

**DRAFT**  
**TECHNICAL SUPPORT DOCUMENT**  
**For**  
**DRAFT/PROPOSED AIR EMISSION PERMIT NO. 12300057-003**

This technical support document (TSD) is intended for all parties interested in the draft/proposed permit and to meet the requirements that have been set forth by the federal and state regulations (40 CFR § 70.7(a)(5) and Minn. R. 7007.0850, subp. 1). The purpose of this document is to provide the legal and factual justification for each applicable requirement or policy decision considered in the preliminary determination to issue the draft/proposed permit.

**1. General Information**

**1.1 Applicant and Stationary Source Location:**

**Table 1. Applicant and Source Address**

<b>Applicant/Address</b>	<b>Stationary Source/Address</b> (SIC Code: 3081)
<b>Rayven Inc.</b> 431 Griggs St N St. Paul, MN, Ramsey County	<b>Rayven Inc.</b> 431 Griggs St N St. Paul, MN, Ramsey County
Contact: Chong Moua Phone: 651-209-5836 Email: cmoua@rayven.com	

**1.2 Facility Description**

Rayven, Inc. operates a full-service imageable film products manufacturing facility in St. Paul, Ramsey County, Minnesota. The Facility handles all aspects of the production processes including coating, printing, laminating, slitting and sheeting (converting), packaging and shipping. The Permittee's manufacturing processes include surface coating with pressure sensitive adhesives to produce tapes and labels. Each coating line at this Facility is an "affected facility" (per 40 CFR pt. 60, subp. RR).

Two of the coating lines (EU 001 and EU 003) have flexographic printing stations that print instructions and related items onto some of the products. These meet the definition of wide-web flexographic printing presses under the National Emissions Standard for Hazardous Air Pollutants or NESHAP found in 40 CFR pt. 63, subpart KK.

**1.3 Description of any Changes Allowed with this Permit Issuance**

This permit is a reissuance of the Title V operating permit. No changes are authorized by the permit action.

#### 1.4 Description of All Amendments Issued Since the Issuance of the Last Total Facility Permit

There have been no permit amendments since the 2006 Title V reissuance.

#### 1.5 Facility Emissions:

**Table 2a. Total Facility Limited Potential to Emit (PTE) Summary in Tons per Year (tpy)**

	PM tpy	PM <sub>10</sub> tpy	PM <sub>2.5</sub> tpy	SO <sub>2</sub> tpy	NO <sub>x</sub> tpy	CO tpy	CO <sub>2e</sub> tpy	VOC tpy	Ozone tpy	Single HAP tpy	All HAPs tpy
Total Facility Limited Potential Emissions (PTE)	0.34	0.34	0.34	0.14	6.22	3.50	6,226	200.5	4.48	9.00	24.08
Total Facility Actual Emissions (2011)	0.11	0.11	0.000013	0.049	3.08	1.17	*	33.64	*	*	

\*Not reported in MN emission inventory.

**Table 2b. Total Facility and Insignificant Activities Potential to Emit (PTE) Summary**

EU	Emission Unit Description	PM tpy	PM <sub>10</sub> tpy	PM <sub>2.5</sub> tpy	SO <sub>2</sub> tpy	NO <sub>x</sub> tpy	CO tpy	CO <sub>2e</sub> tpy	VOC tpy	Ozone tpy	Single HAP ***tpy	All HAPs tpy
001	Blue Line**	0.067	0.067	0.067	0.029	1.24	0.70	1,245	0.10	1.12	0.000028	0.016
003	Silicon Line**	0.067	0.067	0.067	0.029	1.24	0.70	1,245	0.10	2.24	0.000028	0.016
005	Black Line**	0.20	0.20	0.20	0.086	3.73	2.10	3,735	0.29	1.12	0.000085	0.047
GP001 (EU 001, 003, 005)		--	--	--	--	--	--	--	200.0	--	9.00	24.00
<b>Total Facility Limited PTE</b>		<b>0.34</b>	<b>0.34</b>	<b>0.34</b>	<b>0.14</b>	<b>6.22</b>	<b>3.50</b>	<b>6,226</b>	<b>200.5</b>	<b>4.48</b>	<b>9.00</b>	<b>24.08</b>
Insignificant Activities (IA) ****		0.044	0.044	0.044	0.019	0.81	0.47	809.3	1.052	--	0.000018	0.010
<b>Total Facility + IA</b>		<b>0.38</b>	<b>0.38</b>	<b>0.38</b>	<b>0.27</b>	<b>7.03</b>	<b>3.96</b>	<b>7,035</b>	<b>201.6</b>	<b>4.48</b>	<b>9.00</b>	<b>24.09</b>
Total Facility Actual Emissions (2011)		0.11	0.11	0.000013	0.049	3.08	1.17	*	33.64	*	*	

\*Not reported in MN emission inventory.

\*\*The VOC and HAP values in this table reflect combustion emissions from the ovens in each of the coating lines. Ozone values reflect emissions from the corona treaters in the coating lines.

\*\*\*Single HAPs include toluene, formaldehyde, and naphthalene. Toluene emission totals are shown here. See Attachment 1 for specific HAP PTEs.

\*\*\*\*Insignificant Activities in this table show combustion emissions for three boilers and VOC emissions for degreasers (0.99 tpy).

**Table 3. Facility Classification**

Classification	Major/Affected Source	Synthetic Minor/Area	Minor/Area
PSD		X (VOC)	
Part 70 Permit Program	X		
Part 63 NESHAP	X	X	

## **1.6 Changes to Permit**

No significant changes have been made to the requirements in the permit. The following types of changes have been made:

- permit language had been updated to reflect current MPCA templates and standard citation formatting;
- PTE values were added to permitted emission units (EUs) for PM<sub>2.5</sub> and CO<sub>2</sub>e in Delta;
- three new boilers have been added to the insignificant activities;
- removed EUs 014 and 015 because they are no longer in use and have been removed from the Facility;
- the requirements have been deleted for the equipment that has been removed; and
- GP 002 was added to Delta for the coating line combustion requirements and includes EUs 001, 003 and 005.

## **2. Regulatory and/or Statutory Basis**

### New Source Review

The existing Facility is subject to limits such that New Source Review (NSR) regulated air pollutants are less than the major source thresholds for NSR (40 CFR § 52.21(b)(1)). Therefore, as defined by the federal rules, the Facility is not considered an existing major source for NSR. No changes are authorized by this permit.

### Part 70 Permit Program

The PTE for VOCs is greater than the major source threshold of 100 tpy. Therefore, the Facility is a major source under the Part 70 permit program.

### New Source Performance Standards (NSPS)

The coating lines are subject to the requirements of 40 CFR pt. 60, subp. RR. VOC emissions are limited to 49.0 tpy from each coating line to avoid emission limits in 40 CFR pt. 60, subp. RR.

### National Emission Standards for Hazardous Air Pollutants (NESHAP)

The Permittee has accepted limits on HAP emissions to avoid major source classification under 40 CFR pt. 63. However, the compliance date, May 30, 1996, had passed prior to issuance of the permit with these limits; therefore the Facility has two coating lines (EU 001 and EU 003) subject to the requirements of 40 CFR pt. 63, subp. KK. To avoid major source classification, single and total HAP emissions are limited to 9.0 and 24.0 tpy from the coating line, respectively, under 40 CFR 63.2.

Paper and Other Web Coating NESHAP, 40 CFR pt. 63, subp. JJJJ, does not apply because subp. KK *does* apply as stated in 40 CFR §63.3300(a).

### Compliance Assurance Monitoring (CAM)

There are no controls for emission units at this Facility. Therefore, 40 CFR pt. 64 (CAM) does not apply.

### Environmental Review & AERA

There are no changes authorized by this permit action, and therefore environmental review is not required.

### Minnesota State Rules

Portions of the Facility are subject to the following Minnesota Standards of Performance:

- Minn. R. 7011.0610 Standards of Performance for Fossil-Fuel-Burning Direct Heating Equipment

**Table 4. Regulatory Overview of Facility**

Level*	Applicable Regulations	Comments:
GP 001	40 CFR § 52.21	Prevention of Significant Deterioration (PSD). Title 1 limits set for VOC emissions to avoid major source classification under PSD for all noncombustion VOC emissions. This is a rolling limit to account for substantial and unpredictable variations in operation.  The PTE from the three coating lines, given the NSPS limit listed later in this table, appears to be less than the NSR major source level; however, the Permittee can choose to exceed the NSPS usage limits so long as they comply with the appropriate NSPS limits. For this reason, the total facility VOC limit is still necessary in order to avoid being a major source under NSR.
	40 CFR § 63.2 and 63.820(a)(2)	National Emission Standards for Hazardous Air Pollutants (NESHAP). Limit set on individual and total HAPs emissions from coating operations to avoid major source classification for NESHAPs. Applies to all noncombustion HAP emissions. Second citation is for 40 CFR pt. 63, subp. KK. See Section 3.2 of this TSD for more detail.
GP 002	Minn. R. 7011.0610	Standards of Performance for Fossil-Fuel-Burning Direct Heating Equipment. Applies to the ovens within each coating line. PM, opacity and SO <sub>2</sub> limits.
	Minn. R. 7005.0100, subp. 35a	Fuel type limited to natural gas or propane.
EU 001, 003, and 005	40 CFR pt. 60, subp. RR	New Source Performance Standards (NSPS) for Pressure Sensitive Tape and Label Surface Coating Operations. Limits to keep VOC usage less than threshold in the rule to avoid NSPS emissions limits.

\*Where the requirement appears in the permit (e.g., EU, SV, GP, etc.).

### **3. Technical Information**

#### **3.1 Calculations of Potential to Emit**

Attachment 1 to this TSD contains PTE calculations and detailed spreadsheets of supporting information prepared by the MPCA and the Permittee. The PTE calculations have been updated since the last permit reissuance. Calculations added by the MPCA to those provided in the application for this permit action include the PTE for CO<sub>2</sub>e. Emission rates are generally based on

AP-42 emission factors, except for greenhouse gas pollutants. Emission factors for greenhouse gases are based on emission rates found in Table 12.9 of The Climate Registry and Global Warming Potentials found in Table a-1 of 40 CFR pt. 98. Equations used for calculations are shown below.

Equation 1 is an example calculation for PTE. Equation 2 is an example of calculating a greenhouse gas emission factor. Equation 3 shows the calculation of the CO<sub>2</sub>e emission factor.

Equation 1.

$$\begin{aligned} \text{Potential to Emit } \left[ \frac{\text{ton}}{\text{yr}} \right] \\ = \text{Rated Capacity } \left[ \frac{\text{MMBtu}}{\text{hr}} \right] \times \text{Emission Factor } \left[ \frac{\text{lb}}{\text{MMBtu}} \right] \times \frac{8,760 \left[ \frac{\text{hr}}{\text{yr}} \right]}{2000 \left[ \frac{\text{lb}}{\text{ton}} \right]} \\ \times \frac{100 - \text{Pollution Control Efficiency } [\%]}{100} \end{aligned}$$

Equation 2.

$$\text{GHG Emission Factor } \left[ \frac{\text{lb}}{\text{MMBtu}} \right] = \text{Rate } \left[ \frac{\text{kg}}{\text{MMBtu}} \right] \times 2.2046 \left[ \frac{\text{lb}}{\text{kg}} \right]$$

GHG = Greenhouse Gas

Equation 3.

$$\begin{aligned} \text{CO}_2\text{e Emission Factor } \left[ \frac{\text{lb}}{\text{MMBtu}} \right] \\ = \sum \text{CO}_2\text{equivalencies} \\ = \left( \text{GHG E.F. } \left[ \frac{\text{lb}}{\text{MMBtu}} \right] \times \text{GWP} \right)_{\text{Carbon Dioxide}} \\ + \left( \text{GHG E.F. } \left[ \frac{\text{lb}}{\text{MMBtu}} \right] \times \text{GWP} \right)_{\text{Methane}} \\ + \left( \text{GHG E.F. } \left[ \frac{\text{lb}}{\text{MMBtu}} \right] \times \text{GWP} \right)_{\text{Nitrous Oxide}} \\ + \left( \text{GHG E.F. } \left[ \frac{\text{lb}}{\text{MMBtu}} \right] \times \text{GWP} \right)_{\dots} \end{aligned}$$

GWP = Global Warming Potential

VOC and HAP emissions calculations for coating and cleaning materials used are based on the maximum weight percent for each pollutant. This information was acquired from the MSDSs for the coating and cleaning materials used for the 2006 reissuance and verified that they are the

same for this reissuance by the Permittee. See Attachment 1 for more information. Equation 4 shows how the VOC and HAPs PTE were calculated for the coating lines.

Equation 4.

$$\begin{aligned} \text{Coating PTE} \left[ \frac{\text{ton}}{\text{yr}} \right] &= \frac{\text{Max Weight Pollutant } \%}{100} \times \text{Web Speed} \left[ 1000 \frac{\text{ft}^2}{\text{hr}} \right] \\ &\times \text{Coating Weight per Web Area} \left[ \frac{\text{lb}}{\text{hr}} \right] \times \frac{8,760 \left[ \frac{\text{hr}}{\text{yr}} \right]}{2000 \left[ \frac{\text{lb}}{\text{ton}} \right]} \end{aligned}$$

### 3.2 Maximum Content of Materials

Tables 2a and 2b of this document summarize the potential to emit for individual and total HAPs. These HAPs and their PTEs are based on the current and projected coatings and formulations for this Facility. See Attachment 1 for the coating and cleanup materials used. The Facility can change materials at any time, as long as the new usage continues to meet the permit limits. While the numbers and chemicals in Tables 2a and 2b are intended to project the various HAPs the Facility will likely emit, the Facility is not currently restricted to these coatings and formulations; therefore, the HAPs and unrestricted PTEs of those HAPs may change after permit issuance.

The GP 001 VOC and HAP limits are PreCaps. This type of limit is a fairly standard limit developed by the MPCA in mid-2002 in order to give flexibility to facilities to make changes without automatically triggering a major amendment. The limits are written to cover the emissions/usage of all units at the Facility regardless of whether or not they are existing, modified, or new. If the Permittee wishes to make changes to any of the units (or add new ones), the modified or new equipment would be subject to the VOC and HAP caps. However, an amendment may still be needed to make the change based on an hourly emissions increase and/or a non-emissions increase amendment trigger (e.g., change to monitoring, recordkeeping, etc.).

