this trend is similar for manufactures of automotive refinishing products other than Axalta.

Because all TAPs, except ethylbenzene, are emitted at rates less than the SQER listed in WAC 173-460-150, the ambient impacts of those TAPs are assumed to be acceptable. The emission rate of ethylbenzene is greater than the SQER and air quality dispersion modelling is required to demonstrate compliance with the ASIL. Aerscreen was used for the modeling analysis with the following program input parameters. The stack, plume characteristics and building parameters were selected to represent a typical automotive refinishing shop. The stack height is based on the General Order requiring the stack to discharge vertically at least 6 feet above the roofline.

Emission rate:	1 gram per second (1 g/s)
Stack Height:	7.3 meters (24 feet)
Stack Inner Diameter:	0.864 meters (34 inches)
Plume Exit Temperature:	Ambient
Plume Exit Velocity:	9.669 meters per second (31.72 ft/sec)
Stack Flow Rate:	12,001 actual cubic feet per minute (ACFM)
Setting:	Rural

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<sup>4</sup> Only two non-aerosol can products are available in the Cromax line that have an ethylbenzene content greater than 3.6%; plastic 2340S with an ethylbenzene content of 4.0%, and additive 4950S with an ethylbenzene content of 4.3%. Both of these products are only available in quart containers. It is assumed their use will be minimal because the vast majority of products in the Cromax line are available in one gallon and five gallon containers.



Building Height (roofline):	5.5 meters (18 ft)
Max Building Dimension:	10 meters (32.8 ft)
Min Building Dimension:	10 meters (32.8 ft)
Stack Discharge Height above Building:	6 feet (24 foot stack – 18 foot roofline)

The maximum Aerscreen modelling result from a nominal 1 g/s emission rate is 208.3 ug/m<sup>3</sup> annual average (Attachment 3). The maximum impact is located 157 feet from the stack.

The annual ethylbenzene potential to emit from an automotive refinisher covered under the General Order is 0.0019 g/s. This emission rate is based on the use of 490 gallons of Cromax Clearcoat HC-7776S with an ethylbenzene content of 3.6%. Applying this ethylbenzene potential to emit to the nominal 1 g/s modeled impact results in an ambient ethylbenzene concentration of 0.399 ug/m<sup>3</sup> annual average (208.3 x 0.0019). This is below the acceptable source impact level (ASIL) for ethylbenzene of 0.400 ug/m<sup>3</sup> annual average.

In conclusion, limiting the annual, combined product use rate to 490 gallons per year, limiting coatings to 3.6% ethylbenzene, and prohibiting specific metals in the coatings ensures compliance with Chapter 173-460 WAC.

## **I. APPLICATION PROCESSING**

This General Order is issued in accordance with Subsection 300.16 of the NWCAA Regulation. 300.16(B) through (D) outline the process for granting coverage under a general order. Upon submittal of an application, the NWCAA has 30 days to review the application for completeness and either grant coverage or deem the application incomplete.

When the is deemed application complete, the agency issues a letter to the applicant within 30 days confirming coverage under the General order. If the agency deems the application incomplete, the agency will provides written notice to the applicant within the 30 day period, that the application is incomplete and identifies the information needed to make the application complete.

For an application to be deemed complete, an application review fee must be received by the NWCAA. The current application fee is \$924. This fee may be changed in the future as New Source Review fees are periodically adjusted.

An application for coverage under General Order GO 002R1 has been prepared and is included as Attachment 4 of this TSD. The application ensures that the facility is being constructed and operated consistent with the requirements of the General Order.

## **J. GENERAL ORDER APPEAL RIGHTS**

Pursuant to Section 300.10 of the NWCAA Regulation and ch 43.21B RCW, issuance of this General Order may be appealed to the Pollution Control Hearings Board (PCHB). To appeal, a written notice of appeal must be filed with the PCHB and a copy served upon the NWCAA within 30 days of the date the General Order is issued. At the conclusion of this 30 day

period, only the NWCAA's decision to approve or deny coverage under the General Order may be appealable using the same process.

Information regarding the appeal procedures can be found at: [www.eluho.wa.gov](http://www.eluho.wa.gov) under Pollution Control Hearings Board.

## **K. CONCLUSION**

Under the evaluation described in this technical support document (TSD), the Northwest Clean Air Agency hereby concludes that issuance of General Order 002R1 (GO 002R1) meets all applicable requirements.

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## L. ACRONYMS AND ABBREVIATIONS

ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
ASIL	Acceptable Source Impact Level
BACT	Best Available Control Technology
CFR	Code of Federal Regulations
lb/hr	Pounds per hour
NAAQS	National Ambient Air Quality Standard
NWCAA	Northwest Clean Air Agency
PM	Particulate matter also known as total suspended particulate
PTE	Potential to emit
RCW	Revised Code of Washington
SEPA	State Environmental Policy Act
SOER	Small Quantity Emission Rate
tpy	Tons per year
TSD	Technical Support Document
WAC	Washington Administrative Code

## LIST OF ATTACHMENTS

- **ATTACHMENT 1 – PUBLIC NOTICE**
- **ATTACHMENT 2 – MSDS for AXALTA CROMAX PRODUCT LINE**
- **ATTACHMENT 3 – AERSCREEN MODELING RESULTS**
- **ATTACHMENT 4 – APPLICATION FOR COVERAGE UNDER GO 002R1**