As summarized in Table 2b, the Total Facility VOC PTE is determined by adding the combustion PTE of each EU and the GP 001 VOC cap. However, the Permittee has the flexibility to make changes and add units within the limitations detailed in the permit as long as they meet applicable amendment requirements. Despite any changes made to the individual units, GP 001 would still be subject to the GP 001 200 tpy limit on the total VOC emissions from the EUs.

Similarly, the PTE for GP 001 is limited to 9.0 and 24.0 tpy for maximum single HAP and total HAPs, respectively. Simplistically, while one EU may emit the limit for HAPs from the coating materials for only that one EU, the rest of the EUs may not emit any HAPs from their coating materials. Thus, the Total Facility Permitted PTE for single and total HAPs is determined by

summing the PTE for combustion from each EU *and* the coating limit (9.0 and 24.0 tpy) at the group level.

### 3.3 NESHAP Applicability

EUs 001 and 003 meet the definition of wide-web flexographic printing presses (40 CFR pt. 63, subpart KK). Because the compliance date in the standard was May 30, 1999, and the Permittee did not have a permit that limited the Facility to under the major source HAP thresholds before that date, the standard applies to these coating lines. As such, the Permittee had to determine which option the Facility would use to demonstrate compliance with this NESHAP.

The limit option chosen by the Permittee is found in 40 CFR § 63.820(a)(2) and specifies total Facility HAP usage limits of less than 10 and 25 tpy for individual and total HAPs. The permit already contains these limits in order to avoid major source status, so the requirement includes the additional citations from this specific standard. The standard does specify *usage*, not emissions; therefore, no waste credit is allowed for these HAP calculations.

### 3.4 Periodic Monitoring

In accordance with the Clean Air Act, it is the responsibility of the owner or operator of a facility to have sufficient knowledge of the facility to certify that the facility is in compliance with all applicable requirements. In evaluating the monitoring included in the permit, the MPCA considered the following:

- The likelihood of the Facility violating the applicable requirements;
- Whether add-on controls are necessary to meet the emission limits;
- The variability of emissions over time;
- The type of monitoring, process, maintenance, or control equipment data already available for the emission unit;
- The technical and economic feasibility of possible periodic monitoring methods; and
- The kind of monitoring found on similar units elsewhere.

Table 5 summarizes the periodic monitoring requirements for those emission units for which the monitoring required by the applicable requirement is nonexistent or inadequate.

**Table 5. Periodic Monitoring**

Level*	Requirement (basis)	Additional Monitoring	Discussion
Total Facility VOC Limits: GP 001	VOC ≤ 200 tons per year, on a 12 month rolling basis (limit to avoid NSR)	Recordkeeping: Daily records of batches processed; On-going formulation and MSDS records of coating contents;	Records can be generated on a daily basis for the coating lines. For coatings, these records will be daily manual logs of batches processed and mixing formulation data. The Permittee will record the number of batches of a given product processed on each coating line, each day of operation. The Permittee must have records of the formulation and quantity information for each batch. This data

Level*	Requirement (basis)	Additional Monitoring	Discussion
	Total HAP Usage $\leq 24.0$ tpy and Single HAP Usage $\leq 9.0$ tpy (limit to avoid NESHAP)	Monthly calculations of emissions.	<p>will then be used in the monthly calculations to calculate the VOC used per month.</p> <p>Solvents used as cleanup materials are used in small amounts throughout the production areas. Tracking on a daily basis is not feasible and would result in great inaccuracies in the calculations. These materials will be tracked at the Total Facility level on a monthly basis, using purchase records and coating data (e.g., some solvents will already be counted as part of mixed coatings). If any material was purchased in the past month, it will be considered emitted that month. Using this streamlined recordkeeping method, it is possible that some months will be zero with all of the emissions being credited to a limited number of months. Since the limit is a rolling limit, and the quantity of cleanup solvents are small compared to other VOCs used at the Facility, this shouldn't create a deviation.</p> <p>Credit can be taken for waste materials collected and shipped off-site (dispensed – waste = emissions) for VOC. Since this is done at most monthly, calculating emissions more frequently than monthly would result in large spikes (while waste is accumulating) and dips (when waste is shipped) – resulting in possible paperwork violations and days with negative emissions. For these reasons, 12-month rolling limits are reasonable for this Facility.</p>
EU 001, 003, and 005 (Coating Lines)	VOC $\leq 200$ tons / year, on a 12 month rolling basis (limit to avoid NSPS emission limits)	None	Record keeping required by the NSPS is adequate. The daily records required earlier are used for the NSPS calculations.
GP 002 (Fossil-Fuel-Burning Direct Heating Equipment)	PM: varies with airflow  Opacity: $\leq 20$ % with exceptions (Minn. R. 7011.0610)	Recordkeeping: Fuel Purchase Records	All units use natural gas with propane as backup; therefore, the likelihood of violating either of the emission limits is very small. The Permittee can demonstrate that these units will continue to operate such that emissions are well below the emission limits by only burning natural gas and fuel purchase records document this. Since this is a permit condition, the semi-annual deviations report will document any deviations from this condition.

\*Where the requirement appears in the permit (e.g., EU, SV, GP, etc.).



### 3.3 Insignificant Activities

Rayven Inc has several operations which are classified as insignificant activities under the MPCA's permitting rules. These are listed in Appendix I – Insignificant Activities and Applicable Requirements to the permit.

The permit is required to include periodic monitoring for all emissions units, including insignificant activities, per EPA guidance. The insignificant activities at this Facility are only subject to general applicable requirements. Using the criteria outlined earlier in this TSD, the following table documents the justification why no additional periodic monitoring is necessary for the current insignificant activities. See Attachment 1 of this TSD for PTE information for the insignificant activities.

**Table 6. Insignificant Activities**

<b>Insignificant Activity</b>	<b>General Applicable Emission limit</b>	<b>Discussion</b>
Indirect heating equipment with a capacity less than 420,000 Btu/hour, etc.	PM $\leq$ 0.4, Opacity $\leq$ 20% with exceptions (Minn. R. 7011.0515)	This applies to the 0.3 MMBtu process boiler. For this unit, based on the fuels used and EPA published emissions factors, it is highly unlikely that they could violate the applicable requirements.
Individual emissions units, each of which have a potential to emit the following pollutants in amounts less than:  1. 4,000 lbs/year of CO;  2. 2,000 lbs/yr each of NO <sub>x</sub> , SO <sub>2</sub> , PM/PM <sub>10</sub> , VOC (including HAP - containing VOC), and ozone; and  3. 1,000 tpy of CO <sub>2</sub> e.	PM, variable depending on airflow  Opacity $\leq$ 20% (with exceptions)  (Minn. R. 7011.0715 and Minn. R. 7011.0610)	These are three mixers, three degreasers, and two 0.5 MMBtu boilers.  The mixers and degreasers have VOC and HAP emissions. Each has a VOC PTE less than 1 tpy and is not likely to generate any PM emissions. It is highly unlikely that they could violate the applicable requirement.  The emissions from the mixers are counted in the coating materials tracked at the individual coating lines.  For the boilers, based on fuels used and EPA published emission factors, it is highly unlikely that they could violate the applicable requirement.
Emissions from a laboratory, as defined in Minn. R. 7007.1300, subp. 3(G)	PM, variable depending on airflow  Opacity $\leq$ 20%  (Minn. R. 7011.0710/715)	These are very small, intermittent, bench-top operations that typically do not even have any emissions. It is highly unlikely that they could violate the applicable requirement.

Insignificant Activity	General Applicable Emission limit	Discussion
Brazing, soldering or welding equipment	PM, variable depending on airflow Opacity $\leq$ 20%  (Minn. R. 7011.0710/715)	For these units, based on EPA published emissions factors, it is highly unlikely that they could violate the applicable requirement. In addition, these units are typically operated and vented inside a building, so testing for PM or opacity is not feasible.
Infrequent use of spray paint equipment for routine housekeeping or plant upkeep activities not associated with primary production processes at the stationary source	PM, variable depending on airflow or process weight rate  Opacity $\leq$ 20%  (Minn. R. 7011.0715)	While spray equipment will have the potential to emit particulate matter, these particular activities are those not associated with production, so they would be infrequent and usually occur outdoors. Testing or monitoring is not feasible.

### 3.4 Permit Organization

Deviation from normal format: FC000 does not appear in the permit. However, it does appear in the facility description in Delta. FC000 is used only for purposes of tracking HAP emissions from cleaning materials and combustion of natural gas in the ovens, as well as VOCs from the cleaning materials. It is allowable to report HAP emissions this way because the Facility is not a major source of HAPs. The VOCs from the cleaning materials are tracked monthly by the Permittee recording usage in tons/month. In the calculations, emissions are correlated with their sources and not identified as FC000.

In general, the permit meets the MPCA Delta Guidance for ordering and grouping of requirements. One area where this permit deviates slightly from Delta guidance is in the use of appendices. While appendices are fully enforceable parts of the permit, in general, any requirement that the MPCA thinks should be electronically tracked (e.g., limits, submittals, etc.), should be in Table A or B of the permit. The main reason is that the appendices are word processing sections and are not part of the electronic tracking system. Violation of the appendices can be enforced, but the computer system will not automatically generate the necessary enforcement notices or documents. Staff must generate these.

### 3.5 Comments Received

This section will be completed after the public comment and EPA review periods.

Public Notice Period: <start date> - <end date>

EPA 45-day Review Period: <start date> - <end date>

## 4. Permit Fee Assessment

This permit action is the reissuance of an individual Part 70; therefore, no application fees apply under Minn. R. 7002.0016, subp. 1. Attachment 3- Points Calculator is provided for reference.

## 5. Conclusion

Based on the information provided by Rayven Inc, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 12300057-003 and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team:	Cassandra Meyer (permit engineer)
	Sarah Kilgriff (enforcement)
	Peggy Bartz (peer reviewer)

AQ File No. 2093A; DQ 3966

Attachments:	1. PTE Summary and Calculation Spreadsheets
	2. Facility Description and CD-01 Forms
	3. Points Calculator

**Rayven Inc.**  
**Permit No. 12300057-003**

**Technical Support Document**

## **Attachment 1 - PTE Summary Calculations Spreadsheets**

## Rayven, Inc. Potential to Emit Summary

This attachment uses information that was submitted by the Permittee to document the PTE calculations for the various emissions units at the Facility. This is more streamlined than actually attaching each calculation form submitted in the permit application materials. The following spreadsheets are included in this attachment:

Title	Description
PTE Summary	Summary of all pollutant PTEs from all spreadsheets.
Coating Lines	Tables showing the maximum lb/hr and tpy of VOC and the various HAPs from the coating lines. Calculations are based on using the highest content coating for each regulated pollutant. Also includes ozone PTE calculations provided by the Permittee. Includes a table showing the highest content coatings (lb/gal) for the various regulated pollutants.
CleanUp Materials	Table showing the VOC and HAP PTEs from the use of cleanup materials.
Combustion PTE	PTE calculations for the significant combustion devices at the site using AP-42 emissions factors.
Insignificant Activities	PTE calculations as needed for these units.

This spreadsheet summarizes the permitted PTE of the source -- this includes permit VOC and HAP limits for all non-combustion equipment.

EU	Process Type	VOC		PM/PM <sub>10</sub> /PM <sub>2.5</sub>		SO <sub>x</sub>		NO <sub>x</sub>		CO		CO <sub>2</sub> e		Ozone	
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
001	Coating Line 1	105.68	49.10	0.015	0.067	0.007	0.029	0.284	1.24	0.164	0.718	284.278	1245.14	0.256	1.12
003	Coating Line 3	175.85	49.10	0.015	0.067	0.007	0.029	0.284	1.24	0.164	0.718	284.278	1245.14	0.511	2.24
005	Coating Line 5	99.03	49.29	0.046	0.201	0.020	0.086	0.852	3.73	0.492	2.154	852.835	3735.42	0.256	1.12
GP001	Coating Limit	--	200.00	--	--	--	--	--	--	--	--	--	--	--	--
	CleanUp Materials	1.775	7.775	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total Facility Permitted</b>	380.56	200.48	0.08	0.34	0.03	0.14	1.42	6.22	0.82	3.59	1421.39	6225.70	1.02	4.48

EU	Process Type	Toluene		Formaldehyde		Naphthalene		Total HAP	
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
001	Coating Line 1	30.00	9.00	0.197	0.865	7.203	9.00	37.40	24.02
003	Coating Line 3	0.00	2.8E-05	0.00	0.00	0.00	0.00	0.0036	0.016
005	Coating Line 5	0.00	8.5E-05	0.043	0.192	0.00	0.00	0.054	0.24
	CleanUp Materials	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total Facility</b>	30.00	9.00	0.2407	1.06	7.203	9.00	37.45	24.08

See CleanUp Materials spreadsheet for very small amounts of two other HAPs.

Cleanup materials' PTE are accounted for in required monthly calculations.

See IA sheets for PTEs from IAs.

Insignificant Activities include a 0.3 MMBtu/process boiler and two 0.5 MMBtu boilers.

**Rayven, Inc.  
Coating Lines**

**Coating Lines, VOC, HAP and Ozone PTE**

The coaters do not spray the coating materials, so there are no PM/PM<sub>10</sub> emissions from the coaters.

Emission Unit	Web Speed (1000 ft <sup>2</sup> /hr)	Coating Weight per Web Area (lb/1000 ft <sup>2</sup> )	VOC PTE (lb/hr)	VOC PTE (tpy)	Toluene PTE (lb/hr)	Toluene PTE (tpy)	Formaldehyde PTE (lb/hr)	Formaldehyde PTE (tpy)
001	78.0	2.53	105.66	462.8	30.00	131.38	0.197	0.864
003	158.0	1.15	175.83	770.1	0.00	0.00	0.000	0.000
005	60.0	18.85	98.96	433.5	0.00	0.00	0.043	0.190
totals			380	1666	30.00	131.38	0.241	1.05

Emission Unit	Naphthalene PTE (lb/hr)	Naphthalene PTE (tpy)	Total HAP PTE (lb/hr)	Total HAP PTE (tpy)
001	7.20	31.55	37.396	163.79
003	0.00	0.00	0.000	0.0
005	0.00	0.00	0.043	0.2
total	7.20	31.55	37.4	164

Each coating line has a corona treater that has the potential to emit ozone.

Emission Unit	Electrical Input (kWe)	Ozone (lb/hr)	Ozone (tpy)	using vendor factor of
001	3.5	0.256	1.119	0.073 lb/kWe
003	7.0	0.511	2.238	
005	3.5	0.256	1.119	
total		1.02	4.48	

**Coating Contents**

The following table shows the maximum weight percent for each pollutant based on the 9/21/2000 and 5/22/2006 submittals. Rayven confirmed these numbers 01/29/2013.

Delta EU Number	001	003	005
	Coating Line 1	Coating Line 3	Coating Line 5
VOC	53.54	96.6	8.75
Toluene	15.20	0.00	0.00
Formaldehyde	0.10	0.00	0.00383
Naphthalene	3.65	0.00	0.00
Total HAP	18.95	0.00	0.00383

**Rayven, Inc.**  
**CleanUp Materials**

The Facility uses two different cleanup materials (per 2000 submittals and confirmed in May 2006). The PTE is calculated by scaling up actual usage. The PTE is not used to make any regulatory decisions or determinations (total facility cap and no unit-specific applicable requirements apply to cleanup materials). These materials are used for cleanup at the individual coating lines as well as around the Facility.

	Material		Totals
	Safety-Kleen 105	Ethyl Acetate	
Density (lb/gal)	6.7	7.5	
Maximum Usage (gal/hr)	0.125	0.125	
VOC Content (lb/gal)	6.7	7.5	
VOC (lb/hr)	0.84	0.94	1.78
VOC (tpy)	3.67	4.11	7.77
Tetrachloroethylene Content (wt. %)	0.5	0	
Tetrachloroethylene (lb/hr)	0.0042	0	0.0042
Tetrachloroethylene (tpy)	0.0183	0	0.0183
1,1,1 Trichloroethane Content (wt. %)	0.5	0	
1,1,1 Trichloroethane (lb/hr)	0.0042	0	0.0042
1,1,1 Trichloroethane (tpy)	0.0183	0	0.0183

**Rayven, Inc.**  
**Combustion PTE**

**From Coating Line Ovens (part of EUs 001, 003, and 005)**

The ovens burn natural gas with propane as a backup fuel. PTE is calculated using EPA published emissions factors from the most recent version of AP-42.

Each: 10 MMBtu/hr total  
Oven 1 2 MMBtu/hr  
Oven 3 2  
Oven 5 6

gas heat value 1050 Btu/scf  
propane heat value 91.5 10<sup>6</sup>Btu/10<sup>3</sup> gal  
(AP 42)

PM <sub>2.5</sub> /PM <sub>10</sub>	Natural Gas		Propane		NO <sub>2</sub>	Natural Gas		Propane	
	lb/hr	tpy	lb/hr	tpy		lb/hr	tpy	lb/hr	tpy
Oven 1 (EU 001)	0.014	0.063	0.015	0.067	1	0.190	0.834	0.284	1.245
Oven 3 (EU 003)	0.014	0.063	0.015	0.067	3	0.190	0.834	0.284	1.245
Oven 5 (EU 005)	0.043	0.190	0.046	0.201	5	0.571	2.503	0.852	3.734
Total	0.072	0.317	0.077	0.335	Total	0.952	4.171	1.421	6.223

SO <sub>2</sub>	Natural Gas		Propane		CO	Natural Gas		Propane	
	lb/hr	tpy	lb/hr	tpy		lb/hr	tpy	lb/hr	tpy
Oven 1 (EU 001)	0.001	0.005	0.007	0.029	1	0.160	0.701	0.164	0.718
Oven 3 (EU 003)	0.001	0.005	0.007	0.029	3	0.160	0.701	0.164	0.718
Oven 5 (EU 005)	0.003	0.015	0.020	0.086	5	0.480	2.102	0.492	2.154
Total	0.006	0.025	0.033	0.144	Total	0.800	3.504	0.820	3.590

From AP-42

VOC	Natural Gas		Propane		Natural Gas		Propane	
	lb/hr	tpy	lb/hr	tpy	<100 MMBtu/hr	EF	<100 MMBtu/hr	EF
Oven 1 (EU 001)	0.010	0.046	0.022	0.096	(lb/MMSCF)	(lb/1000gal)		
Oven 3 (EU 003)	0.010	0.046	0.022	0.096				
Oven 5 (EU 005)	0.031	0.138	0.066	0.287	PM	7.6		0.7
Total	0.052	0.229	0.109	0.479	PM <sub>10</sub>	7.6		0.7
					PM <sub>2.5</sub>	7.6		0.7
CO <sub>2</sub>					NO <sub>2</sub>	100		13
Oven 1 (EU 001)	228.571	1001.143	273.224	1196.721	SO <sub>2</sub>	0.6		0.3
Oven 3 (EU 003)	228.571	1001.143	273.224	1196.721	CO <sub>2</sub>	120000		12500
Oven 5 (EU 005)	685.714	3003.429	819.672	3590.164	CO	84		7.5
Total	1142.857	5005.714	1366.120	5983.607	VOC	5.5		1

Since the NSPS applies, no other Minn. R. standard applies to the coating line ovens.

CO <sub>2</sub> e	Natural Gas		Propane	
	lb/hr	tpy	lb/hr	tpy
Oven 1 (EU 001)	234.005	1024.942	284.278	1245.139
Oven 3 (EU 003)	234.005	1024.942	284.278	1245.139
Oven 5 (EU 005)	702.015	3074.827	852.835	3735.418
Total	1170.025	5124.711	1421.392	6225.697



Rayven, Inc.  
Combustion PTE

Global warming potential from The Climate Registry (CR)	Rate	Units	Global warming potential	Convert kg to lb	lb / mmBtu	CO <sub>2</sub> e lb/mmBtu	Emission Rate Source
CO <sub>2</sub> - natural gas	53.02	kg/mmBtu	1	2.2046	116.89	116.89	Table 12.9, CR
CO <sub>2</sub> - propane	63.07	kg/mmBtu	1	2.2046	139.04	139.04	Table 12.1, CR
Methane - nat. gas	0.001	kg/mmBtu	21	2.2046	0.0022	0.046	Table 12.9, CR
Methane - propane	0.2	lb/10 <sup>3</sup> gal	21		0.0022	0.046	Table 1.5-1, AP42
Nitrous oxide - nat. gas	0.0001	kg/mmBtu	310	2.2046	0.0002	0.0683	Table 12.9, CR
Nitrous oxide - propane							
Propane CO <sub>2</sub> e	0.9	lb/10 <sup>3</sup> gal	310		0.0098	3.05	Table 1.5-1, AP42
Natural gas CO <sub>2</sub> e						142.14	
						117.00	

CO<sub>2</sub> = carbon dioxide  
CH<sub>4</sub> = methane  
CH<sub>4</sub> = methane  
N<sub>2</sub>O = nitrous oxide  
CO<sub>2</sub>e = carbon dioxide equivalent

Table 12.9, The Climate Registry

Combustion HAP Calculations

Coating Lines' Ovens Natural Gas Capacity:

Heat Value: 10.0 million Btu/hr  
Fuel Consumption Rate: 1.050 Btu/cf

Source of Data - AP-42, table 1.4-3 dated 7/98

HAP Name	CAS	Emission Factor lbs/MMscf	Emission Rate (lb/hr)	PTE (tpy)
POM*	NA	8.63E-05	8.22E-07	3.60E-06
Benzene	71-43-2	2.10E-03	2.00E-05	8.76E-05
Dichlorobenzene	25321-22-6	1.20E-03	1.14E-05	5.01E-05
Formaldehyde	50-00-0	7.50E-02	7.14E-04	3.13E-03
Hexane	110-54-3	1.80E+00	1.71E-02	7.51E-02
Naphthalene	91-20-3	6.10E-04	5.81E-06	2.54E-05
Toluene	108-88-3	3.40E-03	3.24E-05	1.42E-04
Arsenic	7440-38-2	2.00E-04	1.90E-06	8.34E-06
Beryllium	7440-41-7	1.20E-05	1.14E-07	5.01E-07
Cadmium	7440-43-9	1.10E-03	1.05E-05	4.59E-05
Chromium	7440-47-3	1.40E-03	1.33E-05	5.84E-05
Cobalt	7440-48-4	8.40E-05	8.00E-07	3.50E-06
Manganese	7439-96-5	3.80E-04	3.62E-06	1.59E-05
Mercury	7439-97-6	2.60E-04	2.48E-06	1.08E-05
Nickel	7440-02-0	2.10E-03	2.00E-05	8.76E-05
Selenium	7782-49-2	2.40E-05	2.29E-07	1.00E-06
Total HAP			0.0180	0.0788
			max ind. HAP	0.0751

\*POM = Sum of pollutants identified as POM in AP-42 Table 1.4-3, dated 3/98:

Acenaphthene	1.80E-06	Fluoranthene	3.00E-06
Acenaphthylene	1.80E-06	Fluorene	2.80E-06
Anthracene	2.40E-06	Indo(1,2,3-ed)pyrene	1.70E-06
Benz(a)anthracene	1.80E-06	2-Methylnaphthalene	2.40E-05
Benzo(a)pyrene	1.20E-06	3-Methylchloranthrene	1.80E-06
Benzo(b,k)fluoranthene	1.80E-06	Phenanthrene	1.70E-05
Benzo(g,h,i)perylene	1.20E-06	Pyrene	5.00E-06
Chrysene	1.80E-06	total	8.63E-05
Dibenzo(a,h)anthracene	1.20E-06		
7,12-Dimethylbenz(a)anthra	1.60E-05		

POM does not include naphthalene

Rayven, Inc.  
Combustion PTE

Combustion HAP Calculations

Oven 1 or 3 Natural Gas Capacity:

Heat Value:

Fuel Consumption Rate:

2.0 million Btu/hr

1.050 Btu/cf

1904.8 cf/hr

HAP Name	CAS	Emission Factor lbs/MMscf	Emission Rate (lb/hr)	PTE (tpy)
POM*	NA	8.63E-05	1.64E-07	7.20E-07
Benzene	71-43-2	2.10E-03	4.00E-06	1.75E-05
Dichlorobenzene	25321-22-6	1.20E-03	2.29E-06	1.00E-05
Formaldehyde	50-00-0	7.50E-02	1.43E-04	6.26E-04
Hexane	110-54-3	1.80E+00	3.43E-03	1.50E-02
Naphthalene	91-20-3	6.10E-04	1.16E-06	5.09E-06
Toluene	108-88-3	3.40E-03	6.48E-06	2.84E-05
Arsenic	7440-38-2	2.00E-04	3.81E-07	1.67E-06
Beryllium	7440-41-7	1.20E-05	2.29E-08	1.00E-07
Cadmium	7440-43-9	1.10E-03	2.10E-06	9.18E-06
Chromium	7440-47-3	1.40E-03	2.67E-06	1.17E-05
Cobalt	7440-48-4	8.40E-05	1.60E-07	7.01E-07
Manganese	7439-96-5	3.80E-04	7.24E-07	3.17E-06
Mercury	7439-97-6	2.60E-04	4.95E-07	2.17E-06
Nickel	7440-02-0	2.10E-03	4.00E-06	1.75E-05
Selenium	7782-49-2	2.40E-05	4.57E-08	2.00E-07
Total HAP			0.0036	0.0158
			max ind. HAP	0.0150

Source of Data - AP-42, table 1.4-3 dated 7/98

\*POM = Sum of pollutants identified as POM in AP-42 Table 1.4-3, dated 3/98:

Acenaphthene	1.80E-06 Fluoranthene	3.00E-06
Acenaphthylene	1.80E-06 Fluorene	2.80E-06
Anthracene	2.40E-06 Ind(1,2,3-ed)pyrene	1.70E-06
Benz(a)anthracene	1.80E-06 2-Methylnaphthalene	2.40E-05
Benzo(a)pyrene	1.20E-06 3-Methylchloranthrene	1.80E-06
Benzo(b,k)fluoranthene	1.80E-06 Phenanthrene	1.70E-05
Benzo(g,h,i)perylene	1.20E-06 Pyrene	5.00E-06
Chrysene	1.80E-06	total
Dibenzo(a,h)anthracene	1.20E-06	
7,12-Dimethylbenz(a)anthra <sup>a</sup>	1.60E-05	
POM does not include naphthalene		

Combustion HAP Calculations

Oven 5 Natural Gas Capacity:

Heat Value:

Fuel Consumption Rate:

6.0 million Btu/hr

1.050 Btu/cf

5714.3 cf/hr

HAP Name	CAS	Emission Factor lbs/MMscf	Emission Rate (lb/hr)	PTE (tpy)
POM*	NA	8.63E-05	4.93E-07	2.16E-06
Benzene	71-43-2	2.10E-03	1.20E-05	5.26E-05
Dichlorobenzene	25321-22-6	1.20E-03	6.86E-06	3.00E-05
Formaldehyde	50-00-0	7.50E-02	4.29E-04	1.88E-03
Hexane	110-54-3	1.80E+00	1.03E-02	4.51E-02
Naphthalene	91-20-3	6.10E-04	3.49E-06	1.53E-05
Toluene	108-88-3	3.40E-03	1.94E-05	8.51E-05
Arsenic	7440-38-2	2.00E-04	1.14E-06	5.01E-06
Beryllium	7440-41-7	1.20E-05	6.86E-08	3.00E-07
Cadmium	7440-43-9	1.10E-03	6.29E-06	2.75E-05
Chromium	7440-47-3	1.40E-03	8.00E-06	3.50E-05
Cobalt	7440-48-4	8.40E-05	4.80E-07	2.10E-06
Manganese	7439-96-5	3.80E-04	2.17E-06	9.51E-06
Mercury	7439-97-6	2.60E-04	1.49E-06	6.51E-06
Nickel	7440-02-0	2.10E-03	1.20E-05	5.26E-05
Selenium	7782-49-2	2.40E-05	1.37E-07	6.01E-07
Total HAP			0.0108	0.0473
			max ind. HAP	0.0451

Source of Data - AP-42, table 1.4-3 dated 7/98

\*POM = Sum of pollutants identified as POM in AP-42 Table 1.4-3, dated 3/98:

Acenaphthene	1.80E-06 Fluoranthene	3.00E-06
Acenaphthylene	1.80E-06 Fluorene	2.80E-06
Anthracene	2.40E-06 Ind(1,2,3-ed)pyrene	1.70E-06
Benz(a)anthracene	1.80E-06 2-Methylnaphthalene	2.40E-05
Benzo(a)pyrene	1.20E-06 3-Methylchloranthrene	1.80E-06
Benzo(b,k)fluoranthene	1.80E-06 Phenanthrene	1.70E-05
Benzo(g,h,i)perylene	1.20E-06 Pyrene	5.00E-06
Chrysene	1.80E-06	total
Dibenzo(a,h)anthracene	1.20E-06	
7,12-Dimethylbenz(a)anthra <sup>a</sup>	1.60E-05	
POM does not include naphthalene		

**Rayven, Inc.**  
**Insignificant Activities PTE**

The Facility has the following insignificant activities under Minn. R. 7007.1300, subp. 3 (per their 3/22/00 submittal):

<b>Rule</b>	<b>Activity</b>	<b>Pollutants</b>
subp. 3(B)	furnaces, boilers incinerators (1 process boiler)	PM/PM <sub>10</sub> , SO <sub>2</sub> , NO <sub>x</sub>
subp. 3(G)	laboratory	various
subp. 3(H)	brazing, soldering, welding	PM/PM <sub>10</sub>
subp. 3(I)	individual units with a PTE less than 1 tpy of certain pollutants (2 boilers, 3 mixers and 3 degreasers).	VOC
subp. 3(K)	maintenance spray painting	VOC, PM/PM <sub>10</sub> , HAP

The PTE of these units should be evaluated if they could affect the applicability of regulations.

Without the IAs, the PTE of PM/PM<sub>10</sub> from the Facility is less than 1 ton per year, and the applicable threshold is 250. It is impossible for the IAs to make the source major for NSR.

The Facility has limits for HAPs (9/24). The IA PTEs of HAPs are clearly negligible and would not trigger the applicable threshold.

The Facility is taking limits for VOC (200 versus threshold of 250).

It is nearly impossible for the IAs to make the source major for NSR. The mixer emissions are tracked as part of the VOC tracking for the permit.

The Permittee provided the PTE calculations for the degreasers in 2000.

Total PTE is 0.99 tpy

This is clearly not enough to trigger the applicable threshold.

**Rayven, Inc.**  
**Insignificant Activities Combustion PTE**

**I.A. Process Boiler**

0.3 MMBtu/hr

	Natural Gas (<100 MMBtu/hr)		Propane (<10 MMBtu/hr)	
	Total lb/hr	Total tpy	Total lb/hr	Total tpy
PM	0.0022	0.0095	0.0023	0.0101
PM <sub>10</sub>	0.0022	0.0095	0.0023	0.0101
PM <sub>2.5</sub>	0.0022	0.0095	0.0023	0.0101
NO <sub>2</sub>	0.0286	0.1251	0.0426	0.1867
SO <sub>2</sub>	0.0002	0.0008	0.0010	0.0043
CO <sub>2e</sub>	35.10	153.7	42.64	186.8
CO	0.0240	0.1051	0.0246	0.1077
VOC	0.0016	0.0069	0.0033	0.0144

Applicable rule limit for the boiler

for all fuels

PM 0.4 lb/MMBtu

In order to compare with rule limit (in lb/MMBtu), calculate PM PTE based on AP-42 (EF/heat value of fuel).

Natural Gas PM 0.0072 lb/MMBtu

**I.A. Boiler**

0.5 MMBtu/hr

	Natural Gas (<100 MMBtu/hr)		Propane (<10 MMBtu/hr)	
	Total lb/hr	Total tpy	Total lb/hr	Total tpy
PM	0.0036	0.0159	0.0038	0.0168
PM <sub>10</sub>	0.0036	0.0159	0.0038	0.0168
PM <sub>2.5</sub>	0.0036	0.0159	0.0038	0.0168
NO <sub>2</sub>	0.0476	0.2086	0.0710	0.3111
SO <sub>2</sub>	0.0003	0.0013	0.0016	0.0072
CO <sub>2e</sub>	58.5013	256.2355	71.07	311.3
CO	0.0400	0.1752	0.0410	0.1795
VOC	0.0026	0.0115	0.0055	0.0239

**I.A. Boiler**

0.5 MMBtu/hr

	Natural Gas (<100 MMBtu/hr)		Propane (<10 MMBtu/hr)	
	Total lb/hr	Total tpy	Total lb/hr	Total tpy
PM	0.0036	0.0159	0.0038	0.0168
PM <sub>10</sub>	0.0036	0.0159	0.0038	0.0168
PM <sub>2.5</sub>	0.0036	0.0159	0.0038	0.0168
NO <sub>2</sub>	0.0476	0.2086	0.0710	0.3111
SO <sub>2</sub>	0.0003	0.0013	0.0016	0.0072
CO <sub>2e</sub>	58.50	256.2	71.07	311.3
CO	0.0400	0.1752	0.0410	0.1795
VOC	0.0026	0.0115	0.0055	0.0239

**Combustion HAP Calculations**

**Boilers:** Natural Gas Capacity:

1.3 million Btu/hr

Heat Value:

1,050 Btu/cf

Fuel Consumption Rate:

1238.1 cf/hr

HAP Name	CAS	Emission Factor lbs/MMscf	Emission Rate (lb/hr)	PTE (tpy)
POM*	NA	8.63E-05	1.07E-07	4.68E-07
Benzene	71-43-2	2.10E-03	2.60E-06	1.14E-05
Dichlorobenzene	25321-22-6	1.20E-03	1.49E-06	6.51E-06
Formaldehyde	50-00-0	7.50E-02	9.29E-05	4.07E-04
Hexane	110-54-3	1.80E+00	2.23E-03	9.76E-03
Naphthalene	91-20-3	6.10E-04	7.55E-07	3.31E-06
Toluene	108-88-3	3.40E-03	4.21E-06	1.84E-05
Arsenic	7440-38-2	2.00E-04	2.48E-07	1.08E-06
Beryllium	7440-41-7	1.20E-05	1.49E-08	6.51E-08
Cadmium	7440-43-9	1.10E-03	1.36E-06	5.97E-06
Chromium	7440-47-3	1.40E-03	1.73E-06	7.59E-06
Cobalt	7440-48-4	8.40E-05	1.04E-07	4.56E-07
Manganese	7439-96-5	3.80E-04	4.70E-07	2.06E-06
Mercury	7439-97-6	2.60E-04	3.22E-07	1.41E-06
Nickel	7440-02-0	2.10E-03	2.60E-06	1.14E-05
Selenium	7782-49-2	2.40E-05	2.97E-08	1.30E-07

Total HAP

0.0023

0.0102

max ind. HAP

0.0098

Source of Data - AP-42, table 1.4-3 dated 7/98

\*POM = Sum of pollutants identified as POM in AP-42 Table 1.4-3, dated 3/98:

Acenaphthene	1.80E-06	Fluoranthene	3.00E-06
Acenaphthylene	1.80E-06	Fluorene	2.80E-06
Anthracene	2.40E-06	Indo(1,2,3-ed)pyrene	1.70E-06
Benz(a)anthracene	1.80E-06	2-Methylnaphthalene	2.40E-05
Benzo(a)pyrene	1.20E-06	3-Methylchloranthrene	1.80E-06
Benzo(b,k)fluoranthene	1.80E-06	Phenanthrene	1.70E-05
Benzo(g,h,i)perylene	1.20E-06	Pyrene	5.00E-06
Chrysene	1.80E-06	total	8.63E-05
Dibenzo(a,h)anthracene	1.20E-06		
7,12-Dimethylbenz(a)anthr	1.60E-05		

POM does not include naphthalene

**Rayven, Inc.**  
**Insignificant Activities Combustion PTE**

**Combustion HAP Calculations**

**Total\*** Natural Gas Capacity: 11.3 million Btu/hr  
Heat Value: 1,050 Btu/cf  
Fuel Consumption Rate: 10761.9 cf/hr

Source of Data - AP-42, table 1.4-3 dated 7/98

HAP Name	CAS	Emission Factor lbs/MMscf	Emission Rate (lb/hr)	PTE (tpy)
POM*	NA	8.63E-05	9.29E-07	4.07E-06
Benzene	71-43-2	2.10E-03	2.26E-05	9.90E-05
Dichlorobenzene	25321-22-6	1.20E-03	1.29E-05	5.66E-05
Formaldehyde	50-00-0	7.50E-02	8.07E-04	3.54E-03
Hexane	110-54-3	1.80E+00	1.94E-02	8.48E-02
Naphthalene	91-20-3	6.10E-04	6.56E-06	2.88E-05
Toluene	108-88-3	3.40E-03	3.66E-05	1.60E-04
Arsenic	7440-38-2	2.00E-04	2.15E-06	9.43E-06
Beryllium	7440-41-7	1.20E-05	1.29E-07	5.66E-07
Cadmium	7440-43-9	1.10E-03	1.18E-05	5.19E-05
Chromium	7440-47-3	1.40E-03	1.51E-05	6.60E-05
Cobalt	7440-48-4	8.40E-05	9.04E-07	3.96E-06
Manganese	7439-96-5	3.80E-04	4.09E-06	1.79E-05
Mercury	7439-97-6	2.60E-04	2.80E-06	1.23E-05
Nickel	7440-02-0	2.10E-03	2.26E-05	9.90E-05
Selenium	7782-49-2	2.40E-05	2.58E-07	1.13E-06

Total HAP 0.0203 0.0890  
max ind. HAP 0.0848

\* Includes Boilers and ovens for comparison.

\*POM = Sum of pollutants identified as POM in AP-42 Table 1.4-3, dated 3/98:

Acenaphthene	1.80E-06	Fluoranthene	3.00E-06
Acenaphthylene	1.80E-06	Fluorene	2.80E-06
Anthracene	2.40E-06	Indo(1,2,3-ed)pyrene	1.70E-06
Benz(a)anthracene	1.80E-06	2-Methylnaphthalene	2.40E-05
Benzo(a)pyrene	1.20E-06	3-Methylchloranthrene	1.80E-06
Benzo(b,k)fluoranthene	1.80E-06	Phenanthrene	1.70E-05
Benzo(g,h,i)perylene	1.20E-06	Pyrene	5.00E-06
Chrysene	1.80E-06	total	8.63E-05
Dibenzo(a,h)anthracene	1.20E-06		
7,12-Dimethylbenz(a)anth	1.60E-05		

*POM does not include naphthalene*

	PM	PM <sub>10</sub>	PM <sub>2.5</sub>	NO2	SO2	CO	CO2e	VOC	Toluene	Total HAPs
Total [tpy]	0.044	0.044	0.044	0.809	0.0187	0.467	809.3	0.062	0.000018	0.010

**Rayven Inc.**  
**Permit No. 12300057-003**

**Technical Support Document**

## **Attachment 2 - Facility Description and CD-01 Forms**

FACILITY DESCRIPTION: GROUPS (GP)

Show: Active and Pending Records

Action:

AQD Facility ID: 12300057

Facility Name: Rayven Inc

ID No.	Group Status	Added By (Action)	Retired By (Action)	Include in EI	Operator ID for Item	Group Description	Group Items
1	GP 001	Active	PER 002	<input type="checkbox"/>		Total Facility VOC Limits	EU 001, EU 003, EU 005, EU 015
2	GP 001	Active	PER 003	<input type="checkbox"/>		Total Facility VOC Limits	EU 001, EU 003, EU 005
3	GP 002	Active	PER 003	<input type="checkbox"/>		Coating Line Combustion Requirements	EU 001, EU 003, EU 005

## FACILITY DESCRIPTION: STACK/VENTS (SV)

Show: Active and Pending Records

Action:

AQD Facility ID: 12300057

Facility Name: Rayven Inc

ID No.	Stack/ Vent Status	Added By (Action)	Retired By (Action)	Operator ID for Item	Operator's Description	Height of Opening From Ground (feet)	Inside Dimensions		Design Flow Rate at Top (ACFM)	Exit Gas Temperature at Top (°F)	Flow Rate/ Temperature Information Source	Discharge Direction
							Diameter or Length (feet)	Width (feet)				
1	SV 001	Active	PER 001		Coater 1 Dryer (Blue Line)	36	1.3	1.3	9800	190	Test	Up, No Cap
2	SV 002	Active	PER 001		Coater 2 Dryer (Green Line)	36	1.4	1.4	3900	190	Test	Up, No Cap
3	SV 003	Active	PER 001		Coater 3 Dryer (Silicone Line)	29	1.3		3700	190	Test	Up, No Cap
4	SV 004	Active	PER 001		Coater 3 Dryer (Silicone Line)	36	1.3	1.3	6800	165	Test	Up, No Cap
5	SV 005	Removec	PER 002		Coater 4 Dryer (Pilot Line)	30	1.3	1.7	5500	165	Test	Up, No Cap
6	SV 006	Removec	PER 002		Coater 4 Dryer (Pilot Line)	30	1.3	1.1	3000	190	Test	Up, No Cap
7	SV 007	Active	PER 001		Coater 5 Dryer (Black Line)	32	1.2	1.7	6800	125	Estimate	Up, No Cap
8	SV 008	Active	PER 001		Coater 1 Corona Treater	15	0.5		600	110	Estimate	Up, No Cap
9	SV 009	Active	PER 001		Coater 2 Corona Treater	25	0.33		400	110	Estimate	Up, No Cap
10	SV 010	Active	PER 001		Coater 3 Corona Treater #1	25	0.33		400	130	Estimate	Up, No Cap
11	SV 011	Active	PER 001		Coater 3 Corona Treater #2	16	0.5		800	105	Estimate	Up, No Cap
12	SV 012	Removec	PER 002		Coater 4 Corona Treater	26	0.33		200	100	Estimate	Up, No Cap
13	SV 013	Active	PER 001		Coater 5 Corona Treater	26	0.33		400	120	Estimate	Up, No Cap
14	SV 014	Active	PER 003		Boiler #1	20	0.33		4	100	Manufacturer	Down
15	SV 015	Active	PER 003		Boiler #2	20	0.33		4	100	Manufacturer	Down
16	SV 016	Active	PER 003	017	Coater 5 Corona Treater #2	26	0.33		600	110	Manufacturer	Down
17	SV 017	Active	PER 003	018	Process Boiler	30.5	0.66		62.5	100	Manufacturer	Up, With Cap



FACILITY DESCRIPTION: EMISSION UNIT (EU)

Show: Active and Pending Records

Action:

AQD Facility ID: 12300057

Facility Name: Rayven Inc

ID No.	Emission Unit Status	Added By (Action)	Retired By (Action)	Insignif-icant Activity	Operator ID for Item	Stack/Vent ID No(s).	Control Equip. ID No(s).	Operator Description	Manufacturer	Model Number	SIC	Max. Design Capacity	Maximum Design Capacity		Max Fuel Input (mil Btu)
													Materials	Units n	Units d
1 EU 001	Active	PER 001		<input type="checkbox"/>		SV 001 (M) SV 008 (P)		Coating Line 1 (Blue Line)	Rayven, Inc.	NA	3081	78		Ft3 Hr	2
2 EU 002	Removed	PER 002		<input type="checkbox"/>		SV 009 (P)		Coating Line 2 (Green Line)	Rayven, Inc.	NA	3081	56		Ft3 Hr	1.2
3 EU 003	Active	PER 001		<input type="checkbox"/>		SV 004 (P) SV 010 (P) SV 011 (P)		Coating Line 3 (Silicone Line)	Rayven, Inc.	NA	3081	158		Ft3 Hr	2.0
4 EU 004	Removed	PER 002		<input type="checkbox"/>		SV 012 (P)		Coating Line 4 (Pilot)	Rayven, Inc.	NA	3081	38		Ft3 Hr	1.6
5 EU 005	Active	PER 001		<input type="checkbox"/>				Coating Line 5 (Black Line)	Rayven, Inc.	NA	3081	60		Ft3 Hr	6.0
6 EU 006	Removed	EIS 002		<input type="checkbox"/>				Silicone Line Drying Oven			3081				
7 EU 007	Removed	EIS 002		<input type="checkbox"/>				Coater Line 4 (Pilot)			3081				
8 EU 008	Removed	EIS 002		<input type="checkbox"/>				Pilot Drying Oven			3081				
9 EU 009	Removed	EIS 002		<input type="checkbox"/>				Coater Line 5 (Black Line)			3081				
10 EU 010	Removed	EIS 002		<input type="checkbox"/>				Black Line Drying Oven			3081				
11 EU 011	Removed	PER 001		<input type="checkbox"/>				Mixer 1			3081				
12 EU 012	Removed	EIS 002		<input type="checkbox"/>				Mixer 2			3081				
13 EU 013	Removed	EIS 002		<input type="checkbox"/>				Mixer 3			3081				
14 EU 014	Active	PER 001		<input type="checkbox"/>				Boiler			3081				2.9
15 EU 014	Removed	PER 003		<input type="checkbox"/>				Boiler			3081				2.9
16 EU 015	Active	PER 002		<input type="checkbox"/>				New Green Line	Rayven Inc.	NA	3081	60		Ft3 Hr	
17 EU 015	Removed	PER 003		<input type="checkbox"/>				New Green Line	Rayven Inc.	NA	3081	60		Ft3 Hr	

FACILITY DESCRIPTION: EMISSION UNIT (EU)

	ID No.	Emission Unit Status	Added By (Action)	Commence Const. Date	Initial Startup Date	Removal Date	Firing Method	Pct. Fuel/Space Heat	Bottleneck	Elevator Type
1	EU 001	Active	PER 001	12/12/1981	12/12/1981					
2	EU 002	Removed	PER 002	01/01/1983	01/01/1983	06/01/2002				
3	EU 003	Active	PER 001	12/12/1981	12/12/1981					
4	EU 004	Removed	PER 002	01/01/1988	01/01/1988	10/01/2001				
5	EU 005	Active	PER 001	03/21/1998	03/01/1999					
6	EU 006	Removed	EIS 002			12/31/1998				
7	EU 007	Removed	EIS 002			12/31/1998				
8	EU 008	Removed	EIS 002			12/31/1998				
9	EU 009	Removed	EIS 002			12/31/1998				
10	EU 010	Removed	EIS 002			12/31/1998				
11	EU 011	Removed	PER 001			12/31/1998				
12	EU 012	Removed	EIS 002			12/31/1998				
13	EU 013	Removed	EIS 002			12/31/1998				
14	EU 014	Active	PER 001							
15	EU 014	Removed	PER 003							
16	EU 015	Active	PER 002	03/27/2003	03/27/2003					
17	EU 015	Removed	PER 003	03/27/2003	03/27/2003					



FACILITY DESCRIPTION: FUGITIVE SOURCES (FS)

Show: Active and Pending Records

Action:

AQD Facility ID: 12300057

Facility Name: Rayven Inc

ID No.	Fugitive Source Status	Added By (Action)	Retired By (Action)	Insignif-icant Activity	Operator ID for Item	Pollutant(s) Emitted	Control Equip. ID No(s).	Fugitive Source Description	Year Installed	Year Removed
1 FS 001	Removed	PER 001		<input type="checkbox"/>				Cleaning Solvents		2000

**FACILITY DESCRIPTION: BUILDINGS (BG)**

Show: Active and Pending Records

Action: PER 003

AQD Facility ID: 12300057

Facility Name: Rayven Inc

	ID No.	Added By (Action)	Retired By (Action)	Operator ID for Item	Length (feet)	Width (feet)	Roof Height from Ground (feet)	Description/Comment	Building Status
1	BG 001	PER 003			80	156	21		Active
2	BG 002	PER 003			62	100	14	Contains EU003 and EU005	Active
3	BG 003	PER 003			150	52	20		Active
4	BG 004	PER 003			34	42	11		Active
5	BG 005	PER 003			71	34	15	Contains EU001	Active
6	BG 006	PER 003			45	52	10		Active
7	BG 007	PER 003			50	44	10	Office	Active

## FACILITY DESCRIPTION: Potential-to-emit (by item)

Show: Active and Pending Records

AQD Facility ID: 12300057

Facility Name: Rayven Inc

Item	Pollutant	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
<b>EU 001</b>							
	Carbon Dioxide Equivalent	PER 003		2.84E+02	1.25E+03		
	Carbon Monoxide	PER 001		1.60E-01	7.01E-01		
	Carbon Monoxide	PER 003		1.64E-01	7.18E-01		
	Formaldehyde	PER 001		1.97E-01	8.60E-01		
	Naphthalene	PER 001		7.20E+00	3.16E+01		
	HAPs - Total	PER 001		3.74E+01	1.64E+02		
	Toluene	PER 001		3.00E+01	1.31E+02		
	Nitrogen Oxides	PER 002		4.04E-01	1.77E+00		
	Nitrogen Oxides	PER 003		2.84E-01	1.24E+00		
	Ozone	PER 003		2.56E-01	1.12E+00		
	PM < 2.5 micron	PER 003		1.50E-02	6.70E-02		
	PM < 10 micron	PER 001		1.40E-02	6.30E-02		
	PM < 10 micron	PER 003		1.50E-02	6.70E-02		
	Total Particulate Matter	PER 001		1.40E-02	6.30E-02		
	Total Particulate Matter	PER 003		1.50E-02	6.70E-02		
	Sulfur Dioxide	PER 002		6.00E-03	2.80E-01		
	Sulfur Dioxide	PER 003		7.00E-03	2.90E-02		
	Volatile Organic Compounds	PER 002		1.06E+02	4.63E+02	4.70E-02	
	Volatile Organic Compounds	PER 003		1.06E+02	4.63E+02	9.60E-02	
<b>EU 002</b>							
	Carbon Monoxide	PER 002					
	Ethyl acrylate	PER 002					
	Hexane	PER 002					
	HAPs - Total	PER 002					
	Toluene	PER 002					
	Nitrogen Oxides	PER 002					
	PM < 10 micron	PER 002					
	Total Particulate Matter	PER 002					
	Sulfur Dioxide	PER 002					
	Volatile Organic Compounds	PER 002					
<b>EU 003</b>							
	Carbon Dioxide Equivalent	PER 003		2.84E+02	1.25E+03		
	Carbon Monoxide	PER 001		1.60E-01	7.01E-01		
	Carbon Monoxide	PER 003		1.64E-01	7.18E-01		
	Nitrogen Oxides	PER 002		4.04E-01	1.77E+00		
	Nitrogen Oxides	PER 003		2.84E-01	1.24E+00		
	Ozone	PER 003		5.11E-01	2.24E+00		
	PM < 2.5 micron	PER 003		1.50E-02	6.70E-02		
	PM < 10 micron	PER 001		1.40E-02	6.30E-02		
	PM < 10 micron	PER 003		1.50E-02	6.70E-02		
	Total Particulate Matter	PER 001		1.40E-02	6.30E-02		
	Total Particulate Matter	PER 003		1.50E-02	6.70E-02		
	Sulfur Dioxide	PER 002		6.00E-03	2.80E-01		
	Sulfur Dioxide	PER 003		7.00E-03	2.90E-02		
	Volatile Organic Compounds	PER 002		1.76E+02	7.70E+02	4.70E-02	
	Volatile Organic Compounds	PER 003		1.76E+02	7.70E+02	9.60E-02	

## FACILITY DESCRIPTION: Potential-to-emit (by item)

Show: Active and Pending Records

AQD Facility ID: 12300057

Facility Name: Rayven Inc

Item	Pollutant	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
<b>EU 004</b>							
	Carbon Monoxide	PER 002					
	Hexane	PER 002					
	HAPs - Total	PER 002					
	Toluene	PER 002					
	Nitrogen Oxides	PER 002					
	PM < 10 micron	PER 002					
	Total Particulate Matter	PER 002					
	Sulfur Dioxide	PER 002					
	Volatile Organic Compounds	PER 002					
<b>EU 005</b>							
	Carbon Dioxide Equivalent	PER 003		8.53E+02	3.74E+03		
	Carbon Monoxide	PER 001		4.80E-01	2.10E+00		
	Carbon Monoxide	PER 003		4.90E-01	2.15E+00		
	Formaldehyde	PER 001		4.30E-02	1.90E-01		
	HAPs - Total	PER 001		4.30E-02	1.90E-01		
	Nitrogen Oxides	PER 002		1.23E+00	5.31E+00		
	Nitrogen Oxides	PER 003		8.52E-01	3.73E+00		
	Ozone	PER 003		2.56E-01	1.12E+00		
	PM < 2.5 micron	PER 003		4.60E-02	2.00E-01		
	PM < 10 micron	PER 001		4.30E-02	1.90E-01		
	PM < 10 micron	PER 003		4.60E-02	2.00E-01		
	Total Particulate Matter	PER 001		4.30E-02	1.90E-01		
	Total Particulate Matter	PER 003		4.36E-02	2.00E-01		
	Sulfur Dioxide	PER 002		1.90E-02	8.40E-02		
	Sulfur Dioxide	PER 003		2.00E-02	8.60E-02		
	Volatile Organic Compounds	PER 002		9.90E+01	4.34E+02	1.40E-01	
	Volatile Organic Compounds	PER 003		9.90E+01	4.34E+02	2.87E-01	
<b>EU 014</b>							
	Carbon Monoxide	PER 001		2.32E-01	1.02E+00		
	Carbon Monoxide	PER 003					
	HAPs - Total	PER 001		5.00E-03	2.30E-02	2.30E-02	
	HAPs - Total	PER 003					
	Nitrogen Oxides	PER 001		5.86E-01	2.57E+00		
	Nitrogen Oxides	PER 003					
	PM < 10 micron	PER 001		2.10E-02	9.20E-02		
	PM < 10 micron	PER 003					
	Total Particulate Matter	PER 001		2.10E-02	9.20E-02		
	Total Particulate Matter	PER 003					
	Sulfur Dioxide	PER 001		9.00E-03	4.10E-02		
	Sulfur Dioxide	PER 003					
	Volatile Organic Compounds	PER 001		1.50E-02	6.80E-02	6.80E-02	
	Volatile Organic Compounds	PER 003					
<b>EU 015</b>							
	Ethyl acrylate	PER 002					
	Formaldehyde	PER 002					
	Hexane	PER 002					

## FACILITY DESCRIPTION: Potential-to-emit (by item)

Show: Active and Pending Records

AQD Facility ID: 12300057

Facility Name: Rayven Inc

Item	Pollutant	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
<b>EU 015</b>							
	Naphthalene	PER 002					
	HAPs - Total	PER 002					
	Toluene	PER 002					
	Volatile Organic Compounds	PER 002		1.58E+00	6.90E+00		
	Volatile Organic Compounds	PER 003					
<b>FC 000</b>							
	Benzene	PER 002		2.58E-05	1.13E-04	1.13E-04	
	Benzene	PER 003		2.00E-05	8.76E-05	8.76E-05	
	Arsenic compounds	PER 002		2.46E-06	1.08E-05	1.08E-05	
	Arsenic compounds	PER 003		1.90E-06	8.34E-06	8.34E-06	
	Beryllium	PER 002		1.47E-07	6.46E-07	6.46E-07	
	Beryllium	PER 003		1.14E-07	5.01E-07	5.01E-07	
	Cadmium compounds	PER 002		1.35E-05	5.92E-05	5.92E-05	
	Cadmium compounds	PER 003		1.05E-05	4.59E-05	4.59E-05	
	Cobalt compounds	PER 002		1.03E-06	4.52E-06	4.52E-06	
	Cobalt compounds	PER 003		8.00E-07	3.50E-06	3.50E-06	
	Chromium compounds	PER 002		1.72E-05	7.53E-05	7.53E-05	
	Chromium compounds	PER 003		1.33E-05	5.84E-05	5.84E-05	
	Formaldehyde	PER 002		9.21E-04	4.04E-03	4.04E-03	
	Formaldehyde	PER 003		7.14E-04	3.13E-03	3.13E-03	
	Hexane	PER 002		2.21E-02	9.69E-02	9.69E-02	
	Hexane	PER 003		1.71E-02	7.51E-02	7.51E-02	
	Naphthalene	PER 002		7.49E-06	3.28E-05	3.28E-05	
	Naphthalene	PER 003		5.81E-06	2.54E-05	2.54E-05	
	HAPs - Total	PER 002		2.32E-01	1.02E-01	1.02E-01	
	HAPs - Total	PER 003		1.80E-02	7.88E-02	7.88E-02	
	Mercury	PER 002		3.19E-06	1.40E-05	1.40E-05	
	Mercury	PER 003		2.48E-06	1.08E-05	1.08E-05	
	Tetrachloroethylene	PER 002		4.20E-03	1.83E-02		
	Toluene	PER 002		4.18E-05	1.83E-04	1.83E-04	
	Toluene	PER 003		3.24E-05	1.42E-04	1.42E-04	
	1,1,1-Trichloroethane	PER 002		4.20E-02	1.83E-02		
	1,1,1-Trichloroethane	PER 003		4.20E-03	1.83E-02	1.83E-02	
	Manganese compounds	PER 002		4.67E-06	2.04E-05	2.04E-05	
	Manganese compounds	PER 003		3.62E-06	1.59E-05	1.59E-05	
	Nickel compounds	PER 002		2.58E-05	1.14E-04	1.14E-04	
	Nickel compounds	PER 003		2.00E-05	8.76E-05	8.76E-05	
	Polycyclic organic matter	PER 002		1.60E-06	4.64E-06	4.64E-06	
	Polycyclic organic matter	PER 003		8.22E-07	3.60E-06	3.60E-06	
	Selenium compounds	PER 002		2.95E-07	1.29E-06	1.29E-06	
	Selenium compounds	PER 003		2.29E-07	1.00E-06	1.00E-06	
	Volatile Organic Compounds	PER 001		1.78E+00	7.77E+00		
<b>GP 001</b>							
	Hexane	PER 001				9.00E+00	
	Hexane	PER 003					
	Naphthalene	PER 001				9.00E+00	

## FACILITY DESCRIPTION: Potential-to-emit (by item)

Show: Active and Pending Records

AQD Facility ID: 12300057

Facility Name: Rayven Inc

Item	Pollutant	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
<b>GP 001</b>							
	HAPs - Total	PER 001				2.40E+01	
	Toluene	PER 001				9.00E+00	
	Volatile Organic Compounds	PER 001				2.00E+02	



## FACILITY DESCRIPTION: Potential-to-emit (by pollutant)

Show: Active and Pending Records

AQD Facility ID: 12300057

Facility Name: Rayven Inc

Pollutant	Item	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
<b>Benzene</b>							
	FC 000	PER 002		2.580E-05	1.130E-04	1.130E-04	
	FC 000	PER 003		2.000E-05	8.760E-05	8.760E-05	
Totals					0.000E+00	0.000E+00	0.000E+00
<b>Arsenic compounds</b>							
	FC 000	PER 002		2.460E-06	1.080E-05	1.080E-05	
	FC 000	PER 003		1.900E-06	8.340E-06	8.340E-06	
Totals					0.000E+00	0.000E+00	0.000E+00
<b>Beryllium</b>							
	FC 000	PER 002		1.470E-07	6.460E-07	6.460E-07	
	FC 000	PER 003		1.140E-07	5.010E-07	5.010E-07	
Totals					5.010E-07	5.010E-07	0.000E+00
<b>Carbon Dioxide Equivalent</b>							
	EU 001	PER 003		2.843E+02	1.245E+03		
	EU 003	PER 003		2.843E+02	1.245E+03		
	EU 005	PER 003		8.528E+02	3.735E+03		
Totals					6.225E+03	0.000E+00	0.000E+00
<b>Cadmium compounds</b>							
	FC 000	PER 002		1.350E-05	5.920E-05	5.920E-05	
	FC 000	PER 003		1.050E-05	4.590E-05	4.590E-05	
Totals					4.590E-05	4.590E-05	0.000E+00
<b>Carbon Monoxide</b>							
	EU 001	PER 001		1.600E-01	7.010E-01		
	EU 001	PER 003		1.640E-01	7.180E-01		
	EU 002	PER 002		0.000E+00	0.000E+00		
	EU 003	PER 001		1.600E-01	7.010E-01		
	EU 003	PER 003		1.640E-01	7.180E-01		
	EU 004	PER 002		0.000E+00	0.000E+00		
	EU 005	PER 001		4.800E-01	2.102E+00		
	EU 005	PER 003		4.900E-01	2.154E+00		
	EU 014	PER 001		2.320E-01	1.016E+00		
	EU 014	PER 003		0.000E+00	0.000E+00		
Totals					3.590E+00	0.000E+00	0.000E+00
<b>Cobalt compounds</b>							
	FC 000	PER 002		1.030E-06	4.520E-06	4.520E-06	
	FC 000	PER 003		8.000E-07	3.500E-06	3.500E-06	
Totals					0.000E+00	0.000E+00	0.000E+00

## FACILITY DESCRIPTION: Potential-to-emit (by pollutant)

Show: Active and Pending Records

AQD Facility ID: 12300057

Facility Name: Rayven Inc

Pollutant	Item	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
<b>Chromium compounds</b>							
	FC 000	PER 002		1.720E-05	7.530E-05	7.530E-05	
	FC 000	PER 003		1.330E-05	5.840E-05	5.840E-05	
Totals					5.840E-05	5.840E-05	0.000E+00
<b>Ethyl acrylate</b>							
	EU 002	PER 002		0.000E+00	0.000E+00		
	EU 015	PER 002		0.000E+00	0.000E+00		
Totals					0.000E+00	0.000E+00	0.000E+00
<b>Formaldehyde</b>							
	EU 001	PER 001		1.970E-01	8.600E-01		
	EU 005	PER 001		4.300E-02	1.900E-01		
	EU 015	PER 002		0.000E+00	0.000E+00		
	FC 000	PER 002		9.210E-04	4.040E-03	4.040E-03	
	FC 000	PER 003		7.140E-04	3.130E-03	3.130E-03	
Totals					1.053E+00	3.130E-03	0.000E+00
<b>Hexane</b>							
	EU 002	PER 002		0.000E+00	0.000E+00		
	EU 004	PER 002		0.000E+00	0.000E+00		
	EU 015	PER 002		0.000E+00	0.000E+00		
	FC 000	PER 002		2.210E-02	9.690E-02	9.690E-02	
	FC 000	PER 003		1.710E-02	7.510E-02	7.510E-02	
	GP 001	PER 001				9.000E+00	
	GP 001	PER 003				0.000E+00	
Totals					7.510E-02	7.510E-02	0.000E+00
<b>Naphthalene</b>							
	EU 001	PER 001		7.200E+00	3.155E+01		
	EU 015	PER 002		0.000E+00	0.000E+00		
	FC 000	PER 002		7.490E-06	3.280E-05	3.280E-05	
	FC 000	PER 003		5.810E-06	2.540E-05	2.540E-05	
	GP 001	PER 001				9.000E+00	
Totals					3.155E+01	9.000E+00	0.000E+00
<b>HAPs - Total</b>							
	EU 001	PER 001		3.740E+01	1.640E+02		
	EU 002	PER 002		0.000E+00	0.000E+00		
	EU 004	PER 002		0.000E+00	0.000E+00		
	EU 005	PER 001		4.300E-02	1.900E-01		
	EU 014	PER 001		5.000E-03	2.300E-02	2.300E-02	

## FACILITY DESCRIPTION: Potential-to-emit (by pollutant)

Show: Active and Pending Records

AQD Facility ID: 12300057

Facility Name: Rayven Inc

Pollutant	Item	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
<b>HAPs - Total</b>							
	EU 014	PER 003		0.000E+00	0.000E+00	0.000E+00	
	EU 015	PER 002		0.000E+00	0.000E+00		
	FC 000	PER 002		2.320E-01	1.016E-01	1.016E-01	
	FC 000	PER 003		1.800E-02	7.880E-02	7.880E-02	
	GP 001	PER 001				2.400E+01	
Totals					1.643E+02	2.408E+01	0.000E+00
<b>Mercury</b>							
	FC 000	PER 002		3.190E-06	1.400E-05	1.400E-05	
	FC 000	PER 003		2.480E-06	1.080E-05	1.080E-05	
Totals					0.000E+00	0.000E+00	0.000E+00
<b>Tetrachloroethylene</b>							
	FC 000	PER 002		4.200E-03	1.830E-02		
Totals					1.830E-02	0.000E+00	0.000E+00
<b>Toluene</b>							
	EU 001	PER 001		3.000E+01	1.310E+02		
	EU 002	PER 002		0.000E+00	0.000E+00		
	EU 004	PER 002		0.000E+00	0.000E+00		
	EU 015	PER 002		0.000E+00	0.000E+00		
	FC 000	PER 002		4.180E-05	1.830E-04	1.830E-04	
	FC 000	PER 003		3.240E-05	1.420E-04	1.420E-04	
	GP 001	PER 001				9.000E+00	
Totals					1.310E+02	9.000E+00	0.000E+00
<b>1,1,1-Trichloroethane</b>							
	FC 000	PER 002		4.200E-02	1.830E-02		
	FC 000	PER 003		4.200E-03	1.830E-02	1.830E-02	
Totals					0.000E+00	0.000E+00	0.000E+00
<b>Manganese compounds</b>							
	FC 000	PER 002		4.670E-06	2.040E-05	2.040E-05	
	FC 000	PER 003		3.620E-06	1.590E-05	1.590E-05	
Totals					0.000E+00	0.000E+00	0.000E+00
<b>Nickel compounds</b>							
	FC 000	PER 002		2.580E-05	1.140E-04	1.140E-04	
	FC 000	PER 003		2.000E-05	8.760E-05	8.760E-05	
Totals					8.760E-05	8.760E-05	0.000E+00
<b>Nitrogen Oxides</b>							
	EU 001	PER 002		4.040E-01	1.770E+00		

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AQD Facility ID: 12300057

Facility Name: Rayven Inc

Pollutant	Item	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
<b>Nitrogen Oxides</b>							
	EU 001	PER 003		2.840E-01	1.240E+00		
	EU 002	PER 002		0.000E+00	0.000E+00		
	EU 003	PER 002		4.040E-01	1.770E+00		
	EU 003	PER 003		2.840E-01	1.240E+00		
	EU 004	PER 002		0.000E+00	0.000E+00		
	EU 005	PER 002		1.230E+00	5.310E+00		
	EU 005	PER 003		8.520E-01	3.730E+00		
	EU 014	PER 001		5.860E-01	2.570E+00		
	EU 014	PER 003		0.000E+00	0.000E+00		
Totals					6.210E+00	0.000E+00	0.000E+00
<b>Ozone</b>							
	EU 001	PER 003		2.560E-01	1.120E+00		
	EU 003	PER 003		5.110E-01	2.240E+00		
	EU 005	PER 003		2.560E-01	1.120E+00		
Totals					4.480E+00	0.000E+00	0.000E+00
<b>PM &lt; 2.5 micron</b>							
	EU 001	PER 003		1.500E-02	6.700E-02		
	EU 003	PER 003		1.500E-02	6.700E-02		
	EU 005	PER 003		4.600E-02	2.000E-01		
Totals					3.340E-01	0.000E+00	0.000E+00
<b>PM &lt; 10 micron</b>							
	EU 001	PER 001		1.400E-02	6.300E-02		
	EU 001	PER 003		1.500E-02	6.700E-02		
	EU 002	PER 002		0.000E+00	0.000E+00		
	EU 003	PER 001		1.400E-02	6.300E-02		
	EU 003	PER 003		1.500E-02	6.700E-02		
	EU 004	PER 002		0.000E+00	0.000E+00		
	EU 005	PER 001		4.300E-02	1.900E-01		
	EU 005	PER 003		4.600E-02	2.000E-01		
	EU 014	PER 001		2.100E-02	9.200E-02		
	EU 014	PER 003		0.000E+00	0.000E+00		
Totals					3.340E-01	0.000E+00	0.000E+00
<b>Polycyclic organic matter</b>							
	FC 000	PER 002		1.600E-06	4.640E-06	4.640E-06	
	FC 000	PER 003		8.220E-07	3.600E-06	3.600E-06	
Totals					3.600E-06	3.600E-06	0.000E+00

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Show: Active and Pending Records

AQD Facility ID: 12300057

Facility Name: Rayven Inc

Pollutant	Item	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
<b>Total Particulate Matter</b>							
	EU 001	PER 001		1.400E-02	6.300E-02		
	EU 001	PER 003		1.500E-02	6.700E-02		
	EU 002	PER 002		0.000E+00	0.000E+00		
	EU 003	PER 001		1.400E-02	6.300E-02		
	EU 003	PER 003		1.500E-02	6.700E-02		
	EU 004	PER 002		0.000E+00	0.000E+00		
	EU 005	PER 001		4.300E-02	1.900E-01		
	EU 005	PER 003		4.360E-02	2.000E-01		
	EU 014	PER 001		2.100E-02	9.200E-02		
	EU 014	PER 003		0.000E+00	0.000E+00		
Totals					3.340E-01	0.000E+00	0.000E+00
<b>Selenium compounds</b>							
	FC 000	PER 002		2.950E-07	1.290E-06	1.290E-06	
	FC 000	PER 003		2.290E-07	1.000E-06	1.000E-06	
Totals					1.000E-06	1.000E-06	0.000E+00
<b>Sulfur Dioxide</b>							
	EU 001	PER 002		6.000E-03	2.800E-01		
	EU 001	PER 003		7.000E-03	2.900E-02		
	EU 002	PER 002		0.000E+00	0.000E+00		
	EU 003	PER 002		6.000E-03	2.800E-01		
	EU 003	PER 003		7.000E-03	2.900E-02		
	EU 004	PER 002		0.000E+00	0.000E+00		
	EU 005	PER 002		1.900E-02	8.400E-02		
	EU 005	PER 003		2.000E-02	8.600E-02		
	EU 014	PER 001		9.000E-03	4.100E-02		
	EU 014	PER 003		0.000E+00	0.000E+00		
Totals					1.440E-01	0.000E+00	0.000E+00
<b>Volatile Organic Compounds</b>							
	EU 001	PER 002		1.060E+02	4.630E+02	4.700E-02	
	EU 001	PER 003		1.060E+02	4.630E+02	9.600E-02	
	EU 002	PER 002		0.000E+00	0.000E+00	0.000E+00	
	EU 003	PER 002		1.760E+02	7.700E+02	4.700E-02	
	EU 003	PER 003		1.760E+02	7.700E+02	9.600E-02	
	EU 004	PER 002		0.000E+00	0.000E+00	0.000E+00	
	EU 005	PER 002		9.900E+01	4.340E+02	1.400E-01	

## FACILITY DESCRIPTION: Potential-to-emit (by pollutant)

Show: Active and Pending Records

AQD Facility ID: 12300057

Facility Name: Rayven Inc

Pollutant	Item	Added By (Action)	Retired By (Action)	Hourly Potential (lbs per hr)	Unrestricted Potential (tons per yr)	Limited Potential (tons per yr)	Actual Emissions (tons per yr)
<b>Volatile Organic Compounds</b>							
	EU 005	PER 003		9.900E+01	4.340E+02	2.870E-01	
	EU 014	PER 001		1.500E-02	6.800E-02	6.800E-02	
	EU 014	PER 003		0.000E+00	0.000E+00	0.000E+00	
	EU 015	PER 002		1.580E+00	6.900E+00	0.000E+00	
	EU 015	PER 003		0.000E+00	0.000E+00	0.000E+00	
	FC 000	PER 001		1.780E+00	7.770E+00		
	GP 001	PER 001				2.000E+02	
Totals					1.675E+03	2.005E+02	0.000E+00



# COMPLIANCE PLAN **CD-01**

Facility Name: Rayven Inc  
Permit Number: 12300057 - 003

**Subject Item: Total Facility**

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	SOURCE-SPECIFIC REQUIREMENTS
2.0		CD	Minn. R. 7007.0800, subp. 2	Permit Appendices: This permit contains appendices as listed in the permit Table of Contents. The Permittee shall comply with all requirements contained in the appendices.
3.0		CD	hdr	OPERATIONAL REQUIREMENTS
4.0		CD	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subp. 7(A), 7(L), & 7(M); Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080	The Permittee shall comply with National Primary and Secondary Ambient Air Quality Standards, 40 CFR pt. 50, and the Minnesota Ambient Air Quality Standards, Minn. R. 7009.0010 to 7009.0080. Compliance shall be demonstrated upon written request by the MPCA.
5.0		CD	Minn. R. 7011.0020	Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted.
6.0		CD	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)	Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated.
7.0		CD	Minn. R. 7007.0800, subps. 14 and 16(J)	Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. At a minimum, the O & M plan shall identify all air pollution control equipment and control practices and shall include a preventative maintenance program for the equipment and practices, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment and practices to proper operation to meet applicable permit conditions, a description of the employee training program for proper operation and maintenance of the control equipment and practices, and the records kept to demonstrate plan implementation.
8.0		CD	Minn. R. 7019.1000, subp. 4	Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.
9.0		CD	Minn. R. 7011.0150	Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.
10.0		CD	Minn. R. 7030.0010 - 7030.0080	Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.
11.0		CD	Minn. R. 7007.0800, subp. 9(A)	Inspections: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A).
12.0		CD	Minn. R. 7007.0800, subp. 16	The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.
13.0		CD	hdr	PERFORMANCE TESTING
14.0		CD	Minn. R. ch. 7017	Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A, B, and/or C.
15.0		CD	Minn. R. 7017.2018; Minn. R. 7017.2030, subps. 1-4, Minn. R. 7017.2035, subps. 1-2	<p>Performance Test Notifications and Submittals:</p> <p>Performance Tests are due as outlined in Table A of the permit. See Table B for additional testing requirements.</p> <p>Performance Test Notification (written): due 30 days before each Performance Test  Performance Test Plan: due 30 days before each Performance Test  Performance Test Pre-test Meeting: due 7 days before each Performance Test  Performance Test Report: due 45 days after each Performance Test  Performance Test Report - Microfiche Copy: due 105 days after each Performance Test</p> <p>The Notification, Test Plan, and Test Report may be submitted in an alternative format as allowed by Minn. R. 7017.2018.</p>



## COMPLIANCE PLAN **CD-01**

Facility Name: Rayven Inc  
Permit Number: 12300057 - 003

16.0		CD	Minn. R. 7017.2025, subp. 3	Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as stated in the MPCA's Notice of Compliance letter granting preliminary approval. Preliminary approval is based on formal review of a subsequent performance test on the same unit as specified by Minn. R. 7017.2025, subp. 3. The limit is final upon issuance of a permit amendment incorporating the change.
17.0		CD	hdr	MONITORING REQUIREMENTS
18.0		CD	Minn. R. 7007.0800, subp. 4(D)	Monitoring Equipment Calibration: The Permittee shall calibrate all required monitoring equipment at least once every 12 months (any requirements applying to continuous emission monitors are listed separately in this permit).
19.0		CD	Minn. R. 7007.0800, subp. 4(D)	Operation of Monitoring Equipment: Unless otherwise noted in Tables A, B, and/or C, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system.
20.0		CD	hdr	RECORDKEEPING
21.0		CD	Minn. R. 7007.0800, subp. 5(C)	Recordkeeping: Retain all records at the stationary source, unless otherwise specified within this permit, for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).
22.0		CD	Minn. R. 7007.0800, subp. 5(B)	Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350, subp. 2), including records of the emissions resulting from those changes.
23.0		CD	Minn. R. 7007.1200, subp. 4	If the Permittee determines that no permit amendment or notification is required prior to making a change, the Permittee must retain records of all calculations required under Minn. R. 7007.1200. For expiring permits, these records shall be kept for a period of five years from the date the change was made or until permit reissuance, whichever is longer. The records shall be kept at the stationary source for the current calendar year of operation and may be kept at the stationary source or office of the stationary source for all other years. The records may be maintained in either electronic or paper format.
24.0		CD	hdr	REPORTING/SUBMITTALS
25.0		CD	Minn. R. 7019.1000, subp. 3	Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3.  At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.
26.0		CD	Minn. R. 7019.1000, subp. 2	Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2.  At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.
27.0		CD	Minn. R. 7019.1000, subp. 1	Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment.





## COMPLIANCE PLAN **CD-01**

Facility Name: Rayven Inc  
Permit Number: 12300057 - 003

28.0		CD	Minn. R. 7019.1000, subp. 1	Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description: 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.
29.0		S/A	Minn. R. 7007.0800, subp. 6(A)(2)	Semiannual Deviations Report: due 30 days after end of each calendar half-year following Permit Issuance. The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31. If no deviations have occurred, the Permittee shall submit the report stating no deviations.
30.0		CD	Minn. R. 7007.1150 - 7007.1500	Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.
31.0		S/A	Minn. R. 7007.0400, subp. 2	Application for Permit Reissuance: due 180 days before expiration of Existing Permit
32.0		CD	Minn. R. 7007.1400, subp. 1(H)	Extension Requests: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H). Performance testing deadlines from the General Provisions of 40 CFR pt. 60 and pt. 63 are examples of deadlines for which the MPCA does not have authority to grant extensions and therefore do not meet the requirements of Minn. R. 7007.1400, subp. 1(H).
33.0		S/A	Minn. R. 7007.0800, subp. 6(C)	Compliance Certification: due 31 days after end of each calendar year following Permit Issuance (for the previous calendar year). The Permittee shall submit this on a form approved by the Commissioner, both to the Commissioner and to the US EPA regional office in Chicago. This report covers all deviations experienced during the calendar year.
34.0		CD	Minn. R. 7019.3000 - 7019.3100	Emission Inventory Report: due on or before April 1 of each calendar year following permit issuance, to be submitted on a form approved by the Commissioner.
35.0		CD	Minn. R. 7002.0005 - 7002.0095	Emission Fees: due 30 days after receipt of an MPCA bill.



## COMPLIANCE PLAN **CD-01**

Facility Name: Rayven Inc  
Permit Number: 12300057 - 003

**Subject Item:** GP 001 Total Facility VOC Limits

**Associated Items:** EU 001 Coating Line 1 (Blue Line)  
EU 003 Coating Line 3 (Silicone Line)  
EU 005 Coating Line 5 (Black Line)

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	EMISSION AND OPERATIONAL LIMITS
2.0		LIMIT	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 & Minn. R. 7007.3000	<p>Volatile Organic Compounds: less than or equal to 200 tons/year using 12-month Rolling Sum to be calculated by the 15th day of each month for the previous 12-month period as described in GP 001. VOC contents for each VOC-containing material shall be determined as described under the Material Content requirement in GP 001.</p> <p>All non-combustion VOC-emitting equipment at the Facility is subject to this limit except for insignificant activities.</p> <p>The calculation of VOCs used may take into account recovered/recycled VOCs as described under the Waste Credit requirement in GP 001.</p>
3.0		LIMIT	Title I Condition: To avoid classification as major source under 40 CFR Section 63.2 and 63.820(a)(2)	<p>HAPs - Total: less than or equal to 24.0 tons/year using 12-month Rolling Sum to be calculated by the 15th day of each month for the previous 12-month period as described in GP 001. HAP contents for each HAP-containing material (i.e. coatings, cleaners, etc.) shall be determined as described under the Material Content requirement in GP 001.</p> <p>All non-combustion HAP-emitting equipment at the Facility is subject to this limit except for insignificant activities.</p>
4.0		LIMIT	Title I Condition: To avoid classification as major source under 40 CFR Section 63.2 and 63.820(a)(2)	<p>HAP-Single: less than or equal to 9.0 tons/year using 12-month Rolling Sum to be calculated by the 15th day of each month for the previous 12-month period as described in GP 001. HAP contents for each HAP-containing material (i.e. coatings, cleaners, etc.) shall be determined as described under the Material Content requirement in GP 001.</p> <p>All non-combustion HAP-emitting equipment at the Facility is subject to this limit except for insignificant activities.</p>
5.0		CD	Title I Condition: To avoid classification as major source and modification under 40 CFR Section 52.21 and Minn. R. 7007.3000; to avoid classification as major source under 40 CFR Section 63.2 and 63.820(a)(2)	<p>VOC and HAP PreCaps:</p> <p>If the Permittee replaces any existing non-combustion VOC and/or HAP-emitting equipment, adds new non-combustion VOC and/or HAP emitting equipment, or modifies the existing equipment listed in GP 001, such equipment is subject to the above VOC and HAP permit limits as well as all of the requirements of GP 001. Prior to making such a change, the Permittee shall apply for and obtain the appropriate permit amendment, as applicable. The Permittee is not required to repeat VOC calculations described in Minn. R. 7007.1200, subp. 2.</p> <p>A permit amendment will still be needed regardless of the emissions increase if the change will be subject to a new applicable requirement or requires revisions to the limits or monitoring and recordkeeping in this permit.</p>
6.0		CD	hdr	MONITORING AND RECORDKEEPING
7.0		CD	Minn. R. 7007.0800, subps. 4 and 5	<p>Monthly Recordkeeping -- VOC Emissions.</p> <p>By the 15th of the month, the Permittee shall calculate and record the following:</p> <ol style="list-style-type: none"> <li>1) The total usage of VOC-containing cleanup materials for the previous calendar month using the methods and formulas specified in GP 001. This record shall also include the VOC content of each material as determined by the Material Content requirement of this permit.</li> <li>2) The total usage of VOC-containing coating materials for the previous calendar month using the daily and monthly usage records required at each Coating Line. This record shall also include the VOC content of each material as determined by the Material Content requirement of this permit.</li> <li>3) The VOC emissions for the previous month by using the formulas specified in GP 001.</li> <li>4) The 12-month rolling sum VOC emissions for the previous 12-month period by summing the monthly VOC emissions data for the previous 12 months.</li> </ol>



## COMPLIANCE PLAN **CD-01**

Facility Name: Rayven Inc  
Permit Number: 12300057 - 003

8.0		CD	Minn. R. 7007.0800, subps. 4 and 5	<p>Monthly Recordkeeping -- VOC in Cleanup Materials. By the 15th of the month, the Permittee shall calculate and record the following:</p> <ol style="list-style-type: none"> <li>1) The total quantity, in tons, of cleanup materials used at the Facility for the previous month using purchase records.</li> <li>2) The total VOC used in cleanup materials, in tons/month, for the previous month using the following method:</li> </ol> <p>Cleanup VOCs = (A1 x B1) + (A2 x B2) + ( A3 x B3) + .....</p> <p>where: A# = amount of each cleanup material used in the previous month, in tons/month; and B# = weight percent of VOC in A#, as a fraction.</p>
9.0		CD	Minn. R. 7007.0800, subps. 4 and 5	<p>Monthly Calculation -- VOC Emissions. The Permittee shall calculate VOC emissions using the following equations:</p> <p>VOC (tons/month) = V - W  V = Cleanup VOCs + (A1 x B1) + (A2 x B2) + (A3 x B1) + .....  W = (C1 x D1) + (C2 x D2) + (C3 x D3) + .....</p> <p>where:  V = total VOC used in tons/month;  A# = amount, in tons/month, of each VOC-containing coating applied at each Coating Line in the previous month;  B# = weight percent of VOC in A#, as a fraction (e.g., 50% is 0.50);  Cleanup VOCs = total amount of VOC used in cleanup materials at the Facility, in tons/month, calculated as specified earlier in this permit;  W = the amount of VOC shipped in waste, in tons/month;  C# = amount, in tons/month, of each VOC-containing waste material shipped. If the Permittee chooses to not take credit for waste shipments, this parameter would be zero; and  D# = weight percent of VOC in C#, as a fraction.</p>
10.0		CD	Minn. R. 7007.0800, subps. 4 and 5	<p>Monthly Recordkeeping - HAP Emissions. By the 15th of the month, the Permittee shall calculate and record the following using the formulas specified in this permit:</p> <ol style="list-style-type: none"> <li>1) The total HAP-containing cleanup and coating materials used in the previous calendar month using the daily and monthly usage records required at each Coating Line and for GP 001 (monthly cleanup records). This record shall also include the individual and total HAP contents of each HAP-containing cleanup and coating material used in the previous month, as determined by the Material Content requirement of this permit;</li> <li>2) The total and individual HAP emissions for the previous month using the formulas specified in GP 001; and</li> <li>3) The 12-month rolling sum total and individual HAP usage for the previous 12-month period by summing the monthly emissions data for the previous 12 months.</li> </ol>
11.0		CD	40 CFR Section 63.829(d); Minn. R. 7007.0800, subps. 4 and 5	<p>Monthly Calculation -- HAP Emissions. The Permittee shall calculate each individual HAP and total HAP emissions using the following equation:</p> <p>HAP (tons/month) = (A1 x B1) + (A2 x B2) + ( A3 x B3) + .....</p> <p>Where:  HAP = the amount of each pollutant (either total HAP or each individual HAP), used, in tons/month;  A# = Amount of each HAP-containing material used in the previous month, in tons/month; and  B# = weight percent of each individual or total HAP in A#, as a fraction (e.g., 50% is 0.50).</p>
12.0		CD	40 CFR Section 63.829(d); Minn. R. 7007.0800, subps. 4 and 5	<p>Material Content: VOC and HAP contents in coating and cleanup materials shall be determined by the Material Safety Data Sheet (MSDS) provided by the supplier for each material used. If a material content range is given on the MSDS, the highest number in the range shall be used in all compliance calculations. Other alternative methods approved by the MPCA may be used to determine the VOC and HAP contents. The Commissioner reserves the right to require the Permittee to determine the VOC and HAP contents of any material, according to EPA or ASTM reference methods. If an EPA or ASTM reference method is used for material content determination, the data obtained shall supersede the MSDS.</p>



## COMPLIANCE PLAN **CD-01**

Facility Name: Rayven Inc  
Permit Number: 12300057 - 003

13.0		CD	Minn. R. 7007.0800, subps. 4 and 5	<p>Waste Credit: If the Permittee elects to obtain credit for VOC shipped in waste materials, the Permittee shall either use item 1 or 2 to determine the VOC content for each credited shipment.</p> <p>1) The Permittee shall analyze a composite sample of each waste shipment to determine the weight content of VOC, excluding water.</p> <p>2) The Permittee may use supplier data for raw materials to determine the VOC content of each waste shipment, using the same content data used to determine the content of raw materials. If the waste contains several materials, the content of mixed waste shall be assumed to be the lowest VOC content of any of the materials.</p>
14.0		CD	Minn. R. 7005.0100, subp. 35a	<p>Maximum Contents of Materials: The Permittee assumed certain worst-case contents of materials when determining the short term potential to emit of units in GP 001. These assumptions are listed in Appendix II of this permit. Changing to a material that has a higher content of any of the given pollutants is considered a change in method of operation that must be evaluated under Minn. R. 7007.1200, subp. 3 to determine if a permit amendment or notification is required under Minn. R. 7007.1150.</p>



## COMPLIANCE PLAN **CD-01**

Facility Name: Rayven Inc  
Permit Number: 12300057 - 003

**Subject Item:** GP 002 Coating Line Combustion Requirements

**Associated Items:** EU 001 Coating Line 1 (Blue Line)  
EU 003 Coating Line 3 (Silicone Line)  
EU 005 Coating Line 5 (Black Line)

	NC/ CA	Type	Citation	Requirement
1.0		LIMIT	Minn. R. 7011.0610, subp. 1(A)(1)	Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.
2.0		LIMIT	Minn. R. 7011.0610, subp. 1(A)(2)	Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.
3.0		CD	Minn. R. 7005.0100, subp. 35a	Fuel Type: natural gas or propane, by design.
4.0		CD	Minn. R. 7007.0800, subp. 5	The Permittee shall keep records of fuel purchases.



# COMPLIANCE PLAN **CD-01**

Facility Name: Rayven Inc  
Permit Number: 12300057 - 003

**Subject Item:** EU 001 Coating Line 1 (Blue Line)

**Associated Items:** GP 001 Total Facility VOC Limits  
GP 002 Coating Line Combustion Requirements  
SV 001 Coater 1 Dryer (Blue Line)  
SV 008 Coater 1 Corona Treater

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	EMISSION AND OPERATIONAL LIMITS
2.0		CD	Limit to Avoid Applicability of 40 CFR Section 60.440(b); Minn. R. 7011.2560	This Coating Line is an affected facility (per 40 CFR Section 60.440) which has taken limits to avoid the emissions limits in 40 CFR Section 60.442(a). If the VOC input exceeds the 49 ton per year limit in any 12-month period, the coating line is then subject to additional requirements in 40 CFR pt. 60, subp. RR, and the Permittee must obtain the appropriate permit amendment to add these requirements to the permit.
3.0		LIMIT	Limit to Avoid Applicability of 40 CFR Section 60.440(b); Minn. R. 7011.2560	Volatile Organic Compounds: less than or equal to 49.0 tons/year using 12-month Rolling Sum to be calculated by the 15th day of each month for the previous 12-month period as described later at EU 001. This limit is on all solvent applied in the coating. This means all organic solvent contained in the adhesive, release, and precoat formulations that are metered into the coating applicator from the formulation area.
4.0		CD	hdr	MONITORING AND RECORDKEEPING
5.0		CD	Title I Condition: To avoid classification as major source under 40 CFR Section 52.21 and Minn. R. 7007.3000; To avoid classification as major source under 40 CFR Section 63.2 and 63.820(a)(2); Minn. R. 7007.0800, subps. 4 and 5	Daily Recordkeeping. On each day of operation, the Permittee shall record and maintain the quantity of each coating applied at Coating Line 1. This shall be based on usage logs or production records, which include batch quantities and formulation specifications.
6.0		CD	40 CFR Section 60.445(d); Minn. R. 7011.2560; Minn. R. 7007.0800, subps. 4 and 5	Monthly Recordkeeping -- VOC Applied in Coatings. By the 15th of the month, the Permittee shall calculate and record the following: 1) The total tons of each coating used in the previous month using the daily records and formulation specifications required by this permit; 2) The VOC applied in coatings for the previous month using the formulas specified at EU 001; and 3) The 12-month rolling sum VOC applied in coatings for the previous 12-month period by summing the monthly VOC application data for the previous 12 months.
7.0		CD	40 CFR Section 60.445(a); Minn. R. 7011.2560	Monthly Recordkeeping: The Permittee shall maintain a calendar month record of all coatings used at Coating Line 1 and the results of the reference test methods specified in 40 CFR Section 60.446(a) or the manufacturer's formulation data used for determining the VOC content of those coatings.
8.0		CD	40 CFR Sections 60.445(a) and 60.446(a); Minn. R. 7011.2560; Minn. R. 7007.0800, subps. 4 and 5	Monthly Calculations -- VOC Applied in Coatings. The Permittee shall calculate the VOC applied in coatings, in tons/month, by the 15th of the month for the previous month using the following method:  $\text{VOC} = (W1 \times M1) + (W2 \times M2) + (W3 \times M3) + \dots$ <p>where: M# = the total mass, in tons, of each coating (#) applied during the calendar month; and W# = the weight fraction of volatile organics in coating M#.</p> <p>The value of W# shall be obtained from either a U.S. EPA Reference Method 24 test or manufacturer's formulation data.</p>



# COMPLIANCE PLAN **CD-01**

Facility Name: Rayven Inc  
Permit Number: 12300057 - 003

**Subject Item:** EU 003 Coating Line 3 (Silicone Line)

**Associated Items:** GP 001 Total Facility VOC Limits  
GP 002 Coating Line Combustion Requirements  
SV 004 Coater 3 Dryer (Silicone Line)  
SV 010 Coater 3 Corona Treater #1  
SV 011 Coater 3 Corona Treater #2

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	EMISSION AND OPERATIONAL LIMITS
2.0		CD	Limit to Avoid Applicability of 40 CFR Section 60.440(b); Minn. R. 7011.2560	This Coating Line is an affected facility (per 40 CFR Section 60.440) which has taken limits to avoid the emissions limits in 40 CFR Section 60.442(a). If the VOC input exceeds the 49 ton per year limit in any 12-month period, the coating line is then subject to additional requirements in 40 CFR pt. 60, subp. RR, and the Permittee must obtain the appropriate permit amendment to add these requirements to the permit.
3.0		LIMIT	Limit to Avoid Applicability of 40 CFR Section 60.440(b); Minn. R. 7011.2560	Volatile Organic Compounds: less than or equal to 49.0 tons/year using 12-month Rolling Sum to be calculated by the 15th day of each month for the previous 12-month period as described at EU 003. This limit is on all solvent applied in the coating. This means all organic solvent contained in the adhesive, release, and precoat formulations that are metered into the coating applicator from the formulation area.
4.0		CD	hdr	MONITORING AND RECORDKEEPING
5.0		CD	Title I Condition: To avoid classification as major source under 40 CFR Section 52.21 and Minn. R. 7007.3000; To avoid classification as major source under 40 CFR Section 63.2 and 63.820(a)(2); Minn. R. 7007.0800, subps. 4 and 5	Daily Recordkeeping. On each day of operation, the Permittee shall record and maintain the quantity of each coating applied at Coating Line 3. This shall be based on usage logs or production records, which include batch quantities and formulation specifications.
6.0		CD	40 CFR Section 60.445(d); Minn. R. 7011.2560; Minn. R. 7007.0800, subps. 4 and 5	Monthly Recordkeeping -- VOC Applied in Coatings. By the 15th of the month, the Permittee shall calculate and record the following: 1) The total tons of each coating used in the previous month using the daily records and formulation specifications required by this permit; 2) The VOC applied in coatings for the previous month using the formulas specified at EU 003; and 3) The 12-month rolling sum VOC applied in coatings for the previous 12-month period by summing the monthly VOC application data for the previous 12 months.
7.0		CD	40 CFR Section 60.445(a); Minn. R. 7011.2560	Monthly Recordkeeping: The Permittee shall maintain a calendar month record of all coatings used at Coating Line 3 and the results of the reference test methods specified in 40 CFR Section 60.446(a) or the manufacturer's formulation data used for determining the VOC content of those coatings.
8.0		CD	40 CFR Sections 60.445(a) and 60.446(a); Minn. R. 7011.2560; Minn. R. 7007.0800, subps. 4 and 5	Monthly Calculations -- VOC Applied in Coatings. The Permittee shall calculate the VOC applied in coatings, in tons/month, by the 15th of the month for the previous month using the following method:  $\text{VOC} = (W1 \times M1) + (W2 \times M2) + (W3 \times M3) + \dots$ <p>where: M# = the total mass, in tons, of each coating (#) applied during the calendar month; and W# = the weight fraction of volatile organics in coating M#.</p> <p>The value of W# shall be obtained from either a U.S. EPA Reference Method 24 test or manufacturer's formulation data.</p>





## COMPLIANCE PLAN **CD-01**

Facility Name: Rayven Inc  
Permit Number: 12300057 - 003

**Subject Item:** EU 005 Coating Line 5 (Black Line)

**Associated Items:** GP 001 Total Facility VOC Limits

GP 002 Coating Line Combustion Requirements

	NC/ CA	Type	Citation	Requirement
1.0		CD	hdr	EMISSION AND OPERATIONAL LIMITS
2.0		CD	Limit to Avoid Applicability of 40 CFR Section 60.440(b); Minn. R. 7011.2560	This Coating Line is an affected facility (per 40 CFR Section 60.440) which has taken limits to avoid the emissions limits in 40 CFR Section 60.442(a). If the VOC input exceeds the 49 ton per year limit in any 12-month period, the coating line is then subject to additional requirements in 40 CFR pt. 60, subp. RR, and the Permittee must obtain the appropriate permit amendment to add these requirements to the permit.
3.0		LIMIT	Limit to Avoid Applicability of 40 CFR Section 60.440(b); Minn. R. 7011.2560	Volatile Organic Compounds: less than or equal to 49.0 tons/year using 12-month Rolling Sum to be calculated by the 15th day of each month for the previous 12-month period as described at EU 005. This limit is on all solvent applied in the coating. This means all organic solvent contained in the adhesive, release, and precoat formulations that are metered into the coating applicator from the formulation area.
4.0		CD	hdr	MONITORING AND RECORDKEEPING
5.0		CD	Title I Condition: To avoid classification as major source under 40 CFR Section 52.21 and Minn. R. 7007.3000; To avoid classification as major source under 40 CFR Section 63.2 and 63.820(a)(2); Minn. R. 7007.0800, subps. 4 and 5	Daily Recordkeeping. On each day of operation, the Permittee shall record and maintain the quantity of each coating applied at Coating Line 5. This shall be based on usage logs or production records, which include batch quantities and formulation specifications.
6.0		CD	40 CFR Section 60.445(d); Minn. R. 7011.2560; Minn. R. 7007.0800, subps. 4 and 5	Monthly Recordkeeping -- VOC Applied in Coatings. By the 15th of the month, the Permittee shall calculate and record the following: 1) The total tons of each coating used in the previous month using the daily records and formulation specifications required by this permit; 2) The VOC applied in coatings for the previous month using the formulas specified at EU 005; and 3) The 12-month rolling sum VOC applied in coatings for the previous 12-month period by summing the monthly VOC application data for the previous 12 months.
7.0		CD	40 CFR Section 60.445(a); Minn. R. 7011.2560	Monthly Recordkeeping: The Permittee shall maintain a calendar month record of all coatings used at Coating Line 5 and the results of the reference test methods specified in 40 CFR Section 60.446(a) or the manufacturer's formulation data used for determining the VOC content of those coatings.
8.0		CD	40 CFR Sections 60.445(a) and 60.446(a); Minn. R. 7011.2560; Minn. R. 7007.0800, subps. 4 and 5	Monthly Calculations -- VOC Applied in Coatings. The Permittee shall calculate the VOC applied in coatings, in tons/month, by the 15th of the month for the previous month using the following method:  $\text{VOC} = (W1 \times M1) + (W2 \times M2) + (W3 \times M3) + \dots$ <p>where:  M# = the total mass, in tons, of each coating (#) applied during the calendar month;  and  W# = the weight fraction of volatile organics in coating M#.</p> <p>The value of W# shall be obtained from either a U.S. EPA Reference Method 24 test or manufacturer's formulation data.</p>



**Rayven Inc.**  
**Permit No. 12300057-003**

**Technical Support Document**

## **Attachment 3 - Points Calculator**

## Points Calculator

1) AQ Facility ID No.: 12300057  
 2) Facility Name: Rayven Inc  
 3) Small business? y/n? No.  
 4) DQ Numbers (including all rolled) : 3966  
 5) Date of each Application Received: 06/15/2012  
 6) Final Permit No. 12300057-003  
 7) Permit Staff Cassandra Meyer  
 8) "Work completed" in which .xls file (i.e. unit 2b, unit 1a, biofuels)?

**Total Points 0**

<u>Application Type</u>	<u>DQ No.</u>	<u>Qty.</u>	<u>Points</u>	<u>Total Points</u>	<u>Details</u>
Administrative Amendment			1	0	
Minor Amendment			4	0	
Applicability Request			10	0	
Moderate Amendment			15	0	
Major Amendment			25	0	
Individual State Permit (not reissuance)			50	0	
Individual Part 70 Permit (not reissuance)			75	0	

### Additional Points

Modeling Review			15	0
BACT Review			15	0
LAER Review			15	0
CAIR/Part 75 CEM analysis			10	0
NSPS Review			10	0
NESHAP Review			10	0
Case-by-case MACT Review			20	0
Netting			10	0
Limits to remain below threshold			10	0
Plantwide Applicability Limit (PAL)			20	0
AERA review			15	0
Variance request under 7000.7000			35	0
Confidentiality request under 7000.1300			2	0
<u>EAW review</u>				
Part 4410.4300, subparts 18, item A; and 29			15	0
Part 4410.4300, subparts 8, items A & B; 10, items A to C; 16, items A & D; 17, items A to C & E to G; and 18, items B & C			35	0
Part 4410.4300, subparts 4; 5 items A & B; 13; 15; 16, items B & C; and 17 item D			70	0
			<b>Add'l Points</b>	<b>0</b>

### NOTES:

This is a Title V reissuance. There are no application fees or additional points to be charged